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2018-2019 Undergraduate Catalog

University of Alabama in Huntsville

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Undergraduate

The Undergraduate catalog is a comprehensive reference for your academic career. It provides a list of programs and courses offered at the University of Alabama in Huntsville. In addition, it gives you valuable information such as suggested and required degree plans and information about tuition, financial aid, and support services.

While we encourage you to follow the pathways outlined in this catalog, it is also recommended that you take every opportunity to consult with your academic advisor to ensure that you are taking advantage of courses and university resources that will help you reach your educational and career goals by graduating on time. A list of advisors by college is provided by the Registrar's Office (uah.edu/academic-advising).

For questions regarding the content of this catalog please contact the Registrar's Office at 256.824.7777 or SSB 120.

Academic Information

Charger Success Course

The purpose of the Charger Success 101 course (FYE 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, provide fundamental knowledge and skill sets essential for success at UAH, and articulate to students the expectations of the University. In addition, the course will assist students to develop and apply critical thinking skills and help students to clarify their academic goals and eventual career direction. This course must be taken in the first semester for all full-time students.

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 Education, Bachelor of Science in Nursing, Bachelor of Arts or Science in Professional Studies.**

Bachelor of Arts - Art Studio, Art History, Biology, Communication Arts, Elementary Education K-6, English, Foreign Language and International Trade, History, Mathematics, Music, Philosophy, Political Science, Psychology, Sociology, Theatre, World Languages and Cultures, and Writing.

Bachelor of Fine Arts

Bachelor of Science - Aerospace Engineering, Biological Sciences, Chemical Engineering, Chemistry, Civil Engineering, Computer Engineering, Computer Science, Earth System Science, Economics and Computational Analysis, Electrical Engineering, Individualized Studies, Industrial and Systems Engineering, Kinesiology, Mathematics, Mechanical Engineering, Optical Engineering, Physics, Secondary Education.

Bachelor of Science in Business Administration - Accounting, Finance, Information Systems, Management, and Marketing.

Bachelor of Science in Nursing - unified professional curriculum.

Bachelor of Arts or Science in Professional Studies - Professional Studies.

Declaring a Major

When applying to enter UAH, prospective students may declare a major, defined as the primary field of study. Required major semester hours vary by program but typically range from 30-45 semester hours with overall degree requirements ranging from 120-128 semester hours. Some students are not yet decided, and may declare "undecided". The Colleges of Arts, Humanities, and Social Sciences, Business, Education, Engineering, Honors, Professional and Continuing Studies, Science, and Nursing assign advisors. Undecided students will be advised by the Exploratory Advisor, Kellee Crawford, in Wilson Hall 143. For procedures in the Colleges of Arts, Humanities, and Social Sciences, Business, Education, Engineering, Honors, Professional and Continuing Studies, Science, and Nursing contact the advising office of the college or visit the advising website (<http://www.uah.edu/academic-advising>).

Minors

Typically minors are offered in all major fields of study and require a minimum of 18 semester 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.

Many degree programs that have extensive core requirements for majors do not have a minor component. Students, however, may opt to add a minor to their programs of study. Again, students should work closely with their advisors in constructing their programs of study for timely completion of their degrees.

Army ROTC Program

Army Senior Reserve Officers Training Corps (ROTC) Department

Location: 223D Charger Union (Building #17 (CGU) on UAH campus map)

Telephone: (256) 824-6561

Email: armyrotc@uah.edu (armyrotc@uah.edu)

Chair: Professor of Military Science (Alabama A&M University)

Instructor: Military Science Instructor (Army Contractor) /Assistant Professor of Military Science (Military)

Army Senior ROTC Web Page: <http://www.goarmy.com/rotc.html>

Overview

Alabama Agricultural & Mechanical University (Alabama A&M) established its Army ROTC program in 1971 and serves as the program host. The University of Alabama in Huntsville is an extension of the Alabama A&M program and its students may use the Visiting Student Agreement between the universities to participate in the ROTC program. The Military Science Instructor (MSI)/Assistant Professor of Military Science (APMS) represents Alabama A&M's Professor of Military Science on the UAH campus.

Mission

The Military Science Department produces commissioned officers in the quality, quantity, and academic disciplines necessary to meet regular Army (RA), Army National Guard (ARNG), and the US Army Reserve (USAR) requirements. Instruction in basic concepts and principles of military arts and sciences, including leadership, professional values and ethics, and an appreciation of national security issues, provide selected students with a sound basis for future professional development and effective performance to serve as commissioned officers in the active and reserve components of the U.S. Army.

Program Description

The ROTC program consists of eight semesters of instruction divided into two courses. The Basic Course, consisting of four semesters, is designed to provide freshman and sophomore students with the conceptual skills required to effectively manage their time, health and fitness, and support effective communication. Course outcomes enable students to understand U.S. Army customs, courtesies, and the Army's Professional Ethic. Participation in the Leadership Laboratory reinforces classroom training and provides an opportunity to master basic military skills such as drill and ceremonies, first aid, field craft, and land navigation. The Leadership Laboratory uses simple tactical scenarios to drive the students' military decision making process. The Advance Course, also consisting of four semesters, is designed to prepare Basic Course graduates, eligible students with prior military service, or students currently serving in the USAR or ARNG with the conceptual skills and professional military education necessary to commission as an officer in the U.S. Army. Advance Course students receive practical experience each week through mandatory participation in the Leadership Laboratory. Advance Course students must also participate in morning physical conditioning at the ROTC Building (Old Council Training Center) on the Alabama A&M University campus.

The SSI/APMS provides Basic Course classroom instruction on the UAH campus. Physical conditioning training and the Leadership Laboratory is conducted at the ROTC Building on the Alabama A&M University campus on Mondays and Wednesdays and on the UAH campus on Fridays.

All Advance Course instruction takes place in the ROTC Building on the Alabama A&M University campus.

Course Registration

Although students may register for Military Science classes using BANNER, the Professor of Military Science or his representative is required to ensure that each student's degree program is properly aligned with ROTC program requirements to ensure completion of pre-commissioning requirements prior to graduation. Therefore, interested students should contact the ROTC Department prior to registration to ensure proper placement in the ROTC program.

Eligibility Requirements

For current eligibility and commissioning requirements, contact the Military Science Instructor at UAH (256) 824-6561 or the Recruiting Operations Officer at Alabama A&M University (256) 372-4023 for details.

Year 1

Fall		Semester Hours
MIL 101	MILITARY SCIENCE I	2
MIL 101L	LABORATORY	0
Term Semester Hours:		2
Spring		
MIL 102	MILITARY SCIENCE I	2

MIL 102L	LABORATORY	0
	Term Semester Hours:	2
Year 2		
Fall		
MIL 201	MILITARY SCIENCE II	2
MIL 201L	LABORATORY	0
	Term Semester Hours:	2
Spring		
MIL 202	MILITARY SCIENCE II	2
MIL 202L	LABORATORY	0
	Term Semester Hours:	2
	Total Semester Hours:	8
Year 3		
Fall		Semester Hours
MIL 301 & 301L	MILITARY SCIENCE III and LABORATORY	3
	Term Semester Hours:	3
Spring		
MIL 302 & 302L	MILITARY SCIENCE III and LABORATORY	3
	Term Semester Hours:	3
Year 4		
Fall		
MIL 401 & 401L	MILITARY SCIENCE IV and LABORATORY	3
	Term Semester Hours:	3
Spring		
MIL 402 & 402L	MILITARY SCIENCE IV and LABORATORY	3
	Term Semester Hours:	3
	Total Semester Hours:	12

Progression (Basic + Advance Course)

Students complete 8 credit hours of military science instruction beginning with the fall semester of their freshman year. Students that meet all Army eligibility requirements will attend Basic Camp (BC) during the summer after MIL102 or 202. After BC, progression students must complete 12 additional credit hours of military science instruction and attend Advance Camp (AC) after MIL302 (**Preferred**) or after 402, **which requires Professor of Military Science approval prior to enrollment**.

Lateral Entry (Advance Course)

Students that have completed their initial entry training (IET) in any branch of the US Armed Forces and currently serving in the Army Reserve Component or honorably discharged at the expiration of their term of service¹ are required to complete 12 credit hours of military science instruction beginning with the fall semester. Students that meet all Army eligibility requirements will attend AC during the summer after MIL302 or 402. Graduate students with a minimum of 2 years remaining in their degree programs may enroll after completing BC (or, with the approval of the PMS, may attend BC after completing MIL302). They must still attend AC during the summer either prior to, or after, graduation. **Requires permission of Professor of Military Science.**

Academic Alignment Option (14 hrs of instruction + MIL 101/202 or MIL 102/201 + Advance Course)

Students enrolled in degree programs for engineering and nursing, as well as students identified by the ROTC Department as scholars, athletes, and/or leaders (SAL), complete 14 hours of critical training, followed by 4 credit hours of military science instruction and BC. After BC, students complete the remaining 12 credit hours of the Advance Course and AC prior to graduation. **Requires Professor of Military Science recommendation and authorization of ROTC Brigade Commander.**

Professional Military Education (PME) Requirements

US Army Cadet Command, which enforces requirements for pre-commissioning training, requires all commissioning candidates to successfully complete the following PME requirements prior to commissioning:

3 credit hours of US Military History (HY371 US Military History (offered during Fall semester at UAH) or HIS315 US Military History (offered during Spring semester at Alabama A&M University)).

Army Swim Test (2 Events) - 10 minute swim and 5 minute tread.

Combat Water Survival Test (3 Events) - 15-meter swim with combat equipment, uniform, boots, and rifle; Unexpected Entry; Equipment Ditch.

Completion Cadets

Students that have completed all required military science instruction (based on program requirements explained above), BC (or IET) and AC, but have not completed their degree programs, are classified as completion cadets. Completion cadets are normally eligible to commission after completion of all degree requirements. ***Requires permission of Professor of Military Science.***

Code	Title	Semester Hours
Military Science I		4
MIL 101	MILITARY SCIENCE I	2
MIL 101L	LABORATORY	0
MIL 102	MILITARY SCIENCE I	2
MIL 102L	LABORATORY	0
Military Science II		4
MIL 201	MILITARY SCIENCE II	2
MIL 201L	LABORATORY	0
MIL 202	MILITARY SCIENCE II	2
MIL 202L	LABORATORY	0
Military Science III (Alabama A&M University ROTC Building)		6
MIL 301	MILITARY SCIENCE III	3
MIL 301L	LABORATORY	0
MIL 302	MILITARY SCIENCE III	3
MIL 302L	LABORATORY	0
Military Science IV (Alabama A&M University ROTC Building)		6
MIL 401	MILITARY SCIENCE IV	3
MIL 401L	LABORATORY	0
MIL 402	MILITARY SCIENCE IV	3
MIL 402L	LABORATORY	0
Related Courses Offered by AAMU ROTC Department (Requires Visiting Student Agreement and PMS Permission)		4
MIL 498	MILITARY SCIENCE-VA/A&M	2
MIL 499	MILITARY SCI-SPEC TOPICS/A&M	2

Cooperative Education and Career Development Program

Student Services Building 205
 256.824.6741
chargerjobs@uah.edu
www.uah.edu/career-services

Career Center

Career Services

Career Services assists students in all phases of career planning and preparation including resume writing and critique, interview preparation, developing networking skills, career assessments and career coaching through one-on-one appointments as well as workshops and information sessions. Our services provide students with the knowledge and resources to make informed career choices and the personal skills to reach their objectives.

Career Services coordinates on and off campus recruiting opportunities and hosts two comprehensive career fairs each fall and spring semester for students in all majors. Career Fair allows our students the opportunity to speak with multiple employers in one location about cooperative education (co-op), internships and degreed positions. Attendees are required to dress professionally and bring copies of their resumes for distribution.

Cooperative Education and Internships

Cooperative Education and Internships provide 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 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. Cooperative Education 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 Cooperative Education through the Career Center.

Internships are one semester degree-related employment opportunities where students work one-on-one with professionals to gain practical experience in their field. Several academic programs on campus offer credit for internships; students should check with their academic advisor to learn about any credit bearing internship opportunities within their program of study.

Charger Path

Charger Path is UAH's exclusive comprehensive career management system and all newly enrolled students receive an account during their first week of classes. In this system, students update their profiles, upload their resumes and apply for positions including co-ops, internships, and professional degreed opportunities. Through Charger Path, students receive career announcements, view upcoming workshops and information sessions, have access to on-campus recruiting schedules and make appointments with the Career Center.

Intensive Language and Culture

SST 146
256.824.2370
ilc@uah.edu
<http://www.uah.edu/ilcp>

Mission

The Intensive Language and Culture Program (ILC) is an academically-oriented language and culture program that prepares students for engagement in the classroom, on the campus, and across the community. In the ILC, nonnative speakers of English can develop language skills for study in an English-medium university such as UAH. With a rigorous curriculum and strict attendance requirements, the program supports students as they progress in their acquisition of academic/professional English.

Overview

The ILC includes 18-20 hours of classroom instruction per week. Students develop their skills in both oral and written academic English. Instruction adheres to principles of communicative language teaching.

Students are instructed in the four component skills of listening, speaking, reading, and writing. Additional work in pragmatics, grammar and pronunciation supports progress in both accuracy and fluency, with special attention paid to interaction in a U.S. university context.

The Intensive Language and Culture Program (ILC) serves the needs of non-native speakers of English at UAH. Students in Levels 010-040 (High Beginning - High Intermediate) prepare for study at English-medium universities, such as UAH. Students in Level 050 (Advanced) polish their language skills and transition into undergraduate, graduate, or non-degree programs at UAH.

Additional Information

ILC Program information is also available on the program website (<http://www.uah.edu/ilcp>). If you are interested in applying to the ILC or receiving additional information, please email the director of the ILC at ilc@uah.edu.

Requirements

Students applying to the ILC at UAH should submit the following documents.

1. Official transcripts from secondary and/or postsecondary institutions attended, translated into English and certified.
2. TOEFL or IELTS scores (if not available, contact the director regarding options for demonstrating language proficiency, at ilc@uah.edu)
3. Financial support documentation (F-1 students only)

To apply online, visit the UAH Admissions Login (https://sierra.uah.edu:9021/PROD/bwskalog.P_DisplLoginNon), choose **APPLY FOR ADMISSION**. **On that page**, choose **First Time User Account Creation**. **Next**, create a **Login ID and PIN**. **Then**, log in to the system and select **Intensive English Program Application**.

For a downloadable copy of the application form, select the UAH ILC Application (<http://www.uah.edu/images/administrative/ilc/IEP%20application.pdf>).

For a downloadable copy of the financial support affidavit, select the UAH Affidavit of Financial Support (<http://www.uah.edu/images/administrative/ilc/FinancialSupport.pdf>).

If you have questions or need additional information, contact the director via email at ilc@uah.edu.

ILC 010 - INT LANG & CULT I
Semester Hours: 4-20

Course designed to improve nonnative speaker's ability in their overall language proficiency at the high beginning level.

ILC 020 - INT LANG & CULT II
Semester Hours: 4-20

Course designed to improve nonnative speaker's ability in their overall language proficiency at the low intermediate level.

ILC 030 - INT LANG & CULT III
Semester Hours: 4-20

Course designed to improve nonnative speaker's ability in their overall language proficiency at the intermediate level.

ILC 040 - INT LANG & CULT IV
Semester Hours: 4-20

Course designed to improve nonnative speaker's ability in their overall language proficiency at the high intermediate level.

ILC 050 - INT LANG & CULT V
Semester Hours: 4-20

Course designed to improve nonnative speaker's ability in their overall language proficiency at the advanced level.

ILC 060 - ENGLISH FOR ACADMIC PURP PRGM
Semester Hours: 1-3

This course aims to help students achieve a greater level of success academically and professionally. Three types of evaluative and consultation tracks are offered: accent modification, oral communication and literacy. A speech pathology model is used toward the accent modification and oral communication tracks, and a consultation approach utilizing a modified multi-sensory method focusing on comprehensive literacy is used toward the literacy track. By the end of the course, students typically exhibit a strong improvement in self-confidence and ability to proceed with their studies and professional dealings.

ILC 090 - ILC: SPECIAL TOPICS
Semester Hours: 1-3

JUMP

UAH's Joint Undergraduate Master's Program (JUMP) allows undergraduate students to study at the graduate level. By taking graduate courses in your senior year, you could reduce the time taken to get a graduate (M.S. or M.A.) degree.

Benefits for you:

1. No entrance exam!
2. Double count undergrad classes for grad degree!
3. Pay undergrad tuition for grad classes taken as a JUMP student!
4. No application fee!

How to JUMP!

- Apply any time before your last semester.
- Meet with your college JUMP advisor and submit application.

Official Rules for JUMP!

- For admission to JUMP, student must meet overall GPA requirements¹ of the college. GPA includes all transfer coursework.
- Only courses taken at UAH and listed on JUMP application are eligible.
- Student must receive a B minimum in each JUMP course for it to count towards graduate degree.
- Student must maintain minimum overall GPA throughout JUMP program until graduation.
- All coursework must be completed within six years of taking first JUMP class.
- Students are considered undergraduate students until all requirements for undergraduate degree are met.
- Students cannot hold a GTA, GRA, or graduate scholarship or fellowship until undergraduate degree is completed.
- If a change is made to initial JUMP application both a JUMP change form and a change to student's undergraduate Program of Study (POS) must be submitted for approval.
- If student's GPA upon graduation is less than the required minimum, the student does not receive admission to the graduate degree program automatically. Student must apply to the graduate school with admission test score and graduate application. Courses will be counted as if the student had been a non-degree seeking graduate student.
- Students must begin their graduate program within one year of their undergraduate graduation.
- Students must n (deangrad@uah.edu?subject=JUMP! Notification)otify the Graduate School (deangrad@uah.edu?subject=JUMP! Notification) when submitting an application for undergraduate graduation.

More information available at <http://uah.edu/jump>

¹

Minimum GPA requirements by college or program

Online Learning

The University of Alabama in Huntsville offers a number of academically challenging online and hybrid-online programs. Please review a listing of available programs here: <http://www.uah.edu/online-learning>

State Authorization:

The state of Alabama is a member of the SARA compact. The State Authorization Reciprocity Agreement is an agreement among member states, districts and territories that establishes comparable national standards for interstate offering of postsecondary online education courses and programs. It is intended to make it easier for students to take online courses offered by postsecondary institutions based in another state. For more information, including a current list of states in the SARA compact, please visit <http://www.nc-sara.org/>. The University of Alabama in Huntsville is an approved SARA institution.

For further information regarding SARA requirements on the UAH campus please see <http://www.uah.edu/academic-affairs/offices/oira/state-authorizations>

Topics include: Timeline for approval, International Residents, Territories and Provinces, Military Bases, Additional Resources, Professional Licensure, & Grievance Procedures

Pre-Professional Program

The Office of Pre-Professional Advising at the University of Alabama in Huntsville (UAH) facilitates students in all colleges and all majors. The office assists undergraduate, graduate, alumni, and post-baccalaureate students with their individual process of pursuing a career in health or law related professions by providing support, guidance, and resources.

The office values developing meaningful relationships, a sense of community, personal growth, a sense of support and challenge, and overall wellness with each student.

If an individual has begun considering a health or law career or is in the process of submitting their application to a health or law program, the office assists students with planning, procedures, and providing information. The office assists students in building competitive applications, which involves reviewing personal statements, developing pre-professional resumes, conducting mock interviews, finding and building shadowing and volunteering opportunities and experiences, discovering and applying for internships and summer programs, conducting research, writing letters of recommendation (must meet requirements), and more.

To receive services and maintain status at UAH as a pre-professional student, all interested students must apply through the Pre-Professional website: uah.edu/ppa

Pre-Professional Areas

Careers supported by the Office of Pre-Professional Advising include:

- Law
- Allopathic Medicine
- Osteopathic Medicine
- Nursing Advanced Practice
- Dentistry
- Optometry
- Veterinary Medicine
- Pharmacy
- Physical Therapy
- Occupational Therapy
- Physician Assistant
- Public Health
- Graduate studies in health related areas, including, but not limited to: epidemiology, genetic counseling, health behavior sciences, rehabilitation sciences, audiology, health care organization, and more.

The Office of Pre-Professional Advising offers academic preparatory options, which are flexible and provide a broad background to satisfy a wide variety of career objectives, including the diverse fields in the health professions.

Professional schools review student coursework, recommendation letters (e.g. employers, faculty, PPA committee letter), health related experiences (e.g. volunteering, shadowing, internships), quality interview skills and admissions test scores (e.g. Medical College Admission Test (MCAT), Dental Admission Test (DAT), Law School Admission Test (LSAT), etc.). The Pre-Professional Advisor ensures students gather each element needed for professional schools, apply at the appropriate time of year, understand components needed for their appropriate entrance exam, and feel confident in the application process.

Many students entering professional schools (e.g. medical, law, dental, optometry) do so after earning an undergraduate and/or graduate degree. No particular academic major or minor is preferred to enter a health field (with the exception that a career in nursing will require a nursing degree). It is important to consult with the desired professional school to determine specific admission requirements. Competition for admission to professional schools is intense and minimum admission requirements do not ensure acceptance.

Courses to Consider

Typical courses for admission to many health professional programs include those listed in the following set of courses. Law schools do not have a set of required courses.

It is recommended that students discuss courses with their Pre-Professional Advisor. Specific requirements of health professional programs may be found on the Pre-Professional Advising website (<http://www.uah.edu/ppa>).

Code	Title	Semester Hours
English Composition and Literature		
	Select 6 semester hours	6
	General Biology (w/ lab) ¹	
	Select 8 semester hours	8
	General Chemistry (w/ lab)	
	Select 8 semester hours	8
	General Physics (w/ lab) ²	
	Select 8 semester hours	8
	Organic Chemistry (w/ lab) ²	
	Select 8 semester hours	8
	Mathematics and Statistics ³	
	Select 6 semester hours	6
General Social and Behavioral Sciences		
	Select 6 semester hours	6
Total Semester Hours		50

- 1 Additionally recommended: genetics, biochemistry, anatomy and physiology
- 2 Not required for every pre-professional area of interest. Discuss with Pre-Professional Advisor.
- 3 Calculus preferred for Mathematics

Students are advised to choose programs of study according to individual interests and abilities.

Each professional school of interest may differ in requirements, both in and out of class, and meeting with the Pre-Professional Advisor in the Office of Pre-Professional Advising is important in accomplishing professional goals. Meeting regularly with the Pre-Professional Advisor may fulfill students' maximum potential for admission.

Pre-Professional Advising
2nd Floor, Student Services Building
www.uah.edu/ppa
256.824.4714

Pre-Law Program Certificate

The Certificate in Pre-Law Program is designed to provide undergraduate students with skills that are required for law school and the practice of law: analytical reasoning, reading, and writing. It is also intended to provide a background on various perspectives on law from a variety of disciplines not often associated with legal studies, such as sociology, psychology, and history.

A student who chooses to pursue a Certificate in Pre-Law may choose *any major or minor in any college* at UAH. A choice of major and minor is best made in consultation with the Pre-Law Adviser, who can guide a student in choosing courses that will prepare him or her for the academic rigors of a legal education. For many students, the Certificate can be earned without adding additional hours to a degree program. Select courses can be counted toward Charger Foundations.

Code	Title	Semester Hours
Core Courses		9
PHL 102	INTRO TO ETHICS	3
PHL 103	INTRODUCTION TO LOGIC	3
PSC 330	CLASSI POLITI PHILOSOPHY	3
or PSC 332	MODERN POLITICAL PHILOSO	
Elective Courses ¹		6
CM 418	LEGAL ARGUMENT	
EH 320	PRACTICUM IN WRITING	
PHL 320	SYMBOLIC LOGIC	
Any 100 level WLC course		
PSC 452	AMER CONSTITUTIONAL LAW	
PSC 454	CIVIL LIBERTIES	
PY 434	PSYCHOLOGY AND LAW	
SOC 303	STATISTICS/SOCIAL SCIENCES	
SOC 307	SOCIOLOGY OF LAW	
Total Semester Hours		15

¹ With appropriate justification, the pre-law adviser may allow other elective courses.

If you are interested in the Certificate in Pre-Law Program, please contact Dr. John Harfouch at john.nale@uah.edu or (256) 824-2337.

Study Abroad

The Office of Study Abroad within the Office of International Services serves as the coordinating office for study-abroad opportunities at UAH.

Faculty-Led Courses: Each year, UAH offers a number of faculty-led study abroad courses typically ranging from two to four weeks in length and conferring three to six academic credit hours in the course(s) offered.

Summer, Semester, and Academic-Year Programs: UAH works with international partners and education abroad organizations to offer students summer, semester, or academic-year study abroad programs at sites in Africa, Asia, Australia, and Europe. You can participate in these programs and earn academic credit toward your degree at UAH.

The Office of Study Abroad is located in the Student Services Building, Room 218M. Students can obtain additional information by visiting our website (www.uah.edu/ois), by emailing studyabroad@uah.edu, or by calling 256-824-6055.

Admissions

Welcome to the Office of Admissions at UAH

The Admissions Staff is here to assist you as you explore your college options. With more than 90 areas of study in our 9 colleges, 170+ student organizations, suite-style living in the residence halls, and the only NCAA Division I ice hockey team in the South, we believe you will find UAH is the right place for you!

As you research UAH, make sure to contact your Admissions Counselor (<http://www.uah.edu/admissions/undergraduate/office/counselors>) so they can help you along the way. From assisting you with your admission application to providing you with the most up-to-date information about campus to getting you in contact with other campus representatives, we are happy to help!

We know that visiting campus and getting involved is important in making your college decision. That's why we offer daily campus visits (<http://www.uah.edu/admissions/undergraduate/visit-campus>) which allow you to speak with an Admissions Counselor and go on a student-led campus tour. We hope you'll also join us at one of the many events (<http://www.uah.edu/admissions/undergraduate/upcoming-events>) we host both here on campus and in your community!

Academic Common Market of the Southern Regional Education Board

The Academic Common Market (ACM) is an association of 15 states (AL, AR, DE, FL, GA, KY, LA, MD, MS, 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 UAH 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 UAH. 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 the heading "Programs and Services" select Academic Common Market.

Course Placement

Course Placement and Placement Testing

All students who are beginning college-level course work in **English, Mathematics, World Languages and Cultures**, 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 101S 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 can take the Mathematics Placement Test. See here (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) for online test registration. This test may be taken twice.

ACT Math scores determine placement in Chemistry.

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, or
5. native language experience.

Students should contact the World Languages and Cultures 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

UAH recognizes credit by examination and credit for several types of out-of-class experiences. Credit hours earned by examination and/or out-of-class experiences are not considered UAH institutional coursework, and therefore, may not be applied towards fulfillment of:

- the minimum of 50 percent of the coursework required to earn a bachelor's degree that must be earned at a bachelor's degree granting institution (four-year college or university)
- the minimum of 25 percent of the coursework required for the degree that must be earned in residence at The University of Alabama in Huntsville

There are four alternatives by which a student may gain credit through examination at UAH:

1. departmental examinations,
2. the Advanced Placement (AP) Program,
3. the College Level Examination Program (CLEP), or
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.

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
Civil Engineering	CE 211, CE 284
Computer Science	All 100 and 200 level courses
Electrical and Computer Engineering	CPE 211
Foreign Languages	Contact Department Chair
Mechanical and Aerospace Engineering	MAE 211
Music	MU 100, MU 201, MU 203
Philosophy	PHL 103, PHL 320
Psychology	PY 300, PY 302

Advanced Placement Program

Several UAH 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. Students should apply for credit through the Office of the Registrar. Official scores may be requested at collegeboard.org. UAH AP code: 1854. Scores presented on transcripts from other institutions cannot be evaluated. To view AP Exam scores and the equivalent credit please visit http://www.uah.edu/images/admissions/Admissions/Documents/AP_IB.pdf.

Math Placement Table

Math ACT	Math SAT	Placement Test	AP Calculus Test Score	Placement	Equivalent Math Course (dependent on major)
0-19	480 or less	<25%	NA	Level 0	MA 107L, MA 110L, MA 112L
20-24	480-570	>25% and <50%	NA	Level 1	MA 107, MA 110, MA 112
25-26	580-610	>50% and <75%	NA	Level 2	MA 113, MA 115, MA 120

27-36	620-800	>75%	NA	Level 3	MA 171
NA	NA	NA	3 (either AB or BC test)	NA	MA 172 (credit for MA 171)
NA	NA	NA	4 or 5 (only the BC test)	NA	MA 201 (credit for MA 172)

Please note that the equivalent mathematics course is the course that the student must enroll in based upon placement.

College Level Examination Program (CLEP)

The College Level Examination Program (CLEP) 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 UAH. 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 UAH 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 ¹	College Composition Modular	65 and superior performance on College Composition Modular Essay
Science		
CH 121, CH 123, CH 125, CH 126	General Chemistry	48 (Recommended student take the Chemistry Placement Test first)
World Languages and Cultures		
WLC 101 (French)	College French	48
WLC 101 - WLC 102 (French)	College French	50
WLC 101 (German)	College German	48
WLC 101 - WLC 102 (German)	College German	50
WLC 101 (Spanish)	College Spanish	48
WLC 101 - WLC 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 Accounting	65
ECN 142	Principles of Macroeconomics	50
ECN 143	Principles of Microeconomics	50
MIS 146	Information Systems & Computer Applications	50

¹ Students who have already completed EH 101 or a comparable course are not eligible to take the CLEP test for EH 102. CLEP tests must be taken in a student's first term.

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 UAH 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	UAH Course Equivalent	Comments
Anthropology	5-7	3	SOC 105	
Art History	5-7	6	ARH 100, ARH 101	
Art Studio	5-7	6	ARS 123 & ARS 140 or ARS 106 & ARS 260	Depending on Portfolio
Biology	5-7	8	BYS 119, BYS 120	
Chemistry	5-6	4	CH 101, CH 105	
	7	8	CH 101/CH 105, CH 201/CH 205	
Computer Science	5-7	3	CS 100	
Economics	5-6	3	ECN 142	
	7	6	ECN 142, ECN 143	
English	5-6	3	EH 101	
	7	6	EH 101, EH 102	
Geography	5-7	3	GY 110	
History, Europe	5-7	3	HY 102	
History, US	5-7	6	HY 221, HY 222	
History, World	5-7	6	HY 103, HY 104	
Languages: French, German, Spanish	5-7	15	WLC 101, WLC 102, WLC 201, WLC 202, WLC 301	
Mathematics	5-6	4	MA 171	
	7	8	MA 171, MA 172	
Music	5-7	3	MU 100	
Philosophy	5-7	3	PHL 101	
Physics	5-7	8	PH 101, PH 102	
Psychology	5-7	6	PY 101, PY 102	
Theater Arts	5-7	3	TH 122	

Instructional and Testing Services

Annette Murray, Instructional Testing Administrator

225 Wilson Hall

Telephone: 256.824.6725

Email: testing@uah.edu

Website: www.uah.edu/testing

This office provides high-quality test administration and assessment services for UAH Faculty and students. It subscribes to and abides by the professional standards and guidelines for post-secondary test centers, as adopted by the National College Testing Association. Testing Services offers a variety of services for the UAH Instructors and UAH students including Online Learning exams, proctoring make-up exams, and deferred finals.

Dual Enrollment Program

Several local school systems have an agreement with UAH permitting high school juniors and seniors to take classes at UAH 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 UAH admission requirements and have at least a 2.9 high school academic GPA may, with the approval of their school officials, take classes at UAH and receive credit at both the high school and college level for UAH classes approved by the school system.

Applying for the Dual Enrollment program at UAH requires:

- a completed Dual Enrollment 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
- written approval from the student's parent or guardian

Students enrolled in the Dual Enrollment program may register for a maximum of two courses per semester.

Early Start Program

UAH welcomes academically talented high school juniors and seniors who wish to earn college credits while still enrolled in high school. This option may be appropriate for students whose high schools do not participate in the Dual Enrollment program or students who have completed all high school graduation requirements but have not yet graduated from high school.

Applying for the Early Start Program at UAH requires:

- official scores: ACT of 26 or SAT of 1180
- high school GPA of 3.5 or higher
- Early Start application form
- \$30 non-refundable application fee
- official transcripts showing high school and any college-level work
- written approval from high school officials
- written approval from parent or guardian

Students enrolled in the Early Start program may register for a maximum of two courses per semester.

First Year Students

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 August - December 1st. 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 12th 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 each postsecondary institution attended. 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 June testing date after the senior year. Students should feel free to repeat a test, since the highest score will be considered for admission.

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.

Suggested High School Course Units

Applicants should have earned four units of English; 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; four units of social studies/social sciences (includes history, civics, political science, economics, sociology, psychology, and geography), and four units of electives that may include courses such as foreign language, computer programming, religion, philosophy as well as higher-level science and math courses.

English Language Proficiency Requirements

Applicants must demonstrate proficiency in the English language. Applicants whose first language is other than English should refer to the section (p. 13) on English language requirements for nonnative speakers.

Academic Qualifications

Each applicant is evaluated based on individual merit and demonstrated success in a rigorous academic environment. High school coursework, grade point average, and ACT/SAT scores are weighed heavily; however, these criteria do not constitute the entire foundation for an admission decision. An applicant with a grade point average of 2.9 and a composite score of 20 on the ACT or equivalent SAT, for example, is considered a strong candidate for admission.

Home Schooled Applicants

High school students who are home schooled are reviewed for admission and for scholarships at UAH 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 170 or higher is required for regular admission status. An official ACT or SAT score report may be requested. An official transcript of completed high school courses is also required. UAH is no longer a testing center for the GED program. Anyone seeking additional information or wishing to take the GED examination should visit [GED.com](https://ged.com) (<https://ged.com>).

General Information

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, Education, Engineering, and Nursing, and the Music program 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.

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 \$50 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 UAH 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 UAH - copies will not be accepted by UAH. Examples of acceptable evaluation services are:
 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 (<http://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 (<http://www.wes.org>)

 Lisano International
 P.O. Box 507
 Auburn, AL 26831
 Ph: 334.745.0425
5. Official American College Test (ACT) scores or SAT scores sent directly to UAH 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.
6. Proof of English language proficiency. Please refer to the section on English language requirements for nonnative speakers below.
7. Students who will attend UAH 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 UAH.

Transferring From Another U.S. Institution

Individuals in the U.S. in F or J status who intend to transfer to UAH from a U.S. high school or college will receive, upon admission, a *transfer clearance* form that must be completed by the previous institution's designated official (international student advisor) and sent to the UAH 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 UAH prior to the start of the semester of enrollment.

English Language Requirements for Nonnative Speakers

SAT/ACT score is not required for undergraduate international applicants. Applicants may submit scores, if available, for consideration in admission or scholarship eligibility determination.

All applicants whose native language is other than English must demonstrate the linguistic proficiency necessary to function in degree programs at UAH.

1. Unconditional admission to degree programs.*
 - a. In order to be considered for admission to degree programs with no additional English language training required, applicants must meet the following minimums on the TOEFL or IELTS.

TOEFL (iBT): all sub-scores greater than or equal to 18 OR

IELTS: all sub-scores greater than or equal to 6.0

- b. Students with two or more sub-scores below these minimum qualifications must enroll in the UAH Intensive Language and Culture (ILC) Program before they can enroll in graduate course work.

*Language proficiency is only one factor in admission decisions. To confirm the full admission requirements for specific degree programs, please contact the department directly.

2. Admission to the ILC Program.

- a. Applicants who do not currently meet the requirements for admission to a degree program at the university are encouraged to apply for admission to the UAH Intensive Language and Culture (ILC) Program. Successful completion of the UAH ILC meets the language proficiency standard for admission to degree programs at the university.

- b. To be considered for admission to the UAH Intensive Language and Culture Program, applicants must have the following minimums on the TOEFL or IELTS.*

TOEFL (iBT): Overall of at least 50 with no sub-score below 12 OR

IELTS: Overall of at least 4.0 with no sub-score below 3.5

*NOTE: If an applicant does not have a TOEFL or an IELTS score, he/she may request a pre-assessment and be considered for admission to the ILC. He/she will then be formally assessed upon arrival at UAH and will be placed in appropriate classes in the ILC program.

NOTE THAT OFFICIAL TEST SCORES SHOULD BE SENT DIRECTLY TO UAH FROM THE TOEFL OR IELTS TESTING SERVICE.

*iBT = internet-based TOEFL; IELTS = International English Language Testing System

English Language Placement Test

The UAH English Language Placement Test (ELPT) is required of all students whose native language is not English, regardless of nationality or prior English study. A student must complete any intensive English coursework 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

If you were born after 1956, proof of two (2) measles containing vaccinations. One of these vaccines must be an MMR vaccination after 1980.

Acceptable proof of tuberculosis screening that is no more than twelve months old.

All first time freshmen and students living in on campus housing must also show proof of a meningitis vaccine.

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.

Residency

UAH Resident/Non-Resident Tuition Fee Guidelines

Introduction

All students registering at The University of Alabama in Huntsville (UAH) 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. The residency classification of 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 Student Affairs no later than the last day of registration for the appropriate semester.

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 the date of registration at any institution of higher education in the state. 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 (not temporary) 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, especially registration occurring more than one year prior to the student's initial registration
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.
13. Location within the state of the high school from which the student graduated

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 at any institution of higher education in the state by identifying then existing, sufficient connections with Alabama.

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 UAH or is the spouse of such an employee
2. Is employed by UAH 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 can verify such employment beginning not more than 90 days after registration, or is the spouse of such employee
4. 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. 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.**

Rules for Veterans and U.S. Service Members of the Uniformed Services (Army, Navy, Air Force, Marine Corps and Coast Guard) and commissioned officers of NOAA and the PHS

For purposes of admission and tuition and fees, the term "resident student" includes one who at the time of registration, satisfies one of the following:

- a. Military personnel on active duty, along with his/her spouse and dependent child(ren), who is either stationed in Alabama for reasons other than attending school, or stationed outside of the state and whose State of Residence on their Leave and Earnings Statement (LES) is Alabama.

b. Has been a member of the Alabama National Guard for at least two years immediately preceding the academic term in which the student qualifies for resident tuition, and continues to be a member of the Alabama National Guard while enrolled at UAH.

c. Is an out-of-state active duty or Veteran Service Member who is a resident of any county within ninety miles of the UAH Campus.

d. A Veteran Service Member who is a resident of Alabama and satisfies at least one of the following conditions:

- Has served on active duty for a continuous period of time, not less than two years, and has received a verified honorable discharge within five years of enrolling in an Alabama public institution of higher education;
- Is currently serving in a reserve component of the Armed Forces of the U.S., as verified by a memorandum from his/her commanding officer;
- Has been assigned a service-connected disability by the U.S. Department of Veterans Affairs.

e. A Veteran authorized to receive any one or more of the following educational benefits whose authorizing law requires such educational classification as a condition of receiving such benefits:

- Educational benefits provided for under the Post-9/11 GI-Bill or Montgomery GI-Bill programs or other federal law authorizing veterans' educational benefits received by the veteran or the spouse and dependent(s) of an active or Veteran Service Member who is living in the State of Alabama while enrolled; and
- Supplemental Educational Assistance Benefits provided to any members of the Alabama National Guard, regardless of his/her state or residence, as provided for in the Code of Alabama.

NOTE: A student who has previously met the residency requirements for this section must continue to reside in Alabama while enrolled at UAH. If an individual provided for in this Section is released or discharged dishonorably, such release shall be grounds for revocation of resident status.

Appeal

The Associate Vice President for Student Affairs will make the initial decision on an application for reclassification to resident student status. This decision may be appealed to the Vice President for Student Affairs. Notice of appeal must be in writing and must be delivered no later than fourteen (14) days after the date of the initial decision of the Associate Vice President for Student Affairs. This decision 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 ("Non-resident Tuition Policy"). This Rule constitutes the full statement of policy applicable to the residency classification of UAH students.

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 UAH 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 170 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 UAH on a student visa are not eligible for non-degree status. A student whose first language is other than English must demonstrate English language proficiency. See the section (p. 13) on English language requirements for nonnative speakers.

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 (p. 21) or Early Start (p. 22).
- A student who has completed high school or earned at least a 170 on the GED, but has not yet enrolled in college coursework must apply as a degree seeking first year/freshman student, or has 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 hours per term. Only 12 semester hours earned as a Non-Degree seeking student can be used toward an undergraduate degree at UAH. 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 Registrar 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 Financial Aid at 256.824.6650 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 an Official Transcript from the current college are required. This verifies eligibility to return to the student's home institution and verifies the home college will accept the UAH courses for degree requirements. Transient students should satisfy UAH course prerequisites for each course taken and may be required to submit other official transcripts showing satisfactory completion of prerequisites.

Post-Baccalaureate

Eligibility

A Post-Baccalaureate student is one who has already earned a bachelor's degree and who desires to enroll at UAH 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 UAH 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 Registrar staff.

Post-Baccalaureate students are limited to 12 semester hours each term. Additionally, a maximum of 24 semester 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 Financial Aid at 256.824.6650 for more information and to verify eligibility.

Re-Admit Students

A student who has not attended UAH for one or more semesters and who wishes to return should apply for admission through the Undergraduate Admissions Department. Returning students are held to the same requirements and universities policies as newly admitted students. The Office of Admissions encourages Readmit students to contact their academic advisor to determine whether curriculum or degree requirements have changed since their last enrollment. Readmit students are required to submit official transcripts from any college/university attended since leaving UAH. Applicants must hold a cumulative 2.0 GPA in coursework completed since attending UAH. Applicants must also be in good standing at all previously attended colleges/universities.

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 UAH 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 UAH 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 UAH to be considered for admission.

Applicants must demonstrate proficiency in the English language. Applicants whose first language is other than English should refer the section (p. 13) on English language requirements for nonnative speakers.

Students who have already completed a bachelor's degree and wish to earn a Second Bachelor's degree at UAH 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 Designated 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 UAH. 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 UAH. In order to obtain full credit for courses accepted as provisional credits, students must complete 30 semester hours at UAH 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 UAH.

Courses completed at unaccredited and non-candidate institutions are not accepted for credit at UAH. 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 UAH. As a member of Service Members Opportunity Colleges, UAH 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 UAH's Freshman Composition 6 credit-semester hour requirement (Freshman Composition I and II). For situations where this requirement was satisfied by less common approaches such as CLEP or credit by examination, please contact the chair of the English department.

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 UAH 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 UAH students will be equally applicable, within specified limits, to transfer students.

UAH participates in the Alabama Articulation Agreement. Students intending to transfer to UAH from Alabama junior or community colleges are encouraged to consult with their advisors, the UAH Office of Admissions, and obtain a STARS guide. This guide is also available via the Internet at <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 50% of a degree program may be earned from a junior, community or two-year college. Requests for exceptions must be in writing and approved by dean of the college in which the student is enrolled.

Visiting Student Program

A cooperative arrangement exists with Alabama A&M University, Calhoun Community College, Oakwood University and The University of Alabama in Huntsville. Under this arrangement, 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 semester 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-semester-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 Registrar's Office for information regarding the procedures to be followed.

Charger Foundations

Welcome to Charger Foundations, a set of courses dedicated to helping you engage with new ideas, complex situations, and diverse perspectives. Encompassing almost one-third of your undergraduate curriculum, the courses of Charger Foundations will enhance your skills, expand your horizons, and encourage you to build on the core values of the Charger Nation: integrity, respect, diligence, excellence, inclusiveness, and diversity.

The development of competencies associated with these values begins with Charger Foundations coursework. Below, you will see a matrix providing an overview of the competencies central to your Foundations work and aligned with the Alabama General Studies Commission (AGSC) Area Requirements.

Core Competencies

The University of Alabama in Huntsville is committed to four core competencies that serve as the foundation for undergraduate general education. These four core competencies follow.

1. Effective communication (Area I)
2. Engagement with questions of values, ethics, and aesthetics as represented in literature, the humanities, and the arts (Area II)
3. Understanding of the scientific method and application of quantitative or inductive reasoning (Area III)
4. Understanding of human behavior and economic, social, and political structures as represented in the disciplines of history and the social and behavioral sciences (Area IV)

These core competencies are consistent with those of the 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.

Requirements by College

Colleges of Arts, Humanities, and Social Sciences, Business, Education, Nursing, Professional and Continuing Studies, and Science (41 hours)

AGSC Area	Categories	Required Hours
I	Freshman Composition	3-6 hours
II ¹	Fine Arts	3 hours
	Humanities (literature)	3 hours
	Humanities (non-literature)	3 hours
	Humanities/Fine Arts	3 hours
III	Mathematics	3-4 hours
	Natural Sciences (lab)	8 hours
IV ¹	History	3 hours
	Social & Behavioral Sciences (non-history)	6 hours
	History/SBS	3 hours

¹ Take either 1 EH (Literature) + 2 HY (History) or 2 EH (Literature) + 1 HY (History). Take **no more than six hours** in a single discipline in Area II or Area IV.

College of Engineering (35 hours)

AGSC Area	Categories	Required Hours
I	Freshman Composition	3-6 hours
II ¹	Fine Arts	3 hours
	Humanities (literature)	3 hours
	Humanities	3 hours
III	Mathematics	3-4 hours
	Natural Sciences (lab)	8 hours
IV ¹	History	3 hours
	History/SBS	6 hours

¹ Take either 1 EH (Literature) + 2 HY (History) or 2 EH (Literature) + 1 HY (History). Take **no more than six hours** in a single discipline in Area II or Area IV.

Pathways through Charger Foundations will vary by college and major. Confer with your academic advisor to select appropriate Foundations courses each semester.

Code	Title	Semester Hours
Area I: Freshman Composition		
EH 101 or EH 101S	COLLEGE WRITING I COLLEGE WRITING I W/STUDIO	
EH 102	COLLEGE WRITING II	
EH 105	HONORS ENGLISH SEMINAR	
Area II: Humanities and Fine Arts*		
Fine Arts		
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature		
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 209	HONORS SEM READINGS LIT/CUL I	
EH 210	HONORS SEM READINGS LIT/CUL 2	
EH 242	MYTHOLOGY	

Humanities		3
CM 113	Intro to Rhetorical Communication	
WLC 101S	INTRO FOREIGN LANG I: SPANISH	
or WLC 101A	INTRO FOREIGN LANG I: ARABIC	
or WLC 101C	Course WLC 101C Not Found	
or WLC 101F	INTRO FOREIGN LANG I:FRENCH	
or WLC 101G	INTRO FOREIGN LANG I:GERMAN	
or WLC 101J	INTRO FOREIGN LANG I:JAPANESE	
or WLC 101N	Course WLC 101N Not Found	
or WLC 101R	INTRO FOREIGN LANG I:RUSSIAN	
WLC 102S	INTRO FOREIGN LANG II:SPANISH	
or WLC 102A	INTRO FOREIGN LANG II: ARABIC	
or WLC 102C	Course WLC 102C Not Found	
or WLC 102F	INTRO FOREIGN LANG II:FRENCH	
or WLC 102G	INTRO FOREIGN LANG II:GERMAN	
or WLC 102J	INTRO FOREIGN LANG II:JAPANESE	
or WLC 102N	Course WLC 102N Not Found	
or WLC 102R	INTRO FOREIGN LANG II:RUSSIAN	
WLC 201S	INTERM FOREIGN LANG:SPANISH	
or WLC 201A	INTERM FOREIGN LANG I: ARABIC	
or WLC 201F	INTERM FOREIGN LANG:FRENCH	
or WLC 201G	INTERM FOREIGN LANG:GERMAN	
or WLC 201J	INTERM FOREIGN LANG: JAPANESE	
or WLC 201N	Course WLC 201N Not Found	
or WLC 201R	INTERM FOREIGN LANG:RUSSIAN	
WLC 202S	INTERM FOREIGN LANG II:SPANISH	
or WLC 202A	INTERM FOREIGN LANG II: ARABIC	
or WLC 202F	INTERM FOREIGN LANG II:FRENCH	
or WLC 202G	INTERM FOREIGN LANG II:GERMAN	
or WLC 202J	INTERM FORGN LANG II:JAPANESE	
or WLC 202N	Course WLC 202N Not Found	
or WLC 202R	INTERM FOREIGN LANG II:RUSSIAN	
WLC 204	INTERNATIONAL CINEMA	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
PHL 201	Course PHL 201 Not Found	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	

Area III: Mathematics and Sciences

Mathematics	
MA 107	ALGEBRA WITH APPLICATIONS
MA 110	FINITE MATHEMATICS
MA 112	PRECALCULUS ALGEBRA
MA 113	PRECALCULUS TRIGONOMETRY
MA 115	PRECALCULUS ALGEBRA & TRIG
MA 120	MATH PROFESSIONAL APPLICATIONS
MA 171	CALCULUS A
Natural Sciences (Lab)	
AST 100	SURVEY OF ASTRONOMY
AST 106	EXPLORING THE COSMOS I
AST 107	EXPLORING THE COSMOS II
BYS 119	PRINCIPLES OF BIOLOGY

BYS 120	ORGANISMAL BIOLOGY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103	ENVIRONMENTAL EARTH SCIENCE
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III

Area IV: History and Social and Behavioral Sciences*

History	
HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877
AMS 229	ANCIENT & MEDIEVAL WORLDS
Social and Behavioral Sciences	
ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

* Take either 1 EH (Area II) + 2 HY (Area IV) <OR> 2 EH (Area II) + 1 HY (Area IV). Take **no more than six hours** in a single discipline in Area II or Area IV.

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 - Ancient and Medieval Studies Minor (p. 39)
 - Art, Art History & Design (p. 40)
 - Art History Minor (p. 72)
 - Art Studio Minor (p. 73)
 - Art, BA - Art Education Concentration (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/art-art-history/art-education>)
 - Art, BA - Art History Concentration (p. 50)

- Art, BA - Art Studio Concentration (p. 53)
- Art, BFA - Digital Animation Concentration (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/art-art-history/animation-bfa>)
- Art, BFA - Graphic Design Concentration (p. 58)
- Art, BFA - Painting/Drawing Concentration (p. 61)
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- Game Design and Development Minor (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/art-art-history/game-design-and-development>)
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- Communication Arts (p. 73)
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 - Theatre Minor (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/communication-arts/theatre-minor>)
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- English (p. 81)
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 - English, BA - Curriculum One (For Students Not Seeking Teacher Certification) (p. 88)
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 - History Major with Public History Track (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/history/history-public-history>)
 - History Minor (p. 112)
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- Individualized Bachelor of Science (IND) Degree (<http://catalog.uah.edu/undergrad/colleges-departments/science/individualized-bachelor-of-science-ibs-degree>)
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College of Arts, Humanities, and Social Sciences

256 Morton Hall

Telephone: 256.824.6200

Email: dean-ahs@uah.edu (dean-la@uah.edu)

Interim Dean: Andrew Cling, Ph.D., Professor of Philosophy

Mission

The College of Arts, Humanities, and Social Sciences is committed to excellence in teaching, research, and service in the following disciplines: fine arts, humanities, social and behavioral sciences, and teacher education. For its own majors, as for those in the professional schools, the College strives to provide superior liberal arts education characterized by close interaction between teachers and learners. Its goals are to impart to each student a spirit of intellectual curiosity, critical thinking, abilities in writing and oral communication, aesthetic awareness and creativity, familiarity with human history and behavior, knowledge of languages and cultures, and an understanding of the bases of ethical behavior and the duties of citizenship. Believing in the centrality of liberal learning to the mission of a university, the College is committed to maintaining a diverse community of teacher-scholars of the highest quality and to providing an environment that encourages personal and professional growth. It considers teaching and research mutually enriching activities and strives to make its knowledge and expertise available to professional programs on campus and to the educational needs of society. Through its graduates and programs, the College contributes to the cultural, intellectual, and economic growth of the state and nation.

Undergraduate Degrees and Programs

The College of Arts, Humanities, and Social Sciences awards the Bachelor of Arts degree as well as a Bachelor of Fine Arts degree in various studio art disciplines. A student's Program of Study must total at least 120 semester hours of coursework and is comprised of four components: 1) general education requirements, 2) a major, 3) either a second major, minor, or supporting cognate studies and 4) electives. The minimum requirement for a major is 30 semester hours of coursework with at least 21 semester hours at the 300 level or above. The minimum requirement for a minor is 18 semester hours of coursework with at least 12 semester hours at the 300-level or above. The cognate studies option must be formed from two or more closely aligned disciplines and must be comprised of at least 21 semester hours with at least 12 semester hours at the 300-level or above. Specific requirements of each major and minor are provided in the appropriate departmental section of the catalog. At least 36 semester hours of a student's Program of Study must be at the 300-level or above. Please note that at least 25% of a student's major and minor must be earned at UAH.

The College of Arts, Humanities, and Social Sciences offers programs in the following disciplines:

- Ancient and Medieval Studies (p. 39)
- Art, Art History, and Design (p. 41)
- Communication Arts (p. 74)
- English (p. 81)
- Global Studies (p. 97)
- History (p. 102)

- Music (p. 113)
- Philosophy (p. 142)
- Political Science (p. 149)
- Psychology (p.)
- Science, Technology, and Society (p. 148)
- Sociology (p. 162)
- Theatre (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/communication-arts/theatre>)
- Women's and Gender Studies (p. 169)
- World Languages and Cultures (p. 176)
- Writing (p. 194)

Academic Advising in the College of Arts, Humanities, and Social Sciences

Frank Bell (M.A., M.A.E.D.), Senior Academic Advisor

Jana Savanapridi, Academic Advisor

The College provides academic advising for its students through the various academic departments and through the office of the Academic Advisor. All students are strongly encouraged to seek advising assistance at the beginning of their academic careers and to continue working with their advisors throughout their academic experience. All freshmen and most sophomores with an expressed interest in liberal arts are advised by the Academic Advisors for the College of Arts, Humanities, and Social Sciences, who are located in Room 336 of Morton Hall; phone 256.824.2867; email: bellf@uah.edu or jms0014@uah.edu (amy.smeal@uah.edu). In addition, a Prelaw Certificate Advisor is available to assist those who plan to apply for admission to law school. Contact John Harfouch at jen0005@uah.edu.

The goals of academic advising include:

1. assisting students in planning academic and life goals
2. assisting students in their personal adjustment to the UAH campus
3. aiding students in the assessment of academic needs and in developing appropriate educational plans
4. explaining and clarifying graduation requirements as well as academic policies and
5. facilitating student success

The College of Arts, Humanities, and Social Sciences Academic Advisors assist students in fulfilling the General Education Requirements and, in concert with faculty advisors, provides information about possible major fields. An official declaration of major should be filed at the end of the sophomore year or at the completion of 42 semester hours. When a student decides on a specific major and minor, the student will then initiate a Program of Study with a College of Arts, Humanities, and Social Sciences Academic Advisor. Subsequent to completion of a Program of Study, the student is advised by faculty within the declared major(s). These faculty members are specialists in their fields of interest.

Ancient and Medieval Studies Minor

The Ancient and Medieval Studies Minor allows students to appreciate ancient and medieval civilizations both as accomplishments worthy of study in their own right and for a better understanding of the modern world. This program provides an interdisciplinary framework for exploring topics that range from history of ideas and institutions to that of material culture and archaeology, literature, philosophy and languages.

Code	Title	Semester Hours
Requirements		
AMS 229	ANCIENT & MEDIEVAL WORLDS	
Additional 18 hours from the courses below or courses approved by Director; 12 of these hours must be at the 300-level or above.		18
ARH 301	ANCIENT GREEK ART	
ARH 302	MEDIEVAL ART	
ARH 303	RENAISSANCE ART	
ARH 305	ANCIENT ROMAN ART	
CM 408	CLASSICAL RHET THEORY	
EH 207	READINGS LITERATURE/CULTURE I	
EH 242	MYTHOLOGY	
EH 448	THE BIBLE AS LITERATURE	
EH 450	CHAUCEUR	
EH 451	ARTHURIAN ROMANCE	

EH 550	CHAUCEER
EH 551	ARTHURIAN ROMANCE
HY 311	HISTORIC ARCHAEOLOGY
HY 329	IMPERIAL ROME
HY 331	WORLD OF MIDDLE AGES
HY 384	ISLAMIC WORLD TO 1800
HY 401	DAILY LIFE IN ANCIENT ROME
HY 480	ROMANS&BARBARIANS LATE ANTIQTY
HY 498	STUDIES IN HISTORY
PSC 330	CLASSI POLITI PHILOSOPHY
PHL 301	ANCIENT PHILOSOPHY
WLC 101A	INTRO FOREIGN LANG I: ARABIC
WLC 102A	INTRO FOREIGN LANG II: ARABIC

Total Semester Hours

18

Art, Art History & Design

160-B Wilson Hall

Telephone: 256.824.6114

Email: art@uah.edu

Mission

The Department of Art, Art History & Design is an accredited institutional member of the National Association of Schools of Art and Design (NASAD). Our programs are dedicated to preparing students with the knowledge and skills necessary for pursuing lives as artists, designers, art historians and other professionals. Graduates will be creative, inquisitive, and well-rounded individuals, conscious of the important roles that artistic endeavor and intellectual pursuit play within their lives and throughout our culture. The department is an integral part of the interdisciplinary experience within the university and by virtue of its commitment to the highest standards in teaching, research, and service, is dedicated to supporting and strengthening the mission of the College of Arts, Humanities, and Social Sciences.

The department of Art, Art History & Design offers the following degree programs:

- BA in Art - Art Education Concentration (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/art-art-history/art-education>)
- BA in Art - Art History Concentration (p. 50)
- BA in Art - Art Studio Concentration (p. 53)
- BFA in Art - Digital Animation Concentration (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/art-art-history/animation-bfa>)
- BFA in Art - Graphic Design Concentration (p. 58)
- BFA in Art - Painting/Drawing Concentration (p. 61)
- BFA in Art - Photography Concentration (p. 64)
- BFA in Art - Printmaking Concentration (p. 66)
- BFA in Art - Sculpture Concentration (p. 69)

Program

The Department of Art, Art History & Design offers courses in art studio and art history leading to a Bachelor of Arts (BA) in Art or a Bachelor of Fine Arts (BFA) degree in a particular art studio concentration (Digital Animation, Graphic Design, Painting/Drawing, Photography, Printmaking, or Sculpture).

For the BA, students can concentrate in either Art Studio or Art History. The 51 semester hour Art Studio concentration allows a student to focus his or her upper-division studies on any of six areas: digital animation, graphic design, painting/drawing, photography, printmaking, or sculpture. The program culminates in a group exit show. In the 42 semester hour Art History concentration, students take a variety of courses exploring the visual culture of different regions and eras, and complete their degree by writing a senior thesis. The BA provides students with a solid foundation to pursue a career in the arts or a related field.

The BFA is the primary professional degree in Art Studio. In a BFA program, the goals are to develop the skills, concepts, and professional practices to pursue a career as an artist. It is also the preferred degree for students who plan to go on for a Master of Fine Arts (MFA) degree. This 78 semester hour major requires more studio courses than the BA and does not require a minor.

Students must apply for acceptance to the BFA program. The application, which is available in the department office, involves submission of a transcript (3.0 GPA required in Art History and Art Studio classes), two essays, and a portfolio of five pieces (one drawing, one 3-D piece, one work using color, and two additional pieces, preferably in the area of concentration). The review is typically done as a rising junior, but students should consult with their faculty mentors. The BFA Review is conducted at the end of the fall and spring terms.

All BFA students must complete an exit requirement specific to their concentration. Students who are candidates for a BFA in fine arts concentrations (Painting/Drawing, Photography, Printmaking, and Sculpture) will mount a solo exit show. Those in Digital Animation and Graphic Design will complete a comprehensive portfolio review. See your faculty mentors for guidelines.

Transfer credit for equivalent coursework in Art Studio and Art History classes will be determined by the department chair. Art majors transferring to UAH must complete at least 12 semester hours of art courses at the 300-level or above at UAH. Art Studio or Art History minors transferring in must take at least six (6) semester hours of art courses at the 300 level or above.

Majors in Art, Art History, and Design

- BA in Art - Art Education Concentration (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/art-art-history/art-education>)
- BA in Art - Art History Concentration (p. 50)
- BA in Art - Art Studio Concentration (p. 53)
- BFA in Art - Digital Animation Concentration (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/art-art-history/animation-bfa>)
- BFA in Art - Graphic Design Concentration (p. 58)
- BFA in Art - Painting/Drawing Concentration (p. 61)
- BFA in Art - Photography Concentration (p. 64)
- BFA in Art - Printmaking Concentration (p. 66)
- BFA in Art - Sculpture Concentration (p. 69)

Minors in Art, Art History & Design

- Art History (p. 72)
- Game (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/art-art-history/game-production>) Design and Development (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/art-art-history/game-design-and-development>)
- Art Studio (p. 73)
- Web Communication (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/art-art-history/web-communications-minor>)

ARH 100 - ARH SURV:ANCIENT-MEDIEVAL

Semester Hours: 3

Survey of Pre-historic to Medieval art. Course emphasizes study of cultural contexts that fostered art and introduces students to basic analytic tools and history of art history. Very little in art is completely new. Learn about the visual traditions that shaped the culture we live with today.

ARH 101 - ARH SURV:RENAISSANCE-MODERN

Semester Hours: 3

Survey of the Major Western works of art produced since the Renaissance. Relates stylistic change to changes in historical and cultural contexts. Introduces students to basic analytic tools and theories of art history.

ARH 103 - ARH SUR:NON-WESTERN TRADITIONS

Semester Hours: 3

Survey of visual culture in India, the Far East, the Americas, the Pacific, and Africa. Focuses on relationships among art, religious beliefs, politics, and cultural practices. Studying the visual traditions of other cultures fosters greater understanding as our world becomes more global. Use the analytical tools and theories of art history to foster understandings of global cultures.

ARH 120 - ARH SURV: SPECIAL TOPICS

Semester Hours: 3

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

ARH 301 - ANCIENT GREEK ART

Semester Hours: 3

Art of ancient Greece from the Homeric period to the death of Cleopatra. Focuses on relationships of art to philosophy, politics, religion, literature, and drama. Greek art and culture heavily influenced our education system as well as the appearance of cities from Washington, DC to Huntsville, AL.

Prerequisites: ARH 100 and ARH 101.

ARH 302 - MEDIEVAL ART

Semester Hours: 3

Examines architecture, sculpture, manuscripts, metalwork, textiles, and stained glass from the fall of Rome to the Gothic era. In addition to a chronological study of the period, engage in case studies on courtship, warfare, religion, and cultural interactions that influenced practices today.

Prerequisites: ARH 100 and ARH 101.

ARH 303 - RENAISSANCE ART

Semester Hours: 3

The Renaissance supposedly ushered in advances in arts, humanities, and sciences. Rather than focusing on great masters, this course looks at regional trends in Italy as well as the rest of Europe to see what is innovative about this era considered a high point in Western culture. Prerequisites: ARH 100 and ARH 101.

ARH 304 - TWENTIETH CENTURY ART

Semester Hours: 3

Developments in European and American art from 1890 to World War II will be examined through historical, literary, philosophical, political, and social contexts and theories.. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites:

ARH 100 and ARH 101.

ARH 305 - ANCIENT ROMAN ART

Semester Hours: 3

Roman visual culture from the foundation of the city to its fall. Explore case studies such as the age of Augustus, Pompeii, Roman engineering, the Provinces, games and spectacle. Learn about the Roman legacy and consider its impact on modern Western Culture. Prerequisites: ARH 100 and ARH 101.

ARH 306 - COLLAPSE OF CIVILIZATIONS

Semester Hours: 3

Course investigates why some cultures succeed and others fail. Examine factors that lead to collapse to address a question relevant to the contemporary world: How severe do internal stresses have to become before relatively minor climate shifts can trigger a widespread cultural collapse?

Prerequisites: ARH 103 and ART major.

ARH 307 - IMPRESSIONISM & POST-IMP

Semester Hours: 3

European and American art from 1860 to 1900 examined through historical, political, social, philosophical, theoretical and literary perspective. This course guides the students in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and ARH 101.

ARH 309 - CONTEMPORARY ART & ISSUES

Semester Hours: 3

Major movements since World War II examined through historical, political, social, philosophical, and literary perspectives. Contemporary art theories will also be explored. Course guides students in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and ARH 101.

ARH 310 - NINETEENTH CENTURY ART

Semester Hours: 3

European and American art from 1780 to 1860 examined through historical, political, social, philosophical, theoretical and literary perspectives. Course guides students in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and ARH 101.

ARH 311 - PHILOSOPHY OF ART

Semester Hours: 3

What is Art? This course explores and interrogates a wide range of contrasting aesthetic theories within the western tradition, with particular emphasis on the relation between artistic expression and philosophical frameworks. Prerequisites: ARH 100 and ARH 101. OR ARH 100 and ARH 103. OR ARH 101 and ARH 103. ART Major.

ARH 320 - SPECIAL TOPICS IN ART HY

Semester Hours: 3

Developed based on student and faculty interest, special topics courses explore content and issues not currently emphasized in the curriculum. Courses may focus on a particular issue like Women in Antiquity or a particular genre such as Modern Architecture. Prerequisites: ARH 100, ARH 101, and ARH 309.

ARH 395 - INDEPENDENT STUDY

Semester Hours: 3

Directed, independent study on a topic pre-arranged with instructor, normally as an outgrowth of a 300-level art history course. Weekly mentoring meetings with instructor help student develop a workable thesis, conduct research, and manage a project that results in a well-argued paper.

ARH 400 - SENIOR THESIS

Semester Hours: 3

Culminating experience for students with an Art History concentration. With the help of a faculty mentor, student will choose a topic, conduct research, and construct a well-argued paper. Student will present this research to the faculty, displaying skills valuable in most careers.

ARS 123 - TWO-DIMENSIONAL DES/COLOR TH

Semester Hours: 3

Introduction to the principles and elements of design and color theory. Assignments explore design concepts and an understanding of color. Course stresses the development of visual and manual skills, problem solving, critical thinking, and the tools and materials used in the making of art.

ARS 140 - THREE-DIMENSIONAL DESIGN

Semester Hours: 3

Course introduces students to fundamental principles pertaining to the creation of three-dimensional art and prepares them for more advanced processes. Processes include, but are not limited to, drawing for sculpture, model making, woodworking, and sewing.

ARS 160 - DRAWING: FOUNDATIONS

Semester Hours: 3

Introduction to principles, materials, and techniques of drawing. Observational drawing and exercises teach students visual skills and introduce aesthetics and artistic expression. Class covers visual and manual skills, problem solving, critical thinking, and the tools and materials artists use.

ARS 210 - GAME DESIGN: INTRODUCTION

Semester Hours: 3

This course is an introduction to the principles and processes of game design. Students will play, research, design, modify, and prototype tabletop games throughout the semester to gain a better understanding of game design. Prerequisite: ARS 160 or permission of instructor.

ARS 220 - ANIMATION: INTRODUCTION

Semester Hours: 3

Course is an introduction to the principles of 3D computer generated imaging including modeling, texturing, rigging, animating, lighting, and rendering, as well as production processes such as storyboarding, sound design, and editing that together provide a basic working knowledge of 3D CGI. Prerequisites: ARS 160 and ARS 123.

ARS 230 - GRAPHIC DESIGN: INTRODUCTION

Semester Hours: 3

Introduction to graphic design theories, principles, and software. Instruction in the basics of graphic design through practical understanding of visual communication and logistics of advertising, conceptual thinking, and creative exploration. Course is a primer for the Macintosh platform. Prerequisites: ARS 123 and ARS 160.

ARS 240 - SCULPTURE: INTRODUCTION

Semester Hours: 3

Students will develop and explore their ideas using a variety of traditional and non-traditional tools, materials and processes. Assemblage, subtraction, modeling, 3D modeling/printing and casting processes will be addressed, preparing students for entrance into advanced coursework. Prerequisite: ARS 140.

ARS 250 - PHOTOGRAPHY: INTRODUCTION

Semester Hours: 3

Fundamentals and techniques 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. Prerequisites: ARS 123 and ARS 160.

ARS 260 - DRAWING: INTRODUCTION

Semester Hours: 3

Course further develops drawing skills through study and practice. Materials, design, and creative ideas are explored. Critical thinking and visual analysis are used in critique. Students continue to develop visual and manual skills, problem solving abilities, and the use of tools and materials.

Prerequisites: ARS 123 and ARS 160.

ARS 270 - PAINTING: INTRODUCTION

Semester Hours: 3

Students learn basic painting techniques, materials, and mediums. Problem solving assignments use two-dimensional design and color theory concepts and practices. Students are required to observe and think critically for critique and discussion. Prerequisites: ARS 123 and ARS 160.

ARS 280 - PRINTMAKING: INTRODUCTION

Semester Hours: 3

Introduction to basic areas of printmaking, including planographic, intaglio, and relief processes. Expands 2-D design concepts, color theory, and drawing skills. Develops proficiency with printmaking tools and materials as well as critical thinking and problem solving skills. Prerequisites: ARS 123 and ARS 160.

ARS 311 - GAME DESIGN: SCRIPTING & DESIGN I

Semester Hours: 3

This course introduces students with limited programming experience to video game scripting using a visual programming language. Students will learn tools and techniques to design & script their own video games. Prerequisites: ARS 210, and one of the following: CS 102, CS 103, CS 121. Or permission of instructor.

ARS 320 - ANIMATION: TEAM GAME DESIGN I

Semester Hours: 3

Students in this collaborative game design and development course will work in teams to conceptualize and create working video games in one semester. Students will gain an understanding of industry standard tools and practices, as well as get valuable experience working in teams.

Prerequisites: ARS 321 or ARS 322 or ARS 324 or ARS 311.

ARS 321 - ANIMATION: MODELING I

Semester Hours: 3

Course focuses on mesh design and creation as well as surface and lighting properties for creating production quality models. Digital sculpting, 3D painting, and other workflows will be covered in this class to help students gain experience and better understand the role of CGI modelers. Prerequisite: ARS 220.

ARS 322 - ANIMATION: CHARACTER ANIMATION I

Semester Hours: 3

Course explores fundamental animation principles (timing/spacing, overlap, squash/stretch, anticipation, etc) along with digital animation tools (rigging, inverse kinematics, keyframing, etc) to help students gain experience and a better understanding of the role of CG animators. Prerequisite: ARS 220.

ARS 323 - ANIMATION: SHORT FILM I

Semester Hours: 3

In this course students will conceptualize and fully produce 3D animated short films. The story, characters, and world will be built from the ground up, and the production pipeline will mirror common industry practices. Experience with 3D is essential, but expertise in a particular discipline is not as critical as being driven to learn and create. Prerequisites: ARS 321 or ARS 322 or ARS 324.

ARS 324 - ANIMATION: TECHNICAL ARTS I

Semester Hours: 3

Course will concentrate on areas of production that require both technical and art skill, often called technical art. Topics include in-depth rigging, automating workflows, simulations, writing custom tools, writing shaders, etc. Students will gain experience in a sought-after production role.

Prerequisite: ARS 220.

ARS 330 - GRAPHIC DESIGN: PRINT MEDIA I

Semester Hours: 3

Course emphasizes creative exploration in design and layout. Students will learn intermediate methods of graphic design. Focus for this course is additional study in design, creative thinking, and industry software. Prerequisite: ARS 230.

ARS 332 - GRAPHIC DESIGN: WEB DESIGN

Semester Hours: 3

Beginning course in web design using HTML and CSS to build effective and creative websites with strong user-centric design. Understanding HTML and current best web design practices is essential to web design and development. Prerequisite: ARS 230.

ARS 333 - GRAPH DES: WATERCOLOR & DIG I

Semester Hours: 3

Graphic design from an illustration and fine arts perspective. Course explores different creative directions using current software in combination with traditional watercolor media. Students will learn how to handle watercolor, develop creative concepts, and use software to support their design. Prerequisite: ARS 230.

ARS 334 - GRAPH DES: WEB USER EXPER I

Semester Hours: 3

Course places emphasis on user experience, web animation, and application for the purpose of media development. This course focuses on the understanding of user experience and user interface design through the study of how consumers interact with media. Prerequisite: ARS 230.

ARS 335 - GRAPHIC DESIGN: TYPOGRAPHY I

Semester Hours: 3

Course studies type design and the usage of basic letterforms, typographic contrast, and hierarchy of information, major type families and characteristics, the history of typography design, creativity, and grid layout. Prerequisite: ARS 230.

ARS 340 - SCULP: FABRICATION I

Semester 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. Course instruction includes welding, CNC plasma cutting, advanced wood joinery, and wood bending. Prerequisite: ARS 240.

ARS 341 - SCULP: CARVING I

Semester Hours: 3

Carving stone, wood, and other materials is investigated with emphasis placed on developing the ability to see and release forms and on the unique relationship evolving between maker and material. Instruction also includes CNC routing, wood turning, and sharpening techniques. Prerequisite: ARS 240.

ARS 342 - SCULP: CASTING I

Semester Hours: 3

Course instruction focuses on mold-making processes and materials involved in casting objects using both traditional and non-traditional methods. Metal casting is the principle focus of this course with investigation surrounding how digital practices continue to affect this age-old practice. Prerequisite: ARS 240.

ARS 346 - SCULP: FIGURE MODELING I

Semester 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. Prerequisite: ARS 240.

ARS 347 - SCULP: SPACE AND PLACE I

Semester Hours: 3

Investigation of installation and environmental art practices including site-specific work, public art and interactive environments. Students will explore works that relate to the experience of place and develop the potential to use sculptural objects to transform space. Prerequisite: ARS 240.

ARS 350 - PHOTO: DIGITAL I

Semester Hours: 3

Digital image creation and editing techniques using postproduction software, digital printing, and image presentation. Course addresses contemporary fine art issues and an introduction to studio lighting. Students are required to provide their own digital camera with RAW settings. Prerequisite: ARS 250.

ARS 352 - PHOTO: DARKROOM I

Semester Hours: 3

Black and white film and darkroom techniques explored as a means of expression. Course discusses artistic styles and the history of twentieth-century black and white photography. Students will produce a final fine art portfolio. 35mm camera required (available through department if necessary). Prerequisite: ARS 250.

ARS 353 - PHOTO: EXPER & HIST I

Semester Hours: 3

Introduction to alternative ways of working in the darkroom with an emphasis on historical photographic techniques. Experimentation with analog and digital materials are encouraged to produce a final portfolio. Students need a film camera (available through the department if necessary). Prerequisite: ARS 352.

ARS 355 - PHOTO: DOCUMENTARY I

Semester Hours: 3

Students study "truth" in the image using the documentary style of photography. Emphasis on the history of the genre and how to work in the field with attention to ethical issues. Students are required to provide their own digital camera with RAW settings. Prerequisite: ARS 350.

ARS 360 - DRAWING: FIGURE

Semester Hours: 3

Drawing with an emphasis on life drawing utilizing both traditional and contemporary methods and materials. Figure drawing is the traditional cornerstone of art training, and includes anatomy, observation, and advanced technical skills. Nude models will be used. Prerequisite: ARS 260.

ARS 375 - PAINTING: TRADITIONAL I

Semester 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. Students are guided in the development of artistic facility and vocabulary. Prerequisite: ARS 270.

ARS 376 - PAINTING: CONTEMPORARY I

Semester Hours: 3

Contemporary approaches toward painting are explored through technical and conceptual exercises based on contemporary painting practices. Students are guided in the development of artistic facility and personal expression. Prerequisite: ARS 270.

ARS 377 - PAINTING: MIXED MEDIA I

Semester Hours: 3

Exploration of painting with mixed and non-traditional media, including the use of assemblage and collage processes, shaped or contoured canvases, and related media. Students are guided in the development of artistic facility and a vocabulary of visual symbols for personal expression. Prerequisite: ARS 270.

ARS 381 - PRINT: ETCHING & RELIEF I

Semester Hours: 3

Etching and relief print processes are explored through woodblock, linoleum cut, aquatint and line etching. Through demonstrations, critical analysis, and making prints, students develop skills with tools, techniques and concepts associated with etching and relief printmaking. Prerequisite: ARS 280.

ARS 383 - PRINT: SCREENPRINT I

Semester Hours: 3

Studio practices in screenprint methods are used to synthesize technical skills and develop sophisticated aesthetic modes of printmaking. Through demonstrations, critical analysis, and making prints, students will consider complex ways in which printmaking becomes a tool for artistic expression. Prerequisite: ARS 280.

ARS 385 - PRINT: BOOK ARTS I

Semester Hours: 3

Students develop skills and aesthetic modes of narrative work through book arts. Emphasis on gaining skills in cutting, folding, measuring, gluing, sewing, printing, and binding. Students develop form and content through the exploration of structural mock ups and personal work. Prerequisite: ARS 280.

ARS 387 - PRINT: MONOPRINT & LITHOGRAPHY I

Semester Hours: 3

Monoprint and lithography are explored through planographic print processes. Through demonstrations, critical analysis, and making prints, student develop skills with tools techniques and concepts associated with monoprint and lithography printmaking. Prerequisite: ARS 280.

ARS 390 - CROSS DISCIPLINARY STUDIO I

Semester Hours: 3

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

ARS 393 - MULTIMEDIA I

Semester Hours: 3

Study and practice of time-based and other artistic approaches that combine elements of various art forms, usually developed along strong conceptual or thematic lines. Readings, written assignments, and presentations foster an understanding of the wide varieties of contemporary art practice.

Prerequisites: ARS 123, ARS 140, ARS 160 and ARS 260.

ARS 395 - SP TOPICS IN STUDIO ART

Semester Hours: 3

Special topics on particular media or conceptual approaches to art. This course allows the student to explore new media and/or critical theoretical approaches to contemporary art. Prerequisite: Instructor Approval.

ARS 410 - PRINCIPLES FOR TEACHING ART

Semester Hours: 3

Focus on methods, materials and processes suitable for comprehensive art education content implementation. The course is a hands-on methods course in which students are required to design and implement art lessons to be taught to students in educational settings. Prerequisites: ED 410 and at least 4 300-level ARS courses, minimum gpa 2.75 or higher.

ARS 420 - ANIMATION: TEAM GAME DESIGN II

Semester Hours: 3

In this advanced collaborative game design and development course, students take on leadership production roles on their game teams and help mentor junior members. Students will gain experience as team leads and learn to coordinate multidisciplinary projects. Prerequisite: ARS 320, approval of instructor for non-art majors.

ARS 421 - ANIMATION: MODELING II

Semester Hours: 3

This advanced 3D modeling course will expand on tools and techniques taught in ARS 321 and continue to focus on creating production/portfolio quality 3D models. Students will explore additional tools and techniques for creating real-time and pre-rendered assets, and will have the ability to focus on modeling areas of personal interest. Prerequisite: ARS 321.

ARS 422 - ANIMATION: CHARACTER ANIMTN II

Semester Hours: 3

This advanced character animation course will expand on tools and techniques taught in ARS 322 and focus on creating production/portfolio quality, full character animations. Students will explore animation tools and methods for real-time and prerendered applications, and will have the ability to focus on animation areas of personal interest. Prerequisite: ARS 322.

ARS 423 - ANIMATION: SHORT FILM II

Semester Hours: 3

In this advanced short film production course students will take on leadership roles within their discipline and help guide the conceptualization and production of 3D animated short films. Advanced understanding of an aspect of production and short film pipelines is expected. Prerequisite: ARS 323.

ARS 424 - ANIMATION: TECHNICAL ARTS II

Semester Hours: 3

In this advanced technical arts course, students will select areas of production interest to research, identify need for improvement, and create solutions for the identified needs. Students may create everything from production quality/speed shaders, to production/pipeline tools, to advanced character rigs. Prerequisite: ARS 324.

ARS 430 - GRAPHIC DESIGN: PRINT MEDIA II

Semester Hours: 3

Course emphasizes print production, special applications of print design, environmental graphics, and advertising campaigns. Focus is on mastering print media methods and creating portfolio enhancement projects. Prerequisite: ARS 332.

ARS 432 - GRAPH DES: SENIOR PROJ MGMT

Semester Hours: 3

Students develop and/or manage one or more major web projects for clients as well as a professional site for students themselves. Course is the practical application of current best web design practices including user-centric design, HTML, CSS, and current web standards. Prerequisite: ARS 332.

ARS 433 - GRAPH DES: WATERCOLOR & DIG II

Semester Hours: 3

Course extends a student's knowledge of digital and traditional watercolor media. The purpose of this course is to further explore creative techniques, develop a direction, and apply new techniques combining media. Prerequisite: ARS 333.

ARS 434 - GRAPH DES: WEB USER EXPER II

Semester Hours: 3

Course focuses on advanced methods of user experience and user interface design. With faculty mentoring, students learn how to develop complex designs using these methods in user experience for the purpose of advanced media usage. Prerequisite: ARS 334.

ARS 435 - GRAPHIC DESIGN: TYPOGRAPHY II

Semester Hours: 3

Course explores professional methods in type design and type application. Course teaches students how to develop advertising series and text design using illustrative approaches to hand lettering. Curriculum includes expressive methods in developing type for the purpose of environmental graphics. Prerequisite: ARS 335.

ARS 440 - SCULP: FABRICATION II

Semester Hours: 3

Course continues investigation of fabrication processes exploring the specific nature of each area of specialization with emphasis on integrating multiple processes into singular sculptural works. Emphasis is placed on ideation, discussion, and presentation of personal artistic interests. Prerequisite: ARS 340.

ARS 441 - SCULP: CARVING II

Semester Hours: 3

Continued exploration of subtractive processes with a focus on specific material, process, or context. Discussion of ideation, historical/contemporary contexts, and presentation specific to personal artistic interests. Prerequisite: ARS 341.

ARS 442 - SCULP: CASTING II

Semester Hours: 3

Continued exploration of mold-making, patination, casting, and foundry processes as well as investigation of contemporary methods and materials. Students develop further technical knowledge and conceptual motivation related to casting with an emphasis on individual exploration. Prerequisite: ARS 342.

ARS 447 - SCULP: SPACE AND PLACE II

Semester Hours: 3

Exploration of installation and environmental art practices with an emphasis on creating work at off-campus sites. Students will engage in rigorous ideation through site research and public presentation. Students will have the opportunity to create public artworks on campus and in the City of Huntsville.. Prerequisite: ARS 347.

ARS 450 - PHOTO: DIGITAL II

Semester Hours: 3

Advanced digital image creation and image presentation. Class is open to experimentation with analog materials to produce digital media. There is an emphasis on personal style to produce a cohesive final project. Students are required to provide their own digital camera with RAW settings. Prerequisite: ARS 350.

ARS 452 - PHOTO: DARKROOM II

Semester Hours: 3

Advanced class in black and white darkroom photography. Students will explore the techniques of medium and large format photography to produce a final fine art print portfolio. 120 and/or 4x5 view camera required (available through department if necessary). Prerequisite: ARS 352.

ARS 453 - PHOTO: EXPER & HIST II

Semester Hours: 3

Advanced alternative and historical techniques in photography with an emphasis on personal style. Individual projects will be assigned to produce a cohesive portfolio. Prerequisite: ARS 353.

ARS 455 - PHOTO: DOCUMENTARY II

Semester 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. Prerequisite: ARS 355.

ARS 460 - DRAWING: CONCEPTUAL

Semester 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. Prerequisite: ARS 360.

ARS 475 - PAINTING: TRADITIONAL II

Semester Hours: 3

Continued exploration of figurative painting processes with an emphasis on portfolio development and professional practices. Students are guided in the development of artistic facility and personal expression using paint as a medium. Prerequisite: ARS 375.

ARS 476 - PAINTING: CONTEMPORARY II

Semester Hours: 3

Continued exploration of contemporary painting approaches with an emphasis on portfolio development and professional practices. Students are guided in their development of artistic facility and a vocabulary of visual symbols for personal expression. Prerequisite: ARS 376.

ARS 477 - PAINTING: MIXED MEDIA II

Semester Hours: 3

Continued exploration of mixed and non-traditional media with an emphasis on portfolio development and professional practices. Students are guided in the development of artistic facility and a vocabulary of visual symbols for personal expression through the use of a variety of media. Prerequisite: ARS 377.

ARS 481 - PRINT: ETCHING & RELIEF II

Semester Hours: 3

This is an advanced course, where etching and relief are used to make an independent body of work. Students demonstrate how printmaking is a tool for conceptual exploration and expression. Through visual and written research students consider the hand-printed image within our culture. Prerequisite: ARS 381.

ARS 483 - PRINT: SCREENPRINT II

Semester Hours: 3

Studio practices in advanced screenprint methods are used to create an independent body of work. Students investigate how screenprinting is a tool for developing prints in an expanded way and explore the multiple through the concerns of analogue and digital possibilities. Prerequisite: ARS 383.

ARS 485 - PRINT: BOOK ARTS II

Semester Hours: 3

Students develop an advanced body of work in the book arts, by exploring structure and content. Content is developed through the student's independent investigation of text and image. Structure developed through the making of mockups. Honing technical skills in printing and binding is emphasized. Prerequisite: ARS 385.

ARS 487 - PRINT: MONOPRINT & LITHOGRAPHY II

Semester Hours: 3

Monoprint and lithography print processes are used to create an independent body of work in this advanced course. Students demonstrate how unique and multiple prints are tools for conceptual exploration and expression. Through research students consider the roll printed image within visual culture. Prerequisite: ARS 387.

ARS 490 - CROSS DISCIPLINARY STUDIO II

Semester 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 create a fully developed body of work that is aesthetically and/or conceptually linked. Prerequisite: ARS 390.

ARS 492 - ART INTERNSHIP

Semester Hours: 3

Student applies principles, theories, and skills learned in Art Studio and/or Art History courses to on-the-job experience in a professional environment. Internship host may be suggested by the student or assigned by advisor. 150 work hours required to complete 15-week internship. Prerequisite: Instructor Approval.

ARS 493 - MULTIMEDIA II

Semester Hours: 3

Continued exploration of multi-media art works with emphasis on increasing sophistication and portfolio development. Readings, written assignments, and presentations foster an understanding of the wide varieties of contemporary art practice. Prerequisite: ARS 393.

ARS 494 - PROFESSIONAL PRACTICES

Semester Hours: 3

Course is a requirement for students in the BFA program, and is open to BA students. Includes preparation for the senior exit show or design portfolio, developing written materials for careers in the visual arts, and learning how to install and manage an art exhibition. Prerequisites: ARS 123, ARS 140, ARS 160 ARS 260, plus a minimum of four 300- or 400- level studio courses.

ARS 495 - INDEPENDENT PROJECTS

Semester Hours: 3

Available for an advanced major when an appropriate course is not offered to facilitate progress to graduation. May be taken only one time. Prerequisite: Instructor Approval.

Art, BA - Art History Concentration

The Art History Discipline

- Art, BA requires 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Humanities: Choose one or two		3-6
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	

BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103	ENVIRONMENTAL EARTH SCIENCE
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Pre-Professional Courses

23

Any WLC 100 or 200 level	
ARH 100	ARH SURV:ANCIENT-MEDIEVAL
ARH 101	ARH SURV:RENAISSANCE-MODERN
ARH 103	ARH SUR:NON-WESTERN TRADITIONS
Any two 100-level ARS courses	
One 200-level ARS course	
Pre-professional Elective	
Choose from the above categories of Humanities, History, or Social and Behavioral Sciences	

Upper Division Requirements

Art History Courses:

ARH 309	CONTEMPORARY ART & ISSUES
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Select five additional ARH courses at the 300 level or above from the following:

15

ARH 301	ANCIENT GREEK ART
ARH 302	MEDIEVAL ART
ARH 303	RENAISSANCE ART
ARH 304	TWENTIETH CENTURY ART
ARH 305	ANCIENT ROMAN ART
ARH 306	COLLAPSE OF CIVILIZATIONS
ARH 307	IMPRESSIONISM & POST-IMP
ARH 310	NINETEENTH CENTURY ART
ARH 311	PHILOSOPHY OF ART
ARH 320	SPECIAL TOPICS IN ART HY
ARH 395	INDEPENDENT STUDY
HY 310	INTRODUCTION TO PUBLIC HISTORY
Senior Thesis:	
ARH 400	SENIOR THESIS
Art Studio Courses:	
One 300-level ARS course, corresponding to 200-level taken above ^{1,2}	
Minor	18
Elective Courses	
Elective hours vary by student, please see advisor.	
Total Semester Hours	120

¹ An additional 3 hr. upper-level studio, art history, or approved related discipline is required for art history majors with a studio minor. Please consult with advisor or chair.

² For example, if a student opts to take ARS 280, he or she may select among the 300-level Printmaking options: ARS 381, ARS 383, ARS 385, or ARS 387.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
MA 1XX		3
ARH 101	ARH SURV:RENAISSANCE-MODERN	3
ARS 160	DRAWING: FOUNDATIONS	3
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		13
Spring		
EH 102	COLLEGE WRITING II	3
Science w/Lab		4
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	3
ARS 123	TWO-DIMENSIONAL DES/COLOR TH	3
or ARS 140	or THREE-DIMENSIONAL DESIGN	
Area II GER Class		3
Term Semester Hours:		16

Year 2

Fall		
Foreign Language Class		3
Science w/Lab		4
HY 103	WORLD HISTORY TO 1500	3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	3
ARH 309	CONTEMPORARY ART ISSUES	3
Term Semester Hours:		16
Spring		
EH 2XX		3
ARS 2XX		3

HY 104	WORLD HISTORY SINCE 1500	3
ARH 3XX		3
Minor Class		3
Term Semester Hours:		15
Year 3		
Fall		
TH 122	THEATRE APPRECIATION	3
ARH 3XX		3
ARS 3XX		3
Minor Class		3
Minor Class		3
Term Semester Hours:		15
Spring		
Area IV GER		3
ARH 3XX		3
ARH 3XX		3
Minor Class		3
Minor Class		3
Term Semester Hours:		15
Year 4		
Fall		
Area II GER		3
ARH 3XX		3
Area V GER		3
Minor Class		3
Minor Class		3
Term Semester Hours:		15
Spring		
Area IV GER		3
ARH 400	SENIOR THESIS	3
Area V GER		3
Area V GER		3
Elective		3
Term Semester Hours:		15
Total Semester Hours:		120

Art, BA - Art Studio Concentration

The Art Studio Discipline

- Art, BA Art Studio requires at least 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		

Fine Arts: Choose one		3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Humanities: Choose one or two		3-6
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113/116	GEN PHYSICS W/CALC III	
History and Social and Behavioral Sciences		
12 hours of History and Social and Behavioral Sciences chosen from the following categories below		
History: Choose one or two		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two or three		6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Pre-Professional Courses

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Any WLC 100 or 200 level course	
Art Studio Requirements:	
ARS 123	TWO-DIMENSIONAL DES/COLOR TH
ARS 140	THREE-DIMENSIONAL DESIGN
ARS 160	DRAWING: FOUNDATIONS
ARS 260	DRAWING: INTRODUCTION
Select three additional 200-level ARS courses	
Art History Requirements. Select two of the following:	
ARH 100	ARH SURV:ANCIENT-MEDIEVAL
ARH 101	ARH SURV:RENAISSANCE-MODERN
ARH 103	ARH SUR:NON-WESTERN TRADITIONS

Upper Division Requirements ^{1,2}

Select five ARS courses at the 300 level	
Select two ARS courses at the 400 level	
ARH 309	CONTEMPORARY ART & ISSUES
Select seven courses from the following, no more than four courses in one area	

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Digital Animation:	
ARS 320	ANIMATION: TEAM GAME DESGN I
ARS 321	ANIMATION: MODELING I
ARS 322	ANIMATION: CHARACTER ANIMTN I
ARS 323	ANIMATION: SHORT FILM I
ARS 324	ANIMATION: TECHNICAL ARTS I
ARS 420	ANIMATION: TEAM GAME DESIGN II
ARS 421	ANIMATION: MODELING II
ARS 422	ANIMATION: CHARACTER ANIMTN II
ARS 423	ANIMATION: SHORT FILM II
ARS 424	ANIMATION: TECHNICAL ARTS II
Graphic Design:	
ARS 330	GRAPHIC DESIGN: PRINT MEDIA I
ARS 332	GRAPHIC DESIGN: WEB DESIGN
ARS 333	GRAPH DES: WATERCOLOR & DIG I
ARS 334	GRAPH DES: WEB USER EXPER I
ARS 335	GRAPHIC DESIGN: TYPOGRAPHY I
ARS 430	GRAPHIC DESIGN: PRINT MEDIA II
ARS 432	GRAPH DES: SENIOR PROJ MGMT
ARS 433	GRAPH DES: WATERCOLOR & DIG II

ARS 434	GRAPH DES: WEB USER EXPER II
ARS 435	GRAPHIC DESIGN: TYPOGRAPHY II
Painting/Drawing:	
ARS 360	DRAWING: FIGURE
ARS 375	PAINTING: TRADITIONAL I
ARS 376	PAINTING: CONTEMPORARY I
ARS 377	PAINTING: MIXED MEDIA I
ARS 460	DRAWING: CONCEPTUAL
ARS 475	PAINTING: TRADITIONAL II
ARS 476	PAINTING: CONTEMPORARY II
ARS 477	PAINTING: MIXED MEDIA II
Printmaking:	
ARS 381	PRINT: ETCHING & RELIEF I
ARS 383	PRINT: SCREENPRINT I
ARS 385	PRINT: BOOK ARTS I
ARS 387	PRINT: MONOPRINT & LITHOGRAPHY I
ARS 481	PRINT: ETCHING & RELIEF II
ARS 483	PRINT: SCREENPRINT II
ARS 485	PRINT: BOOK ARTS II
ARS 487	PRINT: MONOPRINT & LITHOGRAPHY II
Photography:	
ARS 350	PHOTO: DIGITAL I
ARS 352	PHOTO: DARKROOM I
ARS 353	PHOTO: EXPER & HIST I
ARS 355	PHOTO: DOCUMENTARY I
ARS 450	PHOTO: DIGITAL II
ARS 452	PHOTO: DARKROOM II
ARS 453	PHOTO: EXPER & HIST II
ARS 455	PHOTO: DOCUMENTARY II
Sculpture:	
ARS 340	SCULP: FABRICATION I
ARS 341	SCULP: CARVING I
ARS 342	SCULP: CASTING I
ARS 347	SCULP: SPACE AND PLACE I
ARS 440	SCULP: FABRICATION II
ARS 441	SCULP: CARVING II
ARS 442	SCULP: CASTING II
ARS 447	SCULP: SPACE AND PLACE II
Other:	
ARS 346	SCULP: FIGURE MODELING I
ARS 390	CROSS DISCIPLINARY STUDIO I
ARS 393	MULTIMEDIA I
ARS 395	SP TOPICS IN STUDIO ART
ARS 490	CROSS DISCIPLINARY STUDIO II
ARS 492	ART INTERNSHIP
ARS 493	MULTIMEDIA II
ARS 494	PROFESSIONAL PRACTICES
ARS 495	INDEPENDENT PROJECTS
Courses at Alabama A&M ³	

Minor Courses

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Elective Courses

Elective hours vary by student, see advisor.

Total Semester Hours 120

¹ These are tracks are based on a student's interest, but they are not recognized concentrations or majors. Students will receive a Bachelor of Arts; Major: Art; Concentration: Art Studio.

² Majors with an Art Studio focus must satisfy a group exhibition (fine arts areas) or portfolio review (digital animation and graphic design) requirement. Students emphasizing digital animation and graphic design must successfully present a comprehensive portfolio as part of the coursework for their final 400-level course. All other art majors with an Art Studio focus must successfully mount a senior group exhibition of their work. Contact the Department for specific requirements.

³ To fulfill upper-division elective studio requirements, a student may take two art studio courses at Alabama A&M. These courses must be selected from ART 305, ART 306, ART 307, and ART 308.

Year 1

		Semester Hours
Fall		
EH 101	COLLEGE WRITING I	3
MATH 1XX		3
ARS 123	TWO-DIMENSIONAL DES/COLOR TH	3
ARS 160	DRAWING: FOUNDATIONS	3
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		13
Spring		
EH 102	COLLEGE WRITING II	3
ARS 140	THREE-DIMENSIONAL DESIGN	3
ARS 260	DRAWING: INTRODUCTION	3
Science w/Lab		4
ARH 1XX		3
Term Semester Hours:		16

Year 2

Fall		
FL 1XX		3
Science w/Lab		4
HY 103	WORLD HISTORY TO 1500	3
ARS 2XX		3
ARS 2XX		3
Term Semester Hours:		16
Spring		
EH 2XX		3
HY 104	WORLD HISTORY SINCE 1500	3
ARH 1XX		3
ARS 2XX		3
ARS 3XX		3
Term Semester Hours:		15

Year 3

Fall		
TH 122	THEATRE APPRECIATION	3
ARH 309	CONTEMPORARY ART ISSUES	3
ARS 3XX		3
Minor Courses		6
Term Semester Hours:		15
Spring		
GER Area II		3
GER Area IV		3
ARS 3XX		3

Minor Courses	6
Term Semester Hours:	15
Year 4	
Fall	
GER Area II	3
GER Area IV	3
Minor Courses	6
ARS 3XX	3
Term Semester Hours:	15
Spring	
ARS 3XX	3
ARS 4XX	3
ARS 4XX	3
Minor Course	3
Elective	3
Term Semester Hours:	15
Total Semester Hours:	120

Art, BFA - Graphic Design Concentration

Graphic Design Concentration

- Art, BFA Graphic Design requires at least 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Foreign Language Requirement		3
Any WLC 100 or 200 level course		
Humanities: Choose one if needed		0-3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	

WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113/116	GEN PHYSICS W/CALC III	
History and Social and Behavioral Sciences		
12 hours of History and Social and Behavioral Sciences chosen from the following categories below		
History: Choose one or two		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two or three		6-9
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	

Code	Title	Semester Hours
Pre-professional		21
Art Studio Requirements:		12
ARS 123	TWO-DIMENSIONAL DES/COLOR TH	
ARS 140	THREE-DIMENSIONAL DESIGN	
ARS 160	DRAWING: FOUNDATIONS	
ARS 260	DRAWING: INTRODUCTION	
Art History:		9
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
Major Requirements:		
Foundations:		12
ARS 123	TWO-DIMENSIONAL DES/COLOR TH	
ARS 140	THREE-DIMENSIONAL DESIGN	
ARS 160	DRAWING: FOUNDATIONS	
ARS 260	DRAWING: INTRODUCTION	
Select four:		12
ARS 220	ANIMATION: INTRODUCTION	
ARS 230	GRAPHIC DESIGN: INTRODUCTION	
ARS 240	SCULPTURE: INTRODUCTION	
ARS 250	PHOTOGRAPHY: INTRODUCTION	
ARS 270	PAINTING: INTRODUCTION	
ARS 280	PRINTMAKING: INTRODUCTION	
Upper Division Requirements		
ARS 390	CROSS DISCIPLINARY STUDIO I	
ARS 494	PROFESSIONAL PRACTICES	
Select 4 ARS courses at the 300-level in the field of concentration		12
Select 2 ARS courses at the 400-level in the field of concentration		6
ARS 330	GRAPHIC DESIGN: PRINT MEDIA I	
ARS 332	GRAPHIC DESIGN: WEB DESIGN	
ARS 333	GRAPH DES: WATERCOLOR & DIG I	
ARS 334	GRAPH DES: WEB USER EXPER I	
ARS 335	GRAPHIC DESIGN: TYPOGRAPHY I	
ARS 430	GRAPHIC DESIGN: PRINT MEDIA II	
ARS 432	GRAPH DES: SENIOR PROJ MGMT	
ARS 433	GRAPH DES: WATERCOLOR & DIG II	
ARS 434	GRAPH DES: WEB USER EXPER II	
ARS 435	GRAPHIC DESIGN: TYPOGRAPHY II	
Art History Requirements:		
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARH 309	CONTEMPORARY ART & ISSUES	
Select one of the following 300-level Art History courses before 1800:		3
ARH 301	ANCIENT GREEK ART	
ARH 302	MEDIEVAL ART	
ARH 303	RENAISSANCE ART	
ARH 305	ANCIENT ROMAN ART	
ARH 306	COLLAPSE OF CIVILIZATIONS	
ARH 320	SPECIAL TOPICS IN ART HY ¹	

Select one of the following 300-level Art History courses after 1800:	3
ARH 304	TWENTIETH CENTURY ART
ARH 307	IMPRESSIONISM & POST-IMP
ARH 310	NINETEENTH CENTURY ART
ARH 311	PHILOSOPHY OF ART
HY 310	INTRODUCTION TO PUBLIC HISTORY
ARH 320	SPECIAL TOPICS IN ART HY ¹
Electives	12
Select 4 courses ARH/ARS 300-level or above	12
Total Semester Hours	120

¹ Depending on the topic of this course, it may satisfy either the Pre- or Post-1800 requirement, or function as an elective.

Art, BFA - Painting/Drawing Concentration

Painting/Drawing Concentration

- Art, BFA Painting/Drawing requires at least 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Foreign Language Requirement		3
Any WLC 100 or 200 level course		
Humanities: Choose one if needed		0-3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	

MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113/116	GEN PHYSICS W/CALC III	
History and Social and Behavioral Sciences		
12 hours of History and Social and Behavioral Sciences chosen from the following categories below		
History: Choose one or two		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two or three		6-9
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
Code	Title	Semester Hours
Pre-professional		21
Art Studio Requirements:		12
ARS 123	TWO-DIMENSIONAL DES/COLOR TH	
ARS 140	THREE-DIMENSIONAL DESIGN	
ARS 160	DRAWING: FOUNDATIONS	

ARS 260	DRAWING: INTRODUCTION	
Art History:		9
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
Major Requirements:		
Foundations:		12
ARS 123	TWO-DIMENSIONAL DES/COLOR TH	
ARS 140	THREE-DIMENSIONAL DESIGN	
ARS 160	DRAWING: FOUNDATIONS	
ARS 260	DRAWING: INTRODUCTION	
Select four:		12
ARS 220	ANIMATION: INTRODUCTION	
ARS 230	GRAPHIC DESIGN: INTRODUCTION	
ARS 240	SCULPTURE: INTRODUCTION	
ARS 250	PHOTOGRAPHY: INTRODUCTION	
ARS 270	PAINTING: INTRODUCTION	
ARS 280	PRINTMAKING: INTRODUCTION	
Upper Division Requirements		
ARS 390	CROSS DISCIPLINARY STUDIO I	
ARS 494	PROFESSIONAL PRACTICES	
Select 4 ARS courses at the 300-level in the field of concentration		12
Select 2 ARS courses at the 400-level in the field of concentration		6
ARS 360	DRAWING: FIGURE	
ARS 375	PAINTING: TRADITIONAL I	
ARS 376	PAINTING: CONTEMPORARY I	
ARS 377	PAINTING: MIXED MEDIA I	
ARS 460	DRAWING: CONCEPTUAL	
ARS 475	PAINTING: TRADITIONAL II	
ARS 476	PAINTING: CONTEMPORARY II	
ARS 477	PAINTING: MIXED MEDIA II	
Art History Requirements:		
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARH 309	CONTEMPORARY ART & ISSUES	
Select one of the following 300-level Art History courses before 1800:		3
ARH 301	ANCIENT GREEK ART	
ARH 302	MEDIEVAL ART	
ARH 303	RENAISSANCE ART	
ARH 305	ANCIENT ROMAN ART	
ARH 306	COLLAPSE OF CIVILIZATIONS	
ARH 320	SPECIAL TOPICS IN ART HY ¹	
Select one of the following 300-level Art History courses after 1800:		3
ARH 304	TWENTIETH CENTURY ART	
ARH 307	IMPRESSIONISM & POST-IMP	
ARH 310	NINETEENTH CENTURY ART	
ARH 311	PHILOSOPHY OF ART	
HY 310	INTRODUCTION TO PUBLIC HISTORY	
ARH 320	SPECIAL TOPICS IN ART HY ¹	
Electives		12

Select 4 courses ARH/ARS 300-level or above	12
Total Semester Hours	120

¹ Depending on the topic of this course, it may satisfy either the Pre- or Post-1800 requirement, or function as an elective.

Art, BFA - Photography Concentration

Photography Concentration

- Art, BFA Photography requires at least 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Foreign Language Requirement		3
Any WLC 100 or 200 level course		
Humanities: Choose one if needed		0-3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	

BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103	ENVIRONMENTAL EARTH SCIENCE
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
Pre-professional		21
Art Studio Requirements:		12
ARS 123	TWO-DIMENSIONAL DES/COLOR TH	
ARS 140	THREE-DIMENSIONAL DESIGN	
ARS 160	DRAWING: FOUNDATIONS	
ARS 260	DRAWING: INTRODUCTION	
Art History:		9
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
Major Requirements:		
Foundations:		12
ARS 123	TWO-DIMENSIONAL DES/COLOR TH	

ARS 140	THREE-DIMENSIONAL DESIGN	
ARS 160	DRAWING: FOUNDATIONS	
ARS 260	DRAWING: INTRODUCTION	
Select four:		12
ARS 220	ANIMATION: INTRODUCTION	
ARS 230	GRAPHIC DESIGN: INTRODUCTION	
ARS 240	SCULPTURE: INTRODUCTION	
ARS 250	PHOTOGRAPHY: INTRODUCTION	
ARS 270	PAINTING: INTRODUCTION	
ARS 280	PRINTMAKING: INTRODUCTION	
Upper Division Requirements		
ARS 390	CROSS DISCIPLINARY STUDIO I	
ARS 494	PROFESSIONAL PRACTICES	
Select 4 ARS courses at the 300-level in the field of concentration		12
Select 2 ARS courses at the 400-level in the field of concentration		6
ARS 350	PHOTO: DIGITAL I	
ARS 352	PHOTO: DARKROOM I	
ARS 353	PHOTO: EXPER & HIST I	
ARS 355	PHOTO: DOCUMENTARY I	
ARS 450	PHOTO: DIGITAL II	
ARS 452	PHOTO: DARKROOM II	
ARS 453	PHOTO: EXPER & HIST II	
ARS 455	PHOTO: DOCUMENTARY II	
Art History Requirements:		
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARH 309	CONTEMPORARY ART & ISSUES	
Select one of the following 300-level Art History courses before 1800:		3
ARH 301	ANCIENT GREEK ART	
ARH 302	MEDIEVAL ART	
ARH 303	RENAISSANCE ART	
ARH 305	ANCIENT ROMAN ART	
ARH 306	COLLAPSE OF CIVILIZATIONS	
ARH 320	SPECIAL TOPICS IN ART HY ¹	
Select one of the following 300-level Art History courses after 1800:		3
ARH 304	TWENTIETH CENTURY ART	
ARH 307	IMPRESSIONISM & POST-IMP	
ARH 310	NINETEENTH CENTURY ART	
ARH 311	PHILOSOPHY OF ART	
HY 310	INTRODUCTION TO PUBLIC HISTORY	
ARH 320	SPECIAL TOPICS IN ART HY ¹	
Electives		12
Select 4 courses ARH/ARS 300-level or above		12
Total Semester Hours		120

¹ Depending on the topic of this course, it may satisfy either the Pre- or Post-1800 requirement, or function as an elective.

Art, BFA - Printmaking Concentration

Printmaking Concentration

- Art, BFA Printmaking requires at least 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Foreign Language Requirement		3
Any WLC 100 or 200 level course		
Humanities: Choose one if needed		0-3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	

ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Pre-professional 21

Art Studio Requirements: 12

ARS 123	TWO-DIMENSIONAL DES/COLOR TH
ARS 140	THREE-DIMENSIONAL DESIGN
ARS 160	DRAWING: FOUNDATIONS
ARS 260	DRAWING: INTRODUCTION

Art History: 9

ARH 100	ARH SURV:ANCIENT-MEDIEVAL
ARH 101	ARH SURV:RENAISSANCE-MODERN
ARH 103	ARH SUR:NON-WESTERN TRADITIONS

Major Requirements:

Foundations: 12

ARS 123	TWO-DIMENSIONAL DES/COLOR TH
ARS 140	THREE-DIMENSIONAL DESIGN
ARS 160	DRAWING: FOUNDATIONS
ARS 260	DRAWING: INTRODUCTION

Select four: 12

ARS 220	ANIMATION: INTRODUCTION
ARS 230	GRAPHIC DESIGN: INTRODUCTION
ARS 240	SCULPTURE: INTRODUCTION

ARS 250	PHOTOGRAPHY: INTRODUCTION	
ARS 270	PAINTING: INTRODUCTION	
ARS 280	PRINTMAKING: INTRODUCTION	
Upper Division Requirements		
ARS 390	CROSS DISCIPLINARY STUDIO I	
ARS 494	PROFESSIONAL PRACTICES	
Select 4 ARS courses at the 300-level in the field of concentration		12
Select 2 ARS courses at the 400-level in the field of concentration		6
ARS 381	PRINT: ETCHING & RELIEF I	
ARS 383	PRINT: SCREENPRINT I	
ARS 385	PRINT: BOOK ARTS I	
ARS 387	PRINT: MONOPRINT & LITHOGRAPHY I	
ARS 481	PRINT: ETCHING & RELIEF II	
ARS 483	PRINT: SCREENPRINT II	
ARS 485	PRINT: BOOK ARTS II	
ARS 487	PRINT: MONOPRINT & LITHOGRAPHY II	
Art History Requirements:		
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARH 309	CONTEMPORARY ART & ISSUES	
Select one of the following 300-level Art History courses before 1800:		3
ARH 301	ANCIENT GREEK ART	
ARH 302	MEDIEVAL ART	
ARH 303	RENAISSANCE ART	
ARH 305	ANCIENT ROMAN ART	
ARH 306	COLLAPSE OF CIVILIZATIONS	
ARH 320	SPECIAL TOPICS IN ART HY ¹	
Select one of the following 300-level Art History courses after 1800:		3
ARH 304	TWENTIETH CENTURY ART	
ARH 307	IMPRESSIONISM & POST-IMP	
ARH 310	NINETEENTH CENTURY ART	
ARH 311	PHILOSOPHY OF ART	
HY 310	INTRODUCTION TO PUBLIC HISTORY	
ARH 320	SPECIAL TOPICS IN ART HY ¹	
Electives		12
Select 4 courses ARH/ARS 300-level or above		12
Total Semester Hours		120

¹ Depending on the topic of this course, it may satisfy either the Pre- or Post-1800 requirement, or function as an elective.

Art, BFA - Sculpture Concentration

Sculpture Concentration

- Art, BFA Sculpture requires at least 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Foreign Language Requirement		3
Any WLC 100 or 200 level course		
Humanities: Choose one if needed		0-3
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	

PH 113/116

GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Pre-professional 21

Art Studio Requirements: 12

ARS 123	TWO-DIMENSIONAL DES/COLOR TH
ARS 140	THREE-DIMENSIONAL DESIGN
ARS 160	DRAWING: FOUNDATIONS
ARS 260	DRAWING: INTRODUCTION

Art History: 9

ARH 100	ARH SURV:ANCIENT-MEDIEVAL
ARH 101	ARH SURV:RENAISSANCE-MODERN
ARH 103	ARH SUR:NON-WESTERN TRADITIONS

Major Requirements:

Foundations: 12

ARS 123	TWO-DIMENSIONAL DES/COLOR TH
ARS 140	THREE-DIMENSIONAL DESIGN
ARS 160	DRAWING: FOUNDATIONS
ARS 260	DRAWING: INTRODUCTION

Select four: 12

ARS 220	ANIMATION: INTRODUCTION
ARS 230	GRAPHIC DESIGN: INTRODUCTION
ARS 240	SCULPTURE: INTRODUCTION
ARS 250	PHOTOGRAPHY: INTRODUCTION
ARS 270	PAINTING: INTRODUCTION
ARS 280	PRINTMAKING: INTRODUCTION

Upper Division Requirements

ARS 390	CROSS DISCIPLINARY STUDIO I
ARS 494	PROFESSIONAL PRACTICES

Select 4 ARS courses at the 300-level in the field of concentration 12

Select 2 ARS courses at the 400-level in the field of concentration 6

ARS 340	SCULP: FABRICATION I	
ARS 341	SCULP: CARVING I	
ARS 342	SCULP: CASTING I	
ARS 347	SCULP: SPACE AND PLACE I	
ARS 440	SCULP: FABRICATION II	
ARS 441	SCULP: CARVING II	
ARS 442	SCULP: CASTING II	
ARS 447	SCULP: SPACE AND PLACE II	
Art History Requirements:		
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARH 309	CONTEMPORARY ART & ISSUES	
Select one of the following 300-level Art History courses before 1800:		3
ARH 301	ANCIENT GREEK ART	
ARH 302	MEDIEVAL ART	
ARH 303	RENAISSANCE ART	
ARH 305	ANCIENT ROMAN ART	
ARH 306	COLLAPSE OF CIVILIZATIONS	
ARH 320	SPECIAL TOPICS IN ART HY ¹	
Select one of the following 300-level Art History courses after 1800:		3
ARH 304	TWENTIETH CENTURY ART	
ARH 307	IMPRESSIONISM & POST-IMP	
ARH 310	NINETEENTH CENTURY ART	
ARH 311	PHILOSOPHY OF ART	
HY 310	INTRODUCTION TO PUBLIC HISTORY	
ARH 320	SPECIAL TOPICS IN ART HY ¹	
Electives		12
Select 4 courses ARH/ARS 300-level or above		12
Total Semester Hours		120

¹ Depending on the topic of this course, it may satisfy either the Pre- or Post-1800 requirement, or function as an elective.

Art History Minor

Students focusing on the studio discipline are strongly encouraged to pursue a minor in Art History which will give them a better understanding of the visual arts tradition.

Code	Title	Semester Hours
Required Courses		12
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	3
ARH 101	ARH SURV:RENAISSANCE-MODERN	3
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	3
ARH 309	CONTEMPORARY ART & ISSUES	3
Pre-1800 (Select one of the following):		3
ARH 301	ANCIENT GREEK ART	
ARH 302	MEDIEVAL ART	
ARH 303	RENAISSANCE ART	
ARH 305	ANCIENT ROMAN ART	
ARH 306	COLLAPSE OF CIVILIZATIONS	
ARH 320	SPECIAL TOPICS IN ART HY	
Post-1800 (Select one of the following):		3

ARH 304	TWENTIETH CENTURY ART	
ARH 307	IMPRESSIONISM & POST-IMP	
ARH 310	NINETEENTH CENTURY ART	
ARH 311	PHILOSOPHY OF ART	
ARH 320	SPECIAL TOPICS IN ART HY	
HY 310	INTRODUCTION TO PUBLIC HISTORY	
Elective Course (Choose from above)		3
Total Semester Hours		21

Art Studio Minor

21 semester hours within the Department of Art and Art History:

Code	Title	Semester Hours
ARS 160	DRAWING: FOUNDATIONS	3
Select two ARS 200-level studio courses ¹		6
Select four ARS 300-level studio courses ²		12
Total Semester Hours		21

¹ Although all 200-level studio courses with the exception of ARS 240 require ARS 123 and ARS 160 as pre-requisites, Art Studio minors may take these courses. Please contact department chair for prerequisite override when registering.

² May include 400-level courses if the corresponding 300-level courses are successfully completed. For example, a student passing ARS 330 may take ARS 430 to count within the 12 semester hour total at the upper division.

Communication Arts

342 Morton Hall
Telephone: 256.824.6645
Email: comm@uah.edu

The Department of Communication Arts offers a comprehensive program of study leading to a Bachelor of Arts degree. Majors and minors gain practical, critical, historical, and theoretical perspectives on human communication, preparing them for work, for social life, and for further academic studies. The department offers courses in rhetoric, interpersonal communication, communication theory and research, social media, nonverbal communication, media writing, public relations, theatre, and other specialized communication contexts.

The department of Communication Arts offers the following degree programs:

- Communication Arts BA (p. 77)
- Theatre BA (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/communication-arts/theatre>)
- Writing BA (p. 194)
- Communication Arts Minor (p. 81)
- Theatre Minor (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/communication-arts/theatre-minor>)

Program Objectives

The Department of Communication Arts offers a variety of classes that critically examine the public, professional, cultural and personal dimensions of human communication. Our comprehensive program strategically weaves together core courses in the humanistic tradition of rhetorical theory and practice with social-scientific perspectives on communication. This curriculum capitalizes on the field's far-reaching theoretical span, having roots in ancient Greco-Roman civilizations, where rhetoric became the capstone of education and the lifeblood of civic activity, and having fertile branches in the communication media of the present and future. Our goal for the communication arts degree is to equip majors with the critical thinking skills necessary to insightfully interpret persuasive messages, carefully reflect on the relationship between humanity and persuasion, and effectively participate in a variety of communicative contexts.

The department allows students to focus on traditional rhetorical studies, with emphasis on speech, textual criticism and argument; human communication, which explores and challenges communicative rules, theories, norms, and strategies in the personal practice of interpersonal communication; and media studies, which considers various genres and channels of communication in the age of new media. Students completing

the degree in communication may pursue work in public relations, social media management, fund-raising, advertising, marketing, and other communication-intensive positions, or they may pursue law school or other graduate education.

As teachers, our department is committed to developing mentoring relationships with students and maintaining rigorous standards for the classroom. Our department also recognizes the symbiotic relationship between active research and creative teaching. Therefore we maintain a climate that encourages scholarly interaction through departmental meetings, academic conferences, and scholarly publication. Finally, our department takes seriously its service to the students, the university, the community, and the profession. Through course offerings and committees we serve the College of Business, the College of Education, the College of Science, the women's studies program, as well as other university departments and programs.

Major in Communication Arts

- Communication Arts, BA (p. 77)
- Theatre, BA (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/communication-arts/theatre>)
- Writing, BA (p. 194)

Minors in Communication Arts

- Communication Arts (p. 81)
- Theatre (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/communication-arts/theatre-minor>)
- Writing

CM 113 - Intro to Rhetorical Communication

Semester Hours: 3

Develops public speaking skills through an examination of rhetorical theory, training, and practice. Includes informative, persuasive, and other forms of speeches to prepare students for oral presentations in college and post-college ("real world") settings.

CM 205 - INTRO TO JOURNALISM

Semester Hours: 3

Focuses on basic news writing skills specific to print journalism. Students will learn to identify new based on news values, develop leads, organize information, write stories in the inverted pyramid style, revise drafts, and copy-edit articles, all while working under simulated deadline pressure.

CM 210 - WRITING FOR VISUAL MEDIA

Semester Hours: 3

This course offers an introduction to scriptwriting for a variety of media: commercials, PSAs, fiction films, documentaries, and the web. The art of "visual writing" is emphasized. Students produce scripts on their own while contributing to and critiquing the work of their fellow classmates. ed, communication medium. Prerequisites: EH 101, EH 102.

CM 220 - INTRO PUBLIC RELATIONS

Semester Hours: 3

This course is designed to introduce students to the public relations profession. Through study of rhetorical and communication strategies, individual and group projects, as well as speaking and writing experiences, students gain the knowledge necessary to actively participate as effective public relation professionals.

CM 231 - FOUNDATIONS OF HUMAN COMMUNICA

Semester Hours: 3

Examines how human communication shapes and adapts to a variety of practical settings public, interpersonal, organizational, mass, and technical. It prepares students for effective work in various communication contexts.

CM 251 - DECISION-MAKING IN SMALL GROUP

Semester Hours: 3

Provides working knowledge of how small groups communicate in the decision-making process. Students put theory into practice by functioning as group participants, observers, and consultants. Emphasis is placed on leadership, theoretical application, group participation, and oral presentation.

CM 260 - VIDEO PRODUCTION

Semester Hours: 3

This course provides students with an opportunity to experience the process of video production through creative projects designed to stimulate the visual artist, summon the storyteller and create the video editor.

CM 310 - PERSUASION

Semester Hours: 3

Provides foundation in the theories, principles, and strategies of social influence through theory and application. Students explore persuasive communication, social influence, and compliance-gaining from a social-scientific level and examine the production and consumption of persuasive messages.

CM 313 - BUSINESS & PROFESSIONAL COMM

Semester 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. (Prepare business administration students to meet the oral communication requirement in upper division and graduate business courses).

CM 320 - PRACTICUM IN WRITING

Semester 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, CM 302, enrollment in the Technical Writing Track, and a successful interview with the participating technical supervisor.

CM 330 - NONVERBAL COMMUNICATION

Semester Hours: 3

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

CM 331 - COMMUNICATION THEORY

Semester Hours: 3

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. Prerequisite: CM 231.

CM 333 - INTERPERSONAL COMMUNICATION

Semester Hours: 3

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

CM 334 - HIST OF AMERICAN CINEMA

Semester Hours: 3

Investigates the American cinema as a cultural artifact by studying cultural and historical context of representations, audiences, aesthetics and industry practices in American cinema from its beginning (1895) to present.

CM 340 - SPEC TOPICS IN COMM ARTS

Semester Hours: 3

Topics announced in advance. Representative topics include rhetoric and war, technical theatre, and culture and communication. May be repeated twice for credit.

CM 360 - ADVANCED VIDEO PRODUCTION

Semester Hours: 3

Advanced Video Production is an intensive video production course designed to integrate film theory and practice. Students will learn the technical and artistic necessities of the film and video medium. Through immersive lectures, workshops, projects, and exercises, students will gain valuable experience and know-how in this exciting, fast-paced, communication medium. Prerequisite: CM 260.

CM 370 - COMM RESEARCH METHODS

Semester Hours: 3

Examines social scientific concepts, theories and designs commonly used 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. Prerequisite: CM 231.

CM 375 - RHETORICAL CRITICISM

Semester 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. Teaching students to understand the persuasive potential of messages prepares them as critical consumers, analysts, and potential creators of such messages. Prerequisite: CM 113 or approval of instructor.

CM 400 - INTERNSHIP

Semester 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.

Prerequisite: Senior Standing with CM major, and permission of instructor.

CM 405 - ADVANCED MEDIA WRITING

Semester Hours: 3

An upper level course that offers an overview of various media writing genres, including Broadcast, Advertising and Public Relations. Students complete a mix of timed assignments within each context to acquire a more complete survey of media writing and prepare for a career within the mass media.

Prerequisite: CM 205.

CM 408 - CLASSICAL RHET THEORY

Semester Hours: 3

This course surveys the early development of rhetorical theory in the Western world, from its sophistic origins in the 5th century BCE, through the Greek philosophers and educators, to the Romans and early Christians. Prerequisites: CM 113.

CM 409 - CONTEMPORARY RHETORICAL THEORY

Semester Hours: 3

This course surveys contemporary rhetorical thought, including modern and postmodern theories. The course requires rigorous academic analysis and critique as students explore historical and current rhetorical concepts. Prerequisite: CM 113.

CM 414 - CREATIVE NONFICTION WRITING

Semester Hours: 3

This course introduces students to the genre of creative non-fiction. Undergraduate students will write five essays and revise toward a final writing portfolio.

CM 416 - WOMEN ORATORS

Semester 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 418 - LEGAL ARGUMENT

Semester 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.

CM 420 - PUBLIC RELATIONS WRITING

Semester Hours: 3

This course provides students with professionalization in their writing and editorial skills in public relations. By emphasizing different audiences and various media, students will find and hone their public relations voice. Students will gain experience with instant responses, making ethical and legal decisions, and practicing a wide range of PR writing and design including the development of media kits, pitches, backgrounders, press releases, memos, newsletters, radio announcements, and brochures. Prerequisite: CM 220 (C or better).

CM 426 - BURKEIAN THEORY & CRITICISM

Semester 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. Prerequisite: Junior standing.

CM 430 - MASS MEDIA IN AMERICA

Semester Hours: 3

This course provides an overview of major forms of mass media communication. It focuses on both print and electronic media, its history and structure as well as on theories of mass communication. Students will become familiar with the current role and influence of media in society.

CM 431 - SR SEM COMM THEORY/RESEARCH

Semester Hours: 3

Senior capstone course involving either a scholarly project or an approved communication-intensive internship combined with a comprehensive examination. Prerequisites: CM 370 and CM 375, and senior standing.

CM 433 - DARK SIDE INTERPERSONAL COMM

Semester 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 relationships by exploring a variety of topics related to the "darker" side of relationships situated in the contexts of friendships, 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. Prerequisite: CM 231.

CM 435 - SOCIAL MEDIA

Semester Hours: 3

This course focuses on uses and effects of social media in interpersonal, organizational, mass mediated, health, and political settings. Social media technologies take on many different forms including social networking sites, micro-blogging, wikis, online videos, and blogs. Following questions are discussed in class: Who uses social media? How do people use social media to develop relationships, get social support, and evoke political change? Is privacy dead? How do employers use social media to check on employees?.

CM 440 - PUBLIC RELATIONS CAMPAIGN

Semester Hours: 3

This course provides professionalization and team work experience for students in the public relations track. Students practice the research, planning, implementation, and evaluation of strategic communication plans for various public relations contexts. Prerequisite: CM 220 (C-or better).

CM 444 - ADVERTISING

Semester Hours: 3

This course will examine the emergence of advertising as a form of communication, its influence upon other forms of mediated communications and its impact upon culture and society. Students will learn how to develop and present an advertising strategy for an actual brand. Prerequisite: Junior standing.

CM 451 - ORGANIZATIONAL TRNG & DEVELOP

Semester 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. Prerequisite: Junior standing.

CM 454 - NEW MEDIA WRITING & RHETORIC

Semester Hours: 3

This course teaches students to apply rhetorical principles across a variety of media and includes an examination of communication strategies used widely in academic and industry settings. The course focuses on new media through an exploration of digital technologies and the way digital culture and new media have dramatically impacted reading, writing, and research practices. Prerequisites: EH 101 and EH 102.

CM 455 - COMMUNICATION & CULTURE

Semester Hours: 3

This course focuses on the application of theory and research to intercultural communication. Topics and activities assist the 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 unlike others. Prerequisite: Junior standing.

Communication Arts, BA

Students wishing to major in communication arts should make that declaration at or before the beginning of the sophomore year. Students need to work closely with a faculty advisor to plan a program of study. A major in communication arts consists of 36 semester hours of coursework in the major, at least 21 semester hours of which must be at or above the 300-level. Transfer students must take at least 12 semester hours of upper-level coursework in the major at UAH.

- Communication Arts, BA requires 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose two		6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	

PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences 12

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one sequence 6

HY 103 & HY 104	WORLD HISTORY TO 1500 and WORLD HISTORY SINCE 1500
HY 221 & HY 222	UNITED STATES TO 1877 and UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Pre-Professional 19

Any WLC course at the 100 or 200 level.

Additional CM Course

Choose 13 credit hours from the above listed Fine Arts, Humanities, History, Mathematics, Science, or Social and Behavioral Sciences. Only up to 9 hours of Mathematics and Science will be allowed.

Required Core 36

CM 113	Intro to Rhetorical Communication
CM 231	FOUNDATIONS OF HUMAN COMMUNICA
CM 331 or CM 408 or CM 409	
CM 370	COMM RESEARCH METHODS
CM 375	RHETORICAL CRITICISM
CM 431	SR SEM COMM THEORY/RESEARCH
Choose three CM 300+	
Choose three CM Electives at any level	

Minor Courses 18

Elective Courses

Elective hours vary by program, see advisor.

Total Semester Hours 120

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
FYE 101	CHARGER SUCCESS	1
WLC 101		3
Social and Behavioral Science		3
Math 1XX		3
Term Semester Hours:		13

Spring

EH 102	COLLEGE WRITING II	3
CM 113	Intro to Rhetorical Communication	3
Fine Arts		3
Social/Behavioral Science		3
Science w/Lab		4
Term Semester Hours:		16

Year 2

Fall		
CM 231	FOUNDATIONS OF HUMAN COMMUNICA	3
HY 103	WORLD HISTORY TO 1500	3
Area V GER Course		3
Humanities or Literature		3
Minor Course		3
Term Semester Hours:		15

Spring

CM Elective		3
HY 104	WORLD HISTORY SINCE 1500	3
EH 207 or EH 208	READINGS LITERATURE/CULTURE I or READINGS LITERATURE/CULTURE 2	3
Science w/Lab		4
Minor Course		3
Term Semester Hours:		16

Year 3

Fall		
CM 375	RHETORICAL CRITICISM	3
CM Elective		3
Minor Course		3
Area V GER Course		3
Area V GER Course		3
Term Semester Hours:		15

Spring

CM 331	COMMUNICATION THEORY	3
CM 300+		3
Minor Course		3
Area V GER Course		3
Area V GER Course		3
Term Semester Hours:		15

Year 4

Fall		
CM 370	COMM RESEARCH METHODS	3
CM 300+		3
Minor Course		6

Elective		3
	Term Semester Hours:	15
Spring		
CM 431	SR SEM COMM THEORY/RESEARCH	3
CM 300+		3
Minor Course		3
Elective		3
Elective		3
	Term Semester Hours:	15
	Total Semester Hours:	120

Communication Arts Minor

A minor in communication arts consists of 21 semester hours of coursework taken within the department, at least 12 semester hours of which must be taken at or above the 300-level. At least half of the upper-level requirement must be taken at UAH.

All minors are required to take the following:

Code	Title	Semester Hours
CM 113	Intro to Rhetorical Communication	3
CM 231	FOUNDATIONS OF HUMAN COMMUNICA	3
CM 331 or CM 408 or CM 409		3
Select 9 semester hours of electives from CM at the 300 level or higher		9
Select 3 semester hours of CM Electives at any level		3
Total Semester Hours		21

English

Conference Training Center, Room 116
 Telephone: 256.824.6320
 Email: eh@uah.edu

Mission Statement

The English Department is comprised of scholar-teachers committed to the promotion of literacy and the cultivation of scholarly and professional competencies in critical thinking and persuasive writing across a wide spectrum of literary, technical, and rhetorical situations. We foster intellectual and cultural diversity, originality of thought, and clarity and cogency of expression through degree programs designed to advance careful, sophisticated reading practices as well as complex analytical and research skills. We aim to cultivate our students' management, organization, and production of knowledge. Our curricula prepare students for a wide array of professional endeavors, including law, teaching, publishing, technical communication, advertising, media, and business, as well as the pursuit of advanced degrees.

The Department of English offers courses to fulfill requirements for the major (p. 88) and minor (p. 96) in English, a major in Writing (p. 194), a major which leads to teacher certification (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/english/english-ba-curriculum-two-students-seeking-teacher-certification>), and a minor in Technical Writing (p. 96).

CLEP Examinations

EH 101: Score of 50 and proficient performance on Freshman College Composition Essay.
 EH 102: Score of 65 and superior performance on Freshman College Composition Essay.

Declaring the Major

Students are advised to officially declare a major and to obtain a Program of Study by the end of the sophomore year or at the completion of 42 semester hours. Students may initiate the Program of Study by meeting with the College of Arts, Humanities, and Social Sciences Academic Advisor (Morton Hall, Room 336).

Majors in English

- English, BA Curriculum One (For Students Not Seeking Teacher Certification) (p. 88)
- English, BA Curriculum Two: English/Language Arts (For Students Seeking Teacher Certification) (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/english/english-ba-curriculum-two-students-seeking-teacher-certification>)
- Writing, BA (p. 194)

Minors in English

- English (p. 96)
- Technical Writing (p. 96)

EH 101 - COLLEGE WRITING I

Semester Hours: 3

Introduction to academic writing, critical reading, and rhetorical knowledge.

EH 101L - STUDIO FOR COLLEGE WRITING I

Semester Hours: 0

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. Students must pass EH 101L to pass EH 101S.

EH 101S - COLLEGE WRITING I W/STUDIO

Semester Hours: 3

Introduction to academic writing, critical reading, and rhetorical knowledge. For students whose preparation suggests a need for intensive support as they progress through the composition sequence. Requires concurrent registration in studio section 100L.

EH 102 - COLLEGE WRITING II

Semester Hours: 3

Intermediate academic writing. Focuses on research questions and techniques, as well as critical engagement with published and student texts.

Prerequisite: EH 101 or 101S.

EH 103 - ACCELERATED COLLEGE WRITING

Semester Hours: 3

Accelerated introduction to academic writing, critical reading, and research questions. Focuses on research questions and techniques, as well as critical engagement with published and student texts. Prerequisites: minimum highschool GPA 3.5; minimum 26 on ACT or minimum 1170 on SAT.

EH 105 - HONORS ENGLISH SEMINAR

Semester Hours: 3

Interpretive and comparative readings in texts of enduring intellectual, esthetic, and ethical importance; critical and analytic writing and research projects. 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 Program.

EH 207 - READINGS LITERATURE/CULTURE I

Semester Hours: 3

Critical 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. Prerequisite: EH 102 or EH 103 or EH 105.

EH 208 - READINGS LITERATURE/CULTURE 2

Semester 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. Prerequisite: EH 102 or EH 103 or EH 105.

EH 209 - HONORS SEM READINGS LIT/CUL I

Semester 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. Prerequisite: EH 102 or EH 103 or EH 105, and Honor's College Student.

EH 210 - HONORS SEM READINGS LIT/CUL 2

Semester 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. Prerequisite: EH 102 or EH 103 or EH 105, and Honor's College Student.

EH 211 - INTRO CREATIVE WRITING

Semester Hours: 3

Students will discuss contemporary stories/poems and will participate in workshops, where their own poetry and fiction is examined and critiqued by the class and instructor. The class culminates in two revision portfolios (one fiction and one poetry). Prerequisite: EH 102 or EH 103 or EH 105.

EH 242 - MYTHOLOGY

Semester Hours: 3

Archetypal, metaphorical, and historical significance of deities and myths. Prerequisite: EH 102 or EH 103 or EH 105.

EH 260 - INTRO TO WRITING MAJOR

Semester Hour: 1

An introduction to the Writing B.A., this course will overview the field of Writing Studies, its methods of inquiry and the interdisciplinary nature of its rhetoric, composition and language/literacy influences. Prerequisite: EH 102 or EH 103 or EH 105.

EH 300 - STRATEGIES FOR BUSINESS WRIT'G

Semester 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. Junior standing required. Prerequisite: EH 102 or EH 105.

EH 301 - TECHNICAL WRITING

Semester 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 Cognate Studies in Technical Writing. Junior Standing. Prerequisite: EH 102 or EH 105.

EH 302 - TECHNICAL EDITING

Semester 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. Includes lab emphasizing software skills useful for technical editing. Qualifies as elective in English major. Does not count toward English minor with special approval. Prerequisite: EH 301.

EH 303 - PRAC & RSRCH IN TECH COMM

Semester Hours: 3

Provides an overview of technical communication as a career field and as a research field. Introduces students to best practices and career options in technical communication and to the research methods used by technical communication practitioners and researchers. Does not count toward English minor without special approval. Prerequisite: EH 301.

EH 305 - INTRO TO ENGLISH MAJOR & MINOR

Semester 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. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 320 - PRACTICUM IN WRITING

Semester Hours: 3

Writing and editing under the supervision of professionals. Enrollment requires advance planning. Does not count toward English minor without special approval.. Prerequisite: EH 301 and EH 302.

EH 335 - SURVEY BRITISH LITERATURE

Semester Hours: 3

Writers, genres, and periods from Beowulf through the present. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 336 - SURVEY AMERICAN LITERATURE

Semester Hours: 3

Writers, genres, and periods from the Age of Discovery through the present. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 340 - ACADEMIC WRITING

Semester Hours: 3

Advanced academic writing designed to prepare students for the writing, research, and publishing requirements of their field of study. Prerequisite: EH 102 or EH 103 or EH 105.

EH 400 - COMPOSITION STUDIES FOR TCHERS

Semester Hours: 3

Introduction to effective strategies for the teaching of writing. Students will report on their own writing pedagogy as a result of reading and analyzing a range of writing research related to strategies of assigning, responding and assessing writing. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 401 - THEORY & PRACTICE IN TECH COMM

Semester 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. Prerequisite: EH 301 or CM 301.

EH 403 - LITERARY CRITICISM & THEORY

Semester Hours: 3

Major texts and approaches from Plato to the present. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 406 - FEMINISM AND COMPOSITION

Semester Hours: 3

Explores issues of gender in writing: postmodern feminism, feminist theories and research, gender and forms of writing, and finally, gender, teaching and identity. Students will investigate and analyze composition scholarship through reading, writing, and collaborative inquiry. Prerequisite: EH 207, EH 208, EH 209, EH 201 or EH 242.

EH 408 - HISTORY OF ENGLISH LANGUAGE

Semester Hours: 3

History of the emergence and development of English from the pre-Anglo-Saxon period to the present. Emphasis on cultural contexts. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 410 - FICTION WRITING

Semester Hours: 3

Practice in writing fiction from conception to revision. Students will read and write contemporary literary fiction. Student work will be commented on and critiqued in regular class workshops. The class culminates in a revision portfolio. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 411 - POETRY WRITING

Semester Hours: 3

Practice in writing poetry from conception to revision. Students will read and write contemporary poetry. Student work will be commented on and critiqued in regular class workshops. The class culminates in a revision portfolio. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 412 - SPEC STUDIES CREATIVE WRITING

Semester Hours: 3

Topics in creative writing, professional writing, or other advanced writing announced in advance. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 413 - CHILDREN'S & ADOLESCENT LIT

Semester 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. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 414 - CREATIVE NONFICTION WRITING

Semester Hours: 3

This composition class introduces students to the genre of creative non-fiction via revising, peer responding, prose modeling, and conferencing; and developing expertise in rhetorical writing concepts. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 415 - ANGLOPHONE/POSTCOLONIAL LIT

Semester Hours: 3

An introduction to major concepts, figures, and works with emphasis upon historical and cultural context. Specific focus will vary. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 418 - REP TEXTS-WOMEN WRITERS

Semester Hours: 3

Focus on women's contribution to the literary tradition. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 422 - STUDIES IN THE NOVEL

Semester Hours: 3

Focuses on varying topics in the novel with special attention to form. Texts may be drawn from diverse national and cultural origins. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 423 - CONTEMPORARY BRITISH LITERATURE

Semester Hours: 3

Major works after 1945 with emphasis on historical and cultural contexts. Specific focus will vary. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 424 - POETRY AND POETICS

Semester Hours: 3

An attempt to answer (at least provisionally) the questions "What is a poem?" and "What is poetry?". How to read a poem closely and carefully, with attention to theory, history of genres, and especially the technical aspects of poetry. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 425 - LITERATURE, SCIENCE & TECH

Semester Hours: 3

Considers the relationships among literature, scientific theories, and technological practices through a study of texts from ancient times to the present. Prerequisite: EH 20, EH 208, EH 209, EH 210 or EH 242.

EH 429 - STUDIES IN AMERICAN CINEMA

Semester Hours: 3

Focuses on select topics in American cinema with an emphasis on film history, technique, aesthetics, and cultural context. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 430 - THE AMERICAN NOVEL

Semester Hours: 3

The American novel. In alternate years the course may focus on 19th or 20th century American novels. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 432 - AMERICAN LITERARY MODERNISM

Semester Hours: 3

Major writers and cultural/historical events surrounding American Modernism, with a focus on long texts and shorter forays into the major poets. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 433 - WILLIAM FAULKNER

Semester Hours: 3

Critical study of the major novels. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 434 - SCIENCE FICTION

Semester Hours: 3

Selected short stories and novels, exploring the thematic and narrative concerns of both classic and contemporary science fiction. In alternate years, the course may focus on a specific problem or concern in science fiction. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 435 - SPECIAL STUDIES AMERICAN LIT

Semester Hours: 3

Topics announced in advance. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 436 - READING THE EARLY REPUBLIC

Semester Hours: 3

This class will investigate cultural expression and literary critical traditions associated with the founding period of the American nation (1776-1828). Writers might include Franklin, Jefferson, Equiano, Sargent, Rowson, Brockden Brown, and Irving. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 437 - THE AMERICAN NINETEENTH CNTRY

Semester Hours: 3

This class will investigate Anglophone cultural expression and literary critical traditions associated with long nineteenth century (1789-1919). Specific thematic concern or period of focus is left to the discretion of the instructor. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 438 - AFRICAN AMERICAN LITERATURE

Semester Hours: 3

Themes, concepts and imagery in the Black American literary tradition. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 439 - ETHNIC AMERICAN NOVEL

Semester Hours: 3

Race, ethnicity, and the 20th-century American Novel. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 440 - SPECIAL STUDIES IN ENGLISH LIT

Semester Hours: 3

Topics announced in advance. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 441 - THE CIVIL WAR IN AMRCN IMGNTN

Semester Hours: 3

Cultural representations of the Civil War (1861-5) past and present in diaries, poetry, photography, novels, oratory, history writing, and film. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 442 - USABILITY STUDIES

Semester Hours: 3

Introduces students to theory and practice of usability, which involves designing useful, easy-to-use websites, software, and products. The course involves group projects conducting real-world usability testing. Junior Standing required.

EH 448 - THE BIBLE AS LITERATURE

Semester 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. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 450 - CHAUCER

Semester Hours: 3

A study of Geoffrey Chaucer's Middle English works including the early drama visions, Troilus and Criseyde, and the Canterbury Tales. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 451 - ARTHURIAN ROMANCE

Semester Hours: 3

A study of Arthurian Literature focused on medieval Welsh, Scottish, English, and French poetry and prose, as well as early-modern and modern adaptations of Arthurian stories in poetry, prose, drama, and film. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 454 - NEW MEDIA WRITING & RHETORIC

Semester Hours: 3

This course teaches students to apply rhetorical principles across a variety of media and includes an examination of communication strategies used widely in academic and industry settings. The course focuses on new media through an exploration of digital technologies and the way digital culture and new media have dramatically impacted reading, writing, and research practices. Prerequisites: EH 101 and EH 102.

EH 460 - 16TH CENTURY LITERATURE

Semester Hours: 3

Selected works from the reigns of Henry VIII and Elizabeth I Close readings of texts in their historical, intellectual, and social contexts. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 461 - SHAKESPEARE I

Semester Hours: 3

Introduction to Shakespeare's canon, selected from tragedies, comedies, histories, romances; the course may include a variety of critical approaches (historical, political, feminist, queer, performative, linguistic, and cultural). Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 462 - SHAKESPEARE II

Semester Hours: 3

Specialized study of Shakespeare's works, with particular attention to a given genre, time period, theme, cultural context, and/or critical/theoretical approach. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 463 - CAPSTONE IN WRITING

Semester Hours: 2

A senior capstone course for the Writing BA for which students will complete a portfolio of their writing. Portfolios will include reflection on and revision to selected samples of course-participants' writing and a scholarly project completed for the capstone course. Prerequisites: EH 260.

EH 465 - DRAMATIC LITERATURE

Semester Hours: 3

Studies in Drama and interpretive strategies for reading plays. May be organized nationally, by genre, or by theme/topic. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 470 - MILTON

Semester 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. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 473 - EARLY MODERN LITERATURE

Semester Hours: 3

This course will examine a particular theme, issue and/or debate within the early modern period, roughly 1500-1700: constructions of subjectivity and community, the exploration of the New World, the rediscovery of the natural world through scientific investigation. The course will likely introduce modern scholarship. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 475 - RHETORIC AND WRITING

Semester Hours: 3

Provides a focused look at specific issues of rhetoric in society, with an emphasis on academic analysis and rhetorical strategy.

EH 480 - THE LONG EIGHTEENTH CENTURY

Semester Hours: 3

Introduction to major works from the Restoration through the American and French Revolutions, 1680-1800, with an emphasis on Britain and the colonies. Topics may include: the rise of the novel, the rise of the lyric, consciousness of modernity, satire, book history, working-class writers, female authorship, empire. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 485 - THE ENLIGHTENMENT

Semester Hours: 3

The European Enlightenment emphasized the importance of reasoned, open-eyed investigations into nature and human society. Its legacies include the scientific method, the valuation of universal human rights, and the American and French Revolutions. Authors may include: Bacon, Behn, Hume, Swift, Voltaire, Montagu, Franklin, Jefferson, Equiano, and Wollstonecraft. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 496 - ROMANTIC LITERATURE

Semester Hours: 3

Poetry and prose, 1780-1832, with a focus on English language traditions. Emphasis may vary with instructor. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 497 - VICTORIAN LITERATURE

Semester Hours: 3

Representative writing of the Victorian Age (1837-1901), selected from prose, poetry, or fiction, with emphasis on social and cultural changes that inform the literature. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 498 - INDEPENDENT STUDY

Semester Hours: 3

Individual investigation into significant issues in linguistics, literature, technical communication, or composition studies under direct supervision of instructor. Prerequisites: Written approval by the instructor and the department chair of a project prospectus. Junior or Senior standing.

EH 499 - SENIOR RESEARCH PROJECT

Semester Hours: 3

Required: special approval from chair and instructor.

EHL 301 - TECH WRTG FOR GRAD STUDENTS

Semester 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. Prerequisite: ESL 103.

EHL 405 - SUR GEN LINGUISTICS:APP ENG I

Semester Hours: 3

Come to see the strange in familiar as you engage in the study of the system of language through focused analysis of the components of English. Language is usually the lens through which we observe and report on the world. In this course, it becomes the object of observations and discussion.

EHL 406 - CRITICAL ISSUES

Semester Hours: 3

Come to an understanding of the complex of policies, legislation, and practice that impact the progress of English Learners in elementary and secondary schools across the U.S. Understand the impact of federal, state, and local policies on classroom settings and teacher-student interactions.

EHL 407 - ADV EH GRAM:APP LINGUISTICS II

Semester Hours: 3

Through an in-depth analysis of the structure of sentences and discourse in contemporary English, you will understand more clearly the impact of the choices we make in the language we use in day-to-day conversations, instructional settings, political discourse, and beyond.

EHL 409 - SPEC STUDIES: APPL LINGUISTICS

Semester Hours: 3

Special topics in linguistics. Focus and emphasis of topics announced in advance.

English, BA - Curriculum One (For Students Not Seeking Teacher Certification)

- English, BA requires 120 credit hours.
- Two courses (6 semester hours) at the 400 level
- No more than three sophomore literature courses (9 semester hours)
- No more than three courses (9 semester hours) in creative writing
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		6
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	

ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature		
Students will fulfill Literature requirements within the English Major Core.		
Humanities and Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3-4
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113/116	GEN PHYSICS W/CALC III	
History and Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	

HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose three		9
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	

Code	Title	Semester Hours
Pre-Professional Courses		19
Any WLC 100 or 200 level course.		3
Select 10 hours of pre-professional electives		6
English Major Core		12
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
or EH 208	READINGS LITERATURE/CULTURE 2	
EH 305	INTRO TO ENGLISH MAJOR & MINOR	
EH 335	SURVEY BRITISH LITERATURE	
EH 336	SURVEY AMERICAN LITERATURE	
Electives		24
Select 7 courses from the following:		
EH 211	INTRO CREATIVE WRITING	
EH 242	MYTHOLOGY	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	
EH 301	TECHNICAL WRITING	
EH 302	TECHNICAL EDITING	
EH 303	PRAC & RSRCH IN TECH COMM	
EH 320	PRACTICUM IN WRITING	
EH 340	ACADEMIC WRITING	
EH 400	COMPOSITION STUDIES FOR TCHERS	
EH 401	THEORY & PRACTICE IN TECH COMM	
EH 403	LITERARY CRITICISM & THEORY	
EH 406	FEMINISM AND COMPOSITION	
EH 408	HISTORY OF ENGLISH LANGUAGE	
EH 410	FICTION WRITING	
EH 411	POETRY WRITING	
EH 412	SPEC STUDIES CREATIVE WRITING	
EH 414	CREATIVE NONFICTION WRITING	
EH 415	ANGLOPHONE/POSTCOLONIAL LIT	
EH 418	REP TEXTS-WOMEN WRITERS	
EH 422	STUDIES IN THE NOVEL	
EH 423	CONTEMPORARY BRITISH LITERATUR	
EH 424	POETRY AND POETICS	
EH 425	LITERATURE, SCIENCE & TECH	

EH 429	STUDIES IN AMERICAN CINEMA
EH 430	THE AMERICAN NOVEL
EH 432	AMERICAN LITERARY MODERNISM
EH 433	WILLIAM FAULKNER
EH 434	SCIENCE FICTION
EH 435	SPECIAL STUDIES AMERICAN LIT
EH 436	READING THE EARLY REPUBLIC
EH 437	THE AMERICAN NINETEENTH CNTRY
EH 438	AFRICAN AMERICAN LITERATURE
EH 439	ETHNIC AMERICAN NOVEL
EH 440	SPECIAL STUDIES IN ENGLISH LIT
EH 441	THE CIVIL WAR IN AMRCN IMGNTN
EH 442	USABILITY STUDIES
EH 448	THE BIBLE AS LITERATURE
EH 450	CHAUCE
EH 451	ARTHURIAN ROMANCE
EH 454	NEW MEDIA WRITING & RHETORIC
EH 460	16TH CENTURY LITERATURE
EH 475	RHETORIC AND WRITING
EH 461	SHAKESPEARE I
EH 462	SHAKESPEARE II
EH 465	DRAMATIC LITERATURE
EH 470	MILTON
EH 473	EARLY MODERN LITERATURE
EH 480	THE LONG EIGHTEENTH CENTURY
EH 485	THE ENLIGHTENMENT
EH 496	ROMANTIC LITERATURE
EH 497	VICTORIAN LITERATURE
EH 498	INDEPENDENT STUDY

Minor Courses 21

Elective Courses

Elective hours vary by program, see advisor.

Total Semester Hours 120

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
Fine Arts		3
Social/Behavioral Science		3
Math		3
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		13

Spring

EH 102	COLLEGE WRITING II	3
Humanities or Fine Arts		3
Social/Behavioral Science		3
Science w/Lab		4
HY 104	WORLD HISTORY SINCE 1500	3
or HY 103	or WORLD HISTORY TO 1500	
Term Semester Hours:		16

Year 2

Fall

WLC 101		3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 242	or MYTHOLOGY	
Social/Behavioral Science		3
Science w/Lab		4
Area V Course		3
Term Semester Hours:		16
Spring		
EH 208	READINGS LITERATURE/CULTURE 2	3
Area V Courses		6
Minor Courses		6
Term Semester Hours:		15
Year 3		
Fall		
EH 305	INTRO TO ENGLISH MAJOR MINOR	3
English Elective 200+		3
English Elective 300+		3
Area V Courses		6
Term Semester Hours:		15
Spring		
EH 335	SURVEY BRITISH LITERATURE	3
English 300+ Elective		3
English 300+ Elective		3
Minor Course		3
Area V Course		3
Term Semester Hours:		15
Year 4		
Fall		
EH 336	SURVEY AMERICAN LITERATURE	3
English 300+ Elective		3
Minor Courses		6
Elective		3
Term Semester Hours:		15
Spring		
English 300+ Electives		6
Minor Courses		6
Elective		3
Term Semester Hours:		15
Total Semester Hours:		120

English, BA - Curriculum Two: English/Language Arts (For Students Seeking Teacher Certification)

- English, BA requires 120 credit hours.
- Two courses (6 semester hours) at the 400 level
- No more than three sophomore literature courses (9 semester hours)
- No more than three courses (9 semester hours) in creative writing
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.

- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		6
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature		
Students will fulfill Literature requirements within the English Major Core.		
Humanities and Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3-4
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	

PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences 12

History: Choose one 3

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose three 9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Select 6 semester hours from the following: 6

EH 207	READINGS LITERATURE/CULTURE I
EH 208	READINGS LITERATURE/CULTURE 2
EH 209	HONORS SEM READINGS LIT/CUL I
EH 210	HONORS SEM READINGS LIT/CUL 2
EH 242	MYTHOLOGY

Introduction to the English Major and Minor

EH 305	INTRO TO ENGLISH MAJOR & MINOR	3
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Survey of General Linguistics

EHL 405	SUR GEN LINGUISTICS:APP ENG I	3
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Composition Studies for Teachers

EH 400	COMPOSITION STUDIES FOR TCHERS	3
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American Literature

Select 3 semester hours from the following: 3

EH 336	SURVEY AMERICAN LITERATURE
EH 422	STUDIES IN THE NOVEL
EH 429	STUDIES IN AMERICAN CINEMA
EH 430	THE AMERICAN NOVEL
EH 432	AMERICAN LITERARY MODERNISM
EH 433	WILLIAM FAULKNER
EH 435	SPECIAL STUDIES AMERICAN LIT
EH 436	READING THE EARLY REPUBLIC

EH 437	THE AMERICAN NINETEENTH CNTRY
EH 438	AFRICAN AMERICAN LITERATURE
EH 439	ETHNIC AMERICAN NOVEL
EH 441	THE CIVIL WAR IN AMRCN IMGNTN

English Literature

Select 3 semester hours from the following: 3

EH 335	SURVEY BRITISH LITERATURE
EH 418	REP TEXTS-WOMEN WRITERS
EH 422	STUDIES IN THE NOVEL
EH 423	CONTEMPORARY BRITISH LITERATUR
EH 440	SPECIAL STUDIES IN ENGLISH LIT
EH 450	CHAUCE
EH 451	ARTHURIAN ROMANCE
EH 460	16TH CENTURY LITERATURE
EH 461	SHAKESPEARE I
EH 462	SHAKESPEARE II
EH 470	MILTON
EH 473	EARLY MODERN LITERATURE
EH 480	THE LONG EIGHTEENTH CENTURY
EH 485	THE ENLIGHTENMENT
EH 496	ROMANTIC LITERATURE
EH 497	VICTORIAN LITERATURE

The Novel

Select 3 semester hours from the following: 3

EH 422	STUDIES IN THE NOVEL
EH 430	THE AMERICAN NOVEL
EH 439	ETHNIC AMERICAN NOVEL
EH 435	SPECIAL STUDIES AMERICAN LIT
EH 440	SPECIAL STUDIES IN ENGLISH LIT (with a topic covering the novel)

Literature Elective

Select 3 semester hours from the courses listed above at the 300 level or above, as well as the following: 3

EH 403	LITERARY CRITICISM & THEORY
EH 406	FEMINISM AND COMPOSITION
EH 408	HISTORY OF ENGLISH LANGUAGE
EH 410	FICTION WRITING
EH 411	POETRY WRITING
EH 412	SPEC STUDIES CREATIVE WRITING
EH 415	ANGLOPHONE/POSTCOLONIAL LIT
EH 418	REP TEXTS-WOMEN WRITERS
EH 422	STUDIES IN THE NOVEL
EH 424	POETRY AND POETICS
EH 425	LITERATURE, SCIENCE & TECH
EH 434	SCIENCE FICTION
EH 448	THE BIBLE AS LITERATURE
EH 465	DRAMATIC LITERATURE

Speech and Communication

CM 113	Intro to Rhetorical Communication	3
CM 231	FOUNDATIONS OF HUMAN COMMUNICA	3

Drama and Theatre

TH 221	ACTING	3
TH 425	THEATRE MAINSTAGE	1-3

Media Writing

CM 205	INTRO TO JOURNALISM	3
Mass Media		
CM 430	MASS MEDIA IN AMERICA	3
Education Courses		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 421	TEACH ENGL MID & SEC SCHOOL	3
ED 497	HIGH SCHOOL INTERNSHIP	12
Total Semester Hours		120

English Minor

A minor in English requires 21 semester hours above freshman composition courses; 12 semester hours must be upper level (numbered 300 or above), including at least 3 semester hours at the 400-level. Half of the upper-level requirement (6 semester hours) must be taken at UAH.

Requirements

Code	Title	Semester Hours
Sophomore literature (as described in GER)		6
EH 305	INTRO TO ENGLISH MAJOR & MINOR	3
Courses numbered 300 or 400 ¹		6
Courses numbered 400		3
EH elective		3
Total Semester Hours		21

¹ Courses in technical and business writing may not be used in the minor without special approval by the department chair.

Technical Writing Minor

The 22-credit-hour minor prepares students for a career in technical writing by combining intensive writing training with practical experience and fundamental technical skills. All students must take EH 301, EH 302, EH 401, and EH 320 plus nine hours of relevant electives. Students with non-technical majors (e.g., English, communication arts) should plan early to take courses in technical or scientific fields. Students with technical majors (e.g., engineering, physics, computer science) will take additional courses focusing on writing and communication skills.

A typical program for a non-technical major is as follows:

Code	Title	Semester Hours
EH 301	TECHNICAL WRITING	3
EH 302	TECHNICAL EDITING	4
EH 401	THEORY & PRACTICE IN TECH COMM	3
EH 320	PRACTICUM IN WRITING	3
Technical and Science Majors		9
9 hours of Arts, Humanities, and Social Science Electives		
Arts, Humanities, & Social Science and Business Majors		
9 hours of technical or science electives		
Total Semester Hours		22

Global Studies

250 Morton Hall
Telephone: 256.824.6288
Email: globalstudies@uah.edu

Global Studies Minor

The Global Studies minor provides students a multi- and interdisciplinary minor that helps them prepare for global-oriented careers in business, government, non-governmental organizations, international development organizations, and philanthropic agencies.

Mission

The Global Studies Program fosters an interdisciplinary environment of investigation of global issues that enables students to discover, create, and communicate knowledge, develop critical thinking and intercultural competencies, and cultivate civic responsibility in preparation for opportunities in a wide array of globally-oriented fields.

The primary learning outcomes of the Global Studies Minor are:

- Students will learn cultural and physical geography.
- Students will be able to utilize foreign language skills to engage in cross-cultural dialogues and investigate global issues from multiple perspectives.
- Students will be able to evaluate and demonstrate interdisciplinary-informed perspectives on global issues.
- Students will be able to reflect critically on the global contexts of local experiences.
- Students will learn to envision possible solutions for global conflicts as well as for global inequalities and power disparities.

Coursework in Global Studies includes core courses in Global Studies, a foreign language, and elective courses selected based on the student's thematic concentration. Students will select one of the following thematic concentrations:

- Global Markets and Politics
- Global Environment, Technology, and Health
- Global Security and Development
- Cultures in Exchange and Contact
- Area Studies (Latin America, Europe, Middle East, Africa, or Asia)

Thematic Concentrations in Global Studies

- Global Studies - Global Markets and Politics Concentration (p. 100)
- Global Studies - Global Environment, Technology, and Health Concentration (p. 99)
- Global Studies - Global Security and Development Concentration (p. 101)
- Global Studies - Cultures in Exchange and Contact Concentration (p. 99)
- Global Studies - Area Studies Concentration (p. 98)

GS 199 - STUDY ABROAD

Semester Hours: 1-3

Course will involve travel to selected countries for academic study purposes. The course is open to all UAH students with permission of the instructor. May be repeated for credit when the content of the course differs.

GS 200 - GLOBAL SYSTEMS AND CULTURES

Semester 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.

GS 299 - ST: GLOBAL STUDIES ABROAD

Semester Hours: 1-3

Course will involve travel to selected countries for academic study purposes. The course is open to all UAH students with permission of the instructor. May be repeated for credit when the content of the course differs.

GS 399 - STUDY ABROAD

Semester Hours: 1-3

Course will involve travel to selected countries for academic study purposes. The course is open to all UAH students with permission of the instructor. May be repeated for credit when the content of the course differs.

GS 400 - GLOBAL STUDIES CAPSTONE

Semester Hours: 3

Capstone independent study for students completing the Global Studies minor. Students complete a portfolio essay assignment and essays connected to the program's core competencies. Prerequisite: GS 200, its equivalent, or approval of instructor. Offered as needed as independent study to students in final semester of study.

GS 450 - GLOBAL PROFESSIONAL PORTFOLIO

Semester Hour: 1

GS 499 - SELECTED TOPICS IN GLOBAL STU

Semester Hours: 1-3

Selected topics in Global Studies. Course may also take place abroad as part of a study abroad program. May be repeated for credit with permission of Global Studies Program director.

Global Studies Minor - Area Studies Concentration

Students may choose to concentrate on a particular area of the world. Selected courses must have significant course content related to that part of the world and are chosen in consultation with the Global Studies Program advisor.

Code	Title	Semester Hours
Core Courses		
GS 200	GLOBAL SYSTEMS AND CULTURES	3
GS 400	GLOBAL STUDIES CAPSTONE	3
Foreign Languages (all WLC courses must be from the same language)		
WLC 201F or WLC 201G or WLC 201R or WLC 201S	INTERM FOREIGN LANG:FRENCH INTERM FOREIGN LANG:GERMAN INTERM FOREIGN LANG:RUSSIAN INTERM FOREIGN LANG:SPANISH	3
WLC 202F or WLC 202G or WLC 202R or WLC 202S	INTERM FOREIGN LANG II:FRENCH INTERM FOREIGN LANG II:GERMAN INTERM FOREIGN LANG II:RUSSIAN INTERM FOREIGN LANG II:SPANISH	3
Students may replace WLC 201 and WLC 202 with WLC 301-level and above foreign language courses and are encouraged to do so.		
Area Studies Options (Select one of the following options):		12
Latin America:		
Curriculum determined in consultation with GS Director.		
Students must use Spanish or French as their foreign language.		
Europe:		
Curriculum determined in consultation with GS Director.		
Students must use a European language as their foreign language.		
Middle East:		
Curriculum determined in consultation with GS Director.		
Students are encouraged to choose Arabic, pending course availability, as their foreign language.		
Asia:		
Curriculum determined in consultation with GS Director.		
Students are encouraged to select Japanese or Chinese, pending course availability, as their language of focus.		
Africa:		
Curriculum determined in consultation with GS Director.		

Students are encouraged to choose French as their foreign language.

Total Semester Hours

24

Global Studies Minor - Cultures in Exchange and Contact Concentration

This concentration enables students to explore the challenges and opportunities in a world of increasing migration and interaction of cultures, ideas, and ways of life. Students are encouraged to examine ways of increasing communication and dialogue toward better understanding and conflict resolution.

Code	Title	Semester Hours
Core Courses		
GS 200	GLOBAL SYSTEMS AND CULTURES	3
GS 400	GLOBAL STUDIES CAPSTONE	3
Foreign Languages (all WLC courses must be from the same language)		
WLC 201F	INTERM FOREIGN LANG:FRENCH	3
or WLC 201G	INTERM FOREIGN LANG:GERMAN	
or WLC 201R	INTERM FOREIGN LANG:RUSSIAN	
or WLC 201S	INTERM FOREIGN LANG:SPANISH	
WLC 202F	INTERM FOREIGN LANG II:FRENCH	3
or WLC 202G	INTERM FOREIGN LANG II:GERMAN	
or WLC 202R	INTERM FOREIGN LANG II:RUSSIAN	
or WLC 202S	INTERM FOREIGN LANG II:SPANISH	

Students may replace WLC 201 and WLC 202 with WLC 301-level and above foreign language courses and are encouraged to do so.

Cultures in Exchange and Contact

Select courses from at least three disciplines:

12

ARH 103	ARH SUR:NON-WESTERN TRADITIONS
ARH 304	TWENTIETH CENTURY ART
ARH 309	CONTEMPORARY ART & ISSUES
EH 208	READINGS LITERATURE/CULTURE 2
EH 415	ANGLOPHONE/POSTCOLONIAL LIT
HY 424	THE ATLANTIC WORLD
WLC 204	INTERNATIONAL CINEMA
HY 482	COMPTV SLAVERY & ABOLITION
PHL 314	ASIAN PHILOSOPHY
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 330	RACE AND ETHNICITY
SOC 415	SOCIOLOGY OF GLOBALIZATION
SOC 435	SOCIOLOGY OF SOCIAL MOVEMENTS

Total Semester Hours

24

Global Studies Minor - Global Environment, Technology, and Health Concentration

This concentration enables students to explore the environmental opportunities, challenges, and threats arising from the growing demands on resources, the challenges posed to public health from globalization, and the increasing global interconnectivity of peoples. Students are encouraged to consider ways in which these interconnections can best be utilized to promote growth, protect the environment, and create better policies and mechanisms for improving public health.

Code	Title	Semester Hours
Core Courses		
GS 200	GLOBAL SYSTEMS AND CULTURES	3
GS 400	GLOBAL STUDIES CAPSTONE	3

Foreign Languages (all WLC courses must be from the same language)

WLC 201F	INTERM FOREIGN LANG:FRENCH	3
or WLC 201G	INTERM FOREIGN LANG:GERMAN	
or WLC 201R	INTERM FOREIGN LANG:RUSSIAN	
or WLC 201S	INTERM FOREIGN LANG:SPANISH	
WLC 202F	INTERM FOREIGN LANG II:FRENCH	3
or WLC 202G	INTERM FOREIGN LANG II:GERMAN	
or WLC 202R	INTERM FOREIGN LANG II:RUSSIAN	
or WLC 202S	INTERM FOREIGN LANG II:SPANISH	

Students may replace WLC 201 and WLC 202 with WLC 301-level and above foreign language courses and are encouraged to do so.

Global Environment, Technology, and Health

Select one, but no more than two courses from the following: 3

ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
ESS 210	COLLAPSE OF CIVILIZATIONS
ESS 407	ENV THRTS, PUB POLY, & DEC MKG

Select remaining courses from: 9

HY 370	TECHNOLOGY IN AMERICAN HISTORY
HY 368	AMERICAN ENVIRONMENTAL HISTORY
NUR 418	GLOBAL HEALTH: INTERN'L STUDY
PHL 150	TECH, SCIENCE & HUMAN VALUES
PSC 440	REGIONAL STUDIES
SOC 150	SOCIOLOGICAL PERSP TECH & SCI
SOC 369	ENVIRONMENTAL SOCIOLOGY
SOC 415	SOCIOLOGY OF GLOBALIZATION
SOC 480	SOCIOLOGY SCIENCE & TECHNOLOGY

Total Semester Hours 24

Global Studies Minor - Global Markets and Politics Concentration

This concentration helps students examine the global dimensions of business, finance, and manufacturing and their impact on daily life and on local, national, and international politics. Students are also encouraged to consider alternative practices for enabling more socially equitable market outcomes and sustainable development.

Code	Title	Semester Hours
Core Courses		
GS 200	GLOBAL SYSTEMS AND CULTURES	3
GS 400	GLOBAL STUDIES CAPSTONE	3
Foreign Languages (all WLC courses must be from the same language).		
WLC 201F	INTERM FOREIGN LANG:FRENCH	3
or WLC 201A	INTERM FOREIGN LANG I: ARABIC	
or WLC 201G	INTERM FOREIGN LANG:GERMAN	
or WLC 201J	INTERM FOREIGN LANG: JAPANESE	
or WLC 201R	INTERM FOREIGN LANG:RUSSIAN	
or WLC 201S	INTERM FOREIGN LANG:SPANISH	
WLC 202F	INTERM FOREIGN LANG II:FRENCH	3
or WLC 202A	INTERM FOREIGN LANG II: ARABIC	
or WLC 202G	INTERM FOREIGN LANG II:GERMAN	
or WLC 202J	INTERM FORGN LANG II:JAPANESE	
or WLC 202R	INTERM FOREIGN LANG II:RUSSIAN	
or WLC 202S	INTERM FOREIGN LANG II:SPANISH	

Students may replace WLC 201 and WLC 202 with WLC 301-level and above foreign language courses and are encouraged to do so.

Global Markets and Politics

Select two of the following:

6

MKT 301	PRINCIPLES OF MARKETING
MGT 450	INTERNATIONAL BUSINESS
ECN 454	INTERNATIONAL ECONOMICS
FIN 301	PRINCIPLES OF FINANCE
FIN 454	INTERNATIONAL FINANCE

Select two of the following:

6

HY 373	FOREIGN REL US TO 1920
HY 382	MODERN LATIN AMERICAN
HY 383	FOOD AND WORLD HISTORY
HY 440	FOREIGN REL U.S. SINCE 1920
PSC 440	REGIONAL STUDIES
SOC 369	ENVIRONMENTAL SOCIOLOGY
SOC 415	SOCIOLOGY OF GLOBALIZATION
SOC 480	SOCIOLOGY SCIENCE & TECHNOLOGY

Total Semester Hours

24

Global Studies Minor - Global Security and Development Concentration

This concentration enables students to examine the complex connections between international security and development within a global political context and to imagine ways to manage and avoid conflict through sustainable policies in multiple areas.

Code	Title	Semester Hours
Core Courses		
GS 200	GLOBAL SYSTEMS AND CULTURES	3
GS 400	GLOBAL STUDIES CAPSTONE	3
Foreign Languages (all WLC courses must be from the same language)		
WLC 201F	INTERM FOREIGN LANG:FRENCH	3
or WLC 201G	INTERM FOREIGN LANG:GERMAN	
or WLC 201R	INTERM FOREIGN LANG:RUSSIAN	
or WLC 201S	INTERM FOREIGN LANG:SPANISH	
WLC 202F	INTERM FOREIGN LANG II:FRENCH	3
or WLC 202G	INTERM FOREIGN LANG II:GERMAN	
or WLC 202R	INTERM FOREIGN LANG II:RUSSIAN	
or WLC 202S	INTERM FOREIGN LANG II:SPANISH	

Students may replace WLC 201 and WLC 202 with WLC 301-level and above foreign language courses and are encouraged to do so.

Global Security and Development

Select courses from at least three disciplines:

12

ESS 407	ENV THRTS, PUB POLY, & DEC MKG
HY 373	FOREIGN REL US TO 1920
HY 382	MODERN LATIN AMERICAN
HY 383	FOOD AND WORLD HISTORY
HY 440	FOREIGN REL U.S. SINCE 1920
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS
PSC 440	REGIONAL STUDIES
PSC 464	AMERICAN FOREIGN POLICY
PSC 466	NATIONAL SECURITY STRGY & PLY
PSC 470	ISSUES IN SECURITY POLICY
SOC 369	ENVIRONMENTAL SOCIOLOGY

History

409 Roberts Hall

Telephone: 256.824.6310

Email: history@uah.edu

The Department of History offers the following undergraduate degrees:

- History, BA (p. 108)
- History, BA Secondary Education (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/history/history-education>)
- History and Social Sciences, BA Secondary (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/history/ed>)
- History Major with Public History Track (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/history/history-public-history>)

Mission

The faculty of the History Department is committed to our students and to teaching excellence. We are all active researchers who pursue publications and participate actively in local, national, and international historical organizations. We offer a wide-range of classes that foster student growth and accommodate diverse student interests. Undergraduate classes start with general surveys and proceed to specialized electives. Every course entails reading, discussion, and writing to build skills in investigating problems, analyzing information, and crafting narratives. The goal is to help students understand continuity and change, learn the complexity of judgment of past failures and successes, and become better citizens who know national patterns and cosmopolitan perspectives. Doing history, students will become skillful in research, separating important information from the inconsequential, weighing disparate interpretations, identifying and explaining trends, discussing complex topics, and presenting information orally and in writing.

The History Department offers an undergraduate B.A., as well as a minor. The department's majors who complete Class A&B certificates in education meet all the requirements of Alabama teacher certification. We also offer courses supporting various interdisciplinary minors within the College of Arts, Humanities, and Social Sciences.

History for Second Area of Study for Elementary Education Teacher Candidates

Students majoring in elementary education may select history as their second area of study. Requirements can be found in the Education section of the catalog. Preliminary counseling is available in the College of Education.

Advanced Placement Credit

Elective credit will be given to AP American History, European History, and/or World History. Students who have earned a score of 3 on Advanced Placement (AP) Program examinations of the College Entrance Examination Board will receive credit for HY 221, while a score of 4 or 5 will receive credit for HY 221 and HY 222 at UAH. For AP European History, students submitting a score of 3 will receive credit for HY 103, while a score of 4 or 5 will earn credit for HY 103 and HY 104. In World History, a score of 3 on the AP exam will receive credit for HY 103 and students submitting a score of 4 or 5 will receive credit for HY 103 and HY 104.

Transfer Credit

With the exception of those community colleges covered within the Alabama Articulation and General Studies agreement, only in exceptional circumstances will the History Department accept transfer credit for non-interactive telecommunications courses or correspondence courses in HY 103, HY 104, HY 221, or HY 222. Students who wish to receive such credit should petition the department chair.

CLEP/Departmental Examination Credit

A student who earns an acceptable score on the CLEP examination for World History (HY 103 and/or HY 104), or U.S. History (HY 221 and/or HY 222) may petition the History Department requesting an essay examination on the subject for which credit is desired. Acceptable scores on the CLEP examination are 56 for HY 103 and HY 104, and 60 for HY 221 and HY 222. The petition will not be reviewed until a satisfactory CLEP score has been reported. After consultation with a faculty member designated by the department chair, the student may take an essay examination. If he or she also receives B or better on the essay, credit will be granted for the appropriate course(s).

Major in History

- History, BA (p. 108)
- History, BA Secondary Education (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/history/history-education>)
- History and Social Sciences, BA Secondary (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/history/ed>)

- History Major with Public History Track (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/history/history-public-history>)

Minor in History

- History (p. 112)
- Public History (p. 112)

HY 103 - WORLD HISTORY TO 1500

Semester Hours: 3

Explore the historical development of peoples and cultures from their beginnings to 1500. Trace cross-cultural interactions among societies, states, and economies of Asia, Europe, Africa, the Americas and Oceania.

HY 104 - WORLD HISTORY SINCE 1500

Semester Hours: 3

Explore global interdependence from the period of transoceanic exploration to the present. Trace cross-cultural interactions among societies, states, and economies of Asia, Europe, Africa, the Americas, and Oceania.

HY 221 - UNITED STATES TO 1877

Semester 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 - UNITED STATES SINCE 1877

Semester 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 290 - CRAFT OF HISTORY

Semester Hours: 3

Introduction to historical methods and thought, designed to prepare history majors for upper-level coursework. Required of all history majors, including transfer students. Open to non-history majors. Prerequisites: HY 103 and HY 104.

HY 300 - CRAFT OF HISTORY

Semester Hours: 3

Introduction to historical methods and thought, designed to prepare history majors for upper-level coursework. Required of all history majors, including transfer students. Open to non-history majors. Prerequisites: HY 103 and HY 104.

HY 306 - COLLAPSE OF CIVILIZATIONS

Semester Hours: 3

This course will investigate why some cultures succeed and others fail.

HY 310 - INTRODUCTION TO PUBLIC HISTORY

Semester Hours: 3

Introduces the interdisciplinary field of public history, including historic preservation, cultural resource management, local and state history, methodology, historical archaeology, museum studies, oral history, and archival management through academic training and practical experience.

HY 311 - HISTORIC ARCHAEOLOGY

Semester Hours: 3

Introduces intellectual and practical concepts using elements of research, fieldwork, analysis, and interpretation to explore and recreate the documented and undocumented past.

HY 312 - CULTURAL RESOURCE MANAGEMENT

Semester Hours: 3

Cultural resource management encompasses recognition description, maintenance, security, and overall management of historical items, places, and ideas through preservation and protection.

HY 318 - CONSTITUTIONAL HY OF THE U.S.

Semester 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.

HY 325 - HISTORY OF ALABAMA

Semester Hours: 3

The state's past from colonial times to the present with emphasis on its place in United States history.

HY 329 - IMPERIAL ROME

Semester Hours: 3

Roman Empire from the Principate to the barbarian invasions.

HY 330 - HISTORY OF CHRISTIAN CHURCH

Semester Hours: 3

A study of the Church from Biblical times through the Protestant Reformation.

HY 331 - WORLD OF MIDDLE AGES

Semester Hours: 3

Survey of the origins and development of medieval society in Europe from the fall of Rome to the Age of Discovery, including the Latin West, Byzantium, and Islamic world.

HY 347 - EARLY MODERN ENGLAND

Semester Hours: 3

Course surveys the political and religious history of England under the Tudors and Stuarts to the Civil Wars and revolutions of the seventeenth century.

HY 360 - AMERICAN HISTORY THROUGH FILM

Semester Hours: 3

This course will explore how motion pictures have shaped our views on American history and how the past has shaped movie making.

HY 363 - INDIGENOUS PEOPLES OF AMERICAS

Semester Hours: 3

Surveys the history of Indigenous peoples of the Americas from the fifteenth century to the present.

HY 367 - WOMEN IN U.S. HISTORY

Semester Hours: 3

Women in the United States from the colonial period to the present.

HY 368 - AMERICAN ENVIRONMENTAL HISTORY

Semester Hours: 3

Explores the interrelationship of people and the environment in American history from 1500 to the present.

HY 370 - TECHNOLOGY IN AMERICAN HISTORY

Semester Hours: 3

Explores the history of the interrelationship of people and technology in American history from 1600 to the present.

HY 371 - US MILITARY HY FRM INDP TO PRS

Semester Hours: 3

Explores the evolution of the U.S. military from the War of Independence to the present.

HY 373 - FOREIGN REL US TO 1920

Semester 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.

HY 376 - SOVIET RUSSIA

Semester Hours: 3

Russia from the collapse of autocracy to the collapse of communism with special emphasis on the revolutions of 1917, the evolution of the Soviet state, ethnicity, and the successes and failures of the post-1945 era.

HY 381 - COLONIAL LATIN AMERICA

Semester Hours: 3

This course surveys the history of Colonial Latin America from the hispanic period to the wars of independence in the nineteenth century.

HY 382 - MODERN LATIN AMERICAN

Semester Hours: 3

This course surveys the history of Latin America from the nineteenth century to the present.

HY 383 - FOOD AND WORLD HISTORY

Semester Hours: 3

Examines the role of food and drink in various historical settings.

HY 384 - ISLAMIC WORLD TO 1800

Semester Hours: 3

This course explores how Islam emerged as a civilization and connected geographic areas across the globe. Topics include: the prophet Muhammad; early Arab conquests; the Sunni-Shiite split; the expansion of the Islamic world into Europe, Africa, and Asia; and the challenge of European imperialism.

HY 385 - MODERN MIDDLE EAST

Semester Hours: 3

This course seeks to establish a historical basis for understanding the current events of the modern Middle East (1800-present). Topics include: the making of the modern Middle East both before and after WWI; the Arab-Israeli conflict; and the relationship between the U.S. and the Middle East.

HY 390 - WOMEN IN MODERN EUROPEAN HIS

Semester Hours: 3

Explores European women's history from the Enlightenment to the present. Focus on gender and women's roles in different historical contexts.

HY 391 - EUROPE, 1500-1815

Semester Hours: 3

Examination of the economic, scientific, social, political, and cultural developments in Europe from the Renaissance to the French Revolution.

HY 392 - EUROPE SINCE 1815

Semester Hours: 3

Europe from the French Revolution to the present.

HY 393 - HISTORY OF SCIENCE TO 1700

Semester Hours: 3

This course surveys the history of science from ancient Babylon and Greece up through the Scientific Revolution.

HY 394 - HISTORY OF MODERN SCIENCE

Semester Hours: 3

This course surveys the history of science from the Scientific Revolution to present-day developments.

HY 395 - HY MED ANTIQTY ENLITNMENT

Semester Hours: 3

Examines the history of medicine in Europe from Ancient and Islamic origins to the changes wrought by the Scientific Revolution and Enlightenment. The course also explores anatomy and dissection, learned vs. popular medicine, sex, and madness.

HY 399 - SPECIAL TOPIC IN HISTORY

Semester Hours: 3

Intensive examination of particular problems, periods, or topics in history.

HY 401 - DAILY LIFE IN ANCIENT ROME

Semester Hours: 3

This course will re-create the daily lives of the ancient Romans using secondary readings, ancient literature, archaeology, and film. It focuses on the lives of ordinary people, with an eye to their struggles, everyday practices, beliefs, values, and mentalities.

HY 410 - SPEC TOPICS IN PUBLIC HISTORY

Semester Hours: 3

Intensive examination of a particular problem, aspect, or methodology in public history.

HY 413 - THE OLD SOUTH

Semester Hours: 3

Southern society, economics, politics and culture concentrating on the nineteenth century South through Reconstruction.

HY 414 - THE NEW SOUTH

Semester 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 instructor.

HY 424 - THE ATLANTIC WORLD

Semester Hours: 3

Examines interactions across the Atlantic Ocean among Africans, Americans, and Europeans. This course meets the requirements for either American or non-American credit in the history major.

HY 426 - COLONIAL AMERICA

Semester Hours: 3

Explores the founding of New World colonies, including political, social, economic, and religious developments during the colonial period.

HY 427 - AGE OF AMERICAN REVOLUTION

Semester Hours: 3

Explores the multinational connections and conflicts that lead some English colonists to revolt. Considers the political, social, and economic aspects of the time period.

HY 428 - EARLY AMERICAN REPUBLIC

Semester Hours: 3

Political, social, and economic changes between the American Revolution and the nineteenth century that laid the foundation for the United States.

HY 429 - CIVIL WAR & RECONSTRUCTION

Semester Hours: 3

An examination of the major political, economic, and social developments in the United States during the Civil War and Reconstruction eras.

HY 437 - THE RISE OF MODERN AMERICA

Semester Hours: 3

Economic and social changes, imperialism, and the growth in government in the United States from 1877 to the 1920s.

HY 438 - MODERN AMERICA

Semester Hours: 3

American society, politics, economics, and foreign affairs from the end of World War I to the origins of the Cold War.

HY 439 - RECENT AMERICAN HISTORY

Semester Hours: 3

Contemporary America from the 1950s to the present, analyzing both domestic and foreign affairs.

HY 440 - FOREIGN RELATIONS U.S. SINCE 1920

Semester 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.

HY 445 - COMPARATIVE MILITARY POLICY & STRATEGY

Semester Hours: 3

A comparative analysis of the military policy and strategy of states and empires in World History.

HY 451 - SCIENCE & RELIGION IN HISTORY

Semester Hours: 3

Integrated survey of the history of science and religion in mostly Western contexts from Greek antiquity to present debates. Prerequisites: HY 290.

HY 472 - US MILITARY HISTORY SINCE 1920

Semester Hours: 3

The evolution of 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.

HY 473 - U.S.-LATIN AMERICAN RELATIONS

Semester Hours: 3

This class focuses on the history of political, economic, and cultural interactions between Latin America and the United States from 1800 to the present. Topics include military intervention, trade, cultural exchanges, the Cold War, the drug war, and immigration.

HY 474 - RENAISSANCE & REFORMATION

Semester Hours: 3

Selected topics in the Italian Renaissance and European Reformation.

HY 475 - SECTARIANISM ISLAMIC WORLD

Semester Hours: 3

This course focuses on sectarianism, the practice and rhetoric surrounding marginalization of certain social-religious groups in the Islamic world. It explores the historical foundations of sectarianism (from early 7th century to today) both within the Islamic world and across the globe.

HY 476 - BEING YOUNG MODERN MIDDLE EAST

Semester Hours: 3

This course focuses on the lives of young men and women of the Modern Middle East. It explores how children and youth experienced historical phenomena in the region, the ways in which these experiences affected the foundations of their adulthood, and how their actions shaped historical events.

HY 480 - ROMANS&BARBARIANS LATE ANTIQTY

Semester Hours: 3

This course explores the dynamic world of Late Antiquity including political developments, social and religious transformation, and exchange patterns in the Mediterranean. It is a history of cultural interaction, continuity, and change during a formative period in western civilization.

HY 481 - EMPIRES AND NATIONS

Semester Hours: 3

Thematic focus on empires and nations as political and cultural constructs in European and world history. 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 - COMPTV SLAVERY & ABOLITION

Semester Hours: 3

Explore what slavery has meant in the ancient world, Indian Ocean, Africa, the United States, and/or other locations over time.

HY 483 - WOMEN & GENDER LATIN AMERICA

Semester Hours: 3

This course studies the history of women and gender relations in Latin America from the colonial period to the present.

HY 484 - LATIN AMERICAN HIST THRU FILM

Semester Hours: 3

Latin American history through the perspective of fictional films.

HY 485 - NAZI GERMANY AND THE HOLOCAUST

Semester Hours: 3

Seminar course on the historiography of Nazi Germany and the Holocaust.

HY 486 - COMMUNISM LEGCY RUSSIA EAST EU

Semester Hours: 3

Overview and analysis of communist states and post-communist legacies in Russia and Eastern Europe.

HY 490 - RESEARCH SEMINAR IN HY

Semester Hours: 3

Research and writing with primary sources and historiography. Required of all history majors. Prerequisites: HY 290. Offered once annually.

HY 492 - PUB MEMORY & INTERP

Semester Hours: 3

Examines how public memory is created by looking at the social, political, and economic forces that shape public history and considers how historical knowledge is conveyed to the public. Prerequisites: 6 hours in History or Instructor's Permission.

HY 493 - FUNDAMENTALS OF ARCHIVES

Semester Hours: 3

Survey of basic archival theory and practice, with emphasis on the role of the archivist in contemporary society.

HY 494 - DEVELOPING DIGITAL ARCHIVES

Semester Hours: 3

Survey of the theory and practice of developing digital access tools in archives, libraries, and museums.

HY 495 - PUBLIC HISTORY INTERNSHIP

Semester Hours: 3

A semester-long public history internship for completing a significant project using historical skills as a professional usually in an off-campus setting. Students must complete 125 hours of work during their internship. Permission of instructor or chair is required.

HY 498 - STUDIES IN HISTORY

Semester Hours: 1-3

A readings or research class on a particular problem, period or topic in history. This course may be repeated for credit.

HY 499 - INDEPENDENT STUDY

Semester Hours: 3

In exceptional circumstances, a student and professor may work together on a specialized topic.

History, BA

- History, BA requires 120 credit hours.
- 6 semester hours in US history beyond HY 221 and HY 222
- 6 semester hours in Non-US History beyond HY 103 and HY 104
- Students should take HY 290 in their Sophomore year or, for transfer students, in their first semester at UAH.
- Students should take HY 490 in their Senior year.
- Three History courses (9 semester hours) at the 400 level
- No more than two classes from the following count toward the major: HY 310 (<http://catalog.uah.edu/search/?P=HY%20310>), HY 311 (<http://catalog.uah.edu/search/?P=HY%20311>), HY 312 (<http://catalog.uah.edu/search/?P=HY%20312>), HY 410 (<http://catalog.uah.edu/search/?P=HY%20410>), HY 492 (<http://catalog.uah.edu/search/?P=HY%20492>), HY 493 (<http://catalog.uah.edu/search/?P=HY%20493>), HY 494 (<http://catalog.uah.edu/search/?P=HY%20494>), HY 495 (<http://catalog.uah.edu/search/?P=HY%20495>)
- Students in the History, BA are not permitted to take the Public History minor
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	

Literature: Choose one or two

3-6

Students must have a two course sequence in either Literature or History.	
EH 207 or EH 242	READINGS LITERATURE/CULTURE I MYTHOLOGY
EH 208	READINGS LITERATURE/CULTURE 2
Humanities and Fine Arts: Choose one or two	
3-6	
ARH 100	ARH SURV:ANCIENT-MEDIEVAL
ARH 101	ARH SURV:RENAISSANCE-MODERN
ARH 103	ARH SUR:NON-WESTERN TRADITIONS
ARS 160	DRAWING: FOUNDATIONS
MU 100	INTRO TO MUSIC LITERATURE
TH 122	THEATRE APPRECIATION
CM 113	Intro to Rhetorical Communication
Any WLC 100 or 200 level ¹	
PHL 101	INTRODUCTION TO PHILOSOPHY
PHL 102	INTRO TO ETHICS
PHL 103	INTRODUCTION TO LOGIC
PHL 150	TECH, SCIENCE & HUMAN VALUES
WGS 200	INTRO WOMEN'S & GENDER STUDIES
Mathematics and Natural Sciences	
11	
Mathematics: Choose one	
3	
MA 107	ALGEBRA WITH APPLICATIONS
MA 110	FINITE MATHEMATICS
MA 112	PRECALCULUS ALGEBRA
MA 113	PRECALCULUS TRIGONOMETRY
MA 115	PRECALCULUS ALGEBRA & TRIG
MA 120	MATH PROFESSIONAL APPLICATIONS
MA 171	CALCULUS A
Natural Sciences: Choose two	
8	
AST 106	EXPLORING THE COSMOS I
AST 107	EXPLORING THE COSMOS II
BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103	ENVIRONMENTAL EARTH SCIENCE
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III
History and Social and Behavioral Sciences	
12 hours of History and Social and Behavioral Sciences chosen from the following categories below	
History: Choose one or two	
3-6	
HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
Social and Behavioral Sciences: Choose two or three	
ECN 142	PRINC OF MACROECONOMICS

ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
Pre-Professional		13
Any WLC course at 100 or 200 level except for WLC 204		
Pre-professional Electives		
Choose 10 hours from the following categories above: Humanities, Fine Arts, Social and Behavioral Sciences, Mathemaics and Lab Science. Only 6 hours Mathematics and Lab Science can be applied in this area.		
History Courses		
HY 221	UNITED STATES TO 1877	3
HY 222	UNITED STATES SINCE 1877	3
HY 290	CRAFT OF HISTORY	3
HY 490	RESEARCH SEMINAR IN HY	3
US History 300+ 6 semester hours		6
Non US History 300+ 6 semester hours		6
HY Electives 300+ 6 semester hours		6
Minor Courses		18
Elective Courses		
Elective hours vary by program, please see advisor. This History, BA requires 120 semester hours.		
Total Semester Hours		120

Additional Information

A student majoring in history will find a variety of programs of study enabling her or him to develop depth and breadth in history and related areas from the other humanities, the social sciences, mathematics, and the natural sciences. Counseling is available in the History Department for programs of study in the following:

- general
- secondary school teaching
- graduate school preparation
- pre-professional and pre-law preparation
- international studies
- public history
- and more

Students are advised to declare a major and minor and obtain a Program of Study (POS) by the beginning of the sophomore year. Students initiate the POS by meeting with the College of Liberal Arts Academic Advisors in Morton Hall 220 and following up with a faculty advisor in the department to review and sign it. Note, that while a POS is a contract and maps out the selection of courses that a student needs to progress toward a degree, he or she can always change majors and/or minors, and even colleges, at any point.

Year 1

Fall		Semester Hours
HY 103	WORLD HISTORY TO 1500	3
EH 101	COLLEGE WRITING I	3

Math		3
Fine Arts		3
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		13
Spring		
HY 104	WORLD HISTORY SINCE 1500	3
EH 102	COLLEGE WRITING II	3
Humanities		3
Science w/Lab		4
Social/Behavioral Science		3
Term Semester Hours:		16
Year 2		
Fall		
HY 221	UNITED STATES TO 1877	3
HY 290	CRAFT OF HISTORY	3
WLC 101		3
Science w/Lab		4
EH 207 or EH 208	READINGS LITERATURE/CULTURE I or READINGS LITERATURE/CULTURE 2	3
Term Semester Hours:		16
Spring		
HY 222	UNITED STATES SINCE 1877	3
Literature or Humanities		3
Social/Behavioral Science		3
Area V Course		3
HY 200+ Course		3
Term Semester Hours:		15
Year 3		
Fall		
HY 300+		3
HY 300+		3
Elective		3
Area V Course		3
Minor Course		3
Term Semester Hours:		15
Spring		
HY 300+		3
HY 300+		3
Area V Course		3
Minor Courses		6
Term Semester Hours:		15
Year 4		
Fall		
HY 300+		3
HY 300+		3
Elective		3
Minor Course		3
Area V Course		3
Term Semester Hours:		15
Spring		
HY 490	RESEARCH SEMINAR IN HY	3
Elective		3

Minor Courses	9
Term Semester Hours:	15
Total Semester Hours:	120

History Minor

A history minor must take a minimum of 21 semester hours of history including:

- Either a sequence of HY 103 and HY 104 or one of HY 221 and HY 222
- 3 semester hours in courses numbered 200 or above.
- 12 semester hours in courses numbered 300 or above.

Public History Minor

The UAH Public History program is designed for students who are interested in careers presenting historical knowledge outside the classroom to a public audience. The minor is inter-disciplinary because public history expresses itself in various ways. It is found, for example, in museum shows, photography and works of art, tour guide brochures, video documentaries, web sites, historic preservation, writing, and artifact collection. It is also inter-disciplinary because public historians have diverse careers working in archives and libraries, state and local historical organizations, museums, historic sites, media, businesses, and throughout all levels of government.

The goal of advising will be selection of a range of courses that will fit the student's interests and broaden skills and knowledge outside the major and beyond departmental minors. The Public History Advisor will help develop a thematic focus for the minor plan of study and help choose electives that support its fulfillment.

To complete the required classes in public history, students will petition for an internship in public history relevant to their thematic focus. Otherwise, students will complete a Special Topics course in Public History.

Public History Minor requires a minimum of 21 semester hours, at least 12 semester hours at 300 level or above.

Code	Title	Semester Hours
Required Courses		
HY 290	CRAFT OF HISTORY	3
HY 310	INTRODUCTION TO PUBLIC HISTORY	3
HY 410	SPEC TOPICS IN PUBLIC HISTORY	3
or ARS/HY 495	INDEPENDENT PROJECTS	
Interdisciplinary Electives		
Select at least 6 semester hours of the following:		6
ACC 211	PRINC OF FINANCIAL ACCOUNTING	
ACC 212	MANAGEMENT ACCOUNTING	
MGT 100	INTRO TO BUSINESS	
MGT 101	INTRO ENTREPRENEURSHIP	
MGT 301	MANAGING ORGANIZATIONS	
MGT 361	ORGANIZATIONAL BEHAVIOR	
MKT 301	PRINCIPLES OF MARKETING	
ARS 230	GRAPHIC DESIGN: INTRODUCTION	
ARS 250	PHOTOGRAPHY: INTRODUCTION	
ARS 332	GRAPHIC DESIGN: WEB DESIGN	
ARS 340	SCULP: FABRICATION I	
CM 113	Intro to Rhetorical Communication	
CM 205	INTRO TO JOURNALISM	
CM 251	DECISION-MAKING IN SMALL GROUP	
EH 301	TECHNICAL WRITING	
TH 225	ELEMENTS OF THEATRE PRODUCTION	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
MU 316	HIST & APPRECIATION OF JAZZ	

MU 311 & MU 312 ED 308	HISTORY OF MUSIC I and HISTORY OF MUSIC II EDUCATIONAL PSYCHOLOGY
Historical-Cultural Electives	
Select at least 6 semester hours from these recommended departments: ARH, HY, SOC, PSC, EH, MU	
Total Semester Hours	

6

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Music

B102 Roberts Hall
Telephone: 256.824.6436
Email: music@email.uah.edu

The University of Alabama in Huntsville is an accredited institutional member of the National Association of Schools of Music.

Students are advised to officially declare a major and to obtain a Program of Study by the beginning of the sophomore year, if not before. Students may initiate the Program of Study by meeting with the College of Liberal Arts Academic Advisor (Morton Hall, Room 216).

Degrees offered:

Music, BA

Students wishing to pursue a major in music should have **pre-college training in their principal performing instrument or voice and have ability to read music fluently**. Basic keyboard ability is helpful but not mandatory.

Entering freshmen and transferring students are required to take a placement examination in rudiments (scales, keys, intervals, triads, general notation), music reading, and performance (principal instrument or voice). Deficiencies may be removed through remedial instruction.

The University of Alabama in Huntsville offers a Bachelor of Arts in Music with several different emphases. Students choose one (or more) of these emphases:

- Liberal Arts Emphasis (p. 123)
- Performance Emphasis (p. 136)
- Jazz Emphasis (p. 120)
- Music Technology Emphasis (p. 133)
- Music Business Emphasis (p. 126)
- Church Music Emphasis (p. 117)
- Piano Pedagogy Emphasis (p. 138)
- Music Education Emphasis (p. 129)

Entry Requirements for Music Majors and Minors

Admission to the University of Alabama in Huntsville does not guarantee admission to the UAH Department of Music. Auditions are required for all applicants majoring or minoring in music. The audition is one of the most important factors in the admission process. It will determine admission to the Department of Music as well as eligibility for a music scholarship. Those who have not auditioned and been accepted as music majors may not take studio instruction at the 200-level.

All applicants are strongly encouraged to audition in person. Taped auditions are acceptable if travel distance precludes a personal audition. For audition dates, please consult the audition application or visit the Department of Music website at www.uah.edu/music.

Majors in Music

- Music, BA - Liberal Arts Emphasis (p. 123)
- Music, BA - Performance Emphasis (p. 136)
- Music, BA - Jazz Emphasis (p. 120)
- Music, BA - Music Technology Emphasis (p. 133)
- Music, BA - Music Business Emphasis (p. 126)
- Music, BA - Church Music Emphasis (p. 117)
- Music, BA - Piano Pedagogy Emphasis (p. 138)
- Music, BA - Music Education Emphasis (p. 129)

Minors in Music

- Music (p. 141)
- Music Technology (p. 141)

MU 100 - INTRO TO MUSIC LITERATURE

Semester 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

Semester 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 106 - INTRO TO MUSIC TECHNOLOGY

Semester Hour: 1

Introduction to Music Technology provides students with an overview of the technical and scientific aspects of music such as: acoustics, music psychology/sociology, and modern electronics. There will be particular emphasis on the use of electronic devices, MIDI and computer software to facilitate recording, playback, composition, storage, performance and analysis. Offered Fall and Spring semesters only.

MU 108 - INTRODUCTION TO MUSIC THEORY

Semester Hours: 3

Music fundamentals presented in a practical way for students who have no musical training as well as for majors/minors with limited theory knowledge. Mechanical aspects of clefs, notation, scales, intervals, chords, 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 - INTRO ARTS MANAGEMENT

Semester Hours: 3

Designed to explore arts management and administration, focusing primarily on non-profit considerations, but also addressing commercial activities in the arts.

MU 120 - BEGINNING CLASS VOICE

Semester Hour: 1

This course is designed to aid beginning singers in learning the fundamentals of solo singing.

MU 130 - PIANO CLASS

Semester Hour: 1

Techniques of performance, note reading, and basic musicianship.

MU 131 - PIANO CLASS II

Semester Hour: 1

MU 140 - BEGINNING GUITAR CLASS

Semester Hour: 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 - MUSIC FORUM

Semester 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 - MUSIC THEORY I

Semester 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 - MUSIC THEORY II

Semester Hours: 3

Continuation of MU 201. Offered Fall semesters only. Prerequisites: MU 201 and MU 203.

MU 203 - MUSICIANSHIP SKILLS I

Semester Hour: 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

Semester Hour: 1

Continuation of MU 203. Offered Fall semesters only. Prerequisites: MU 201 and MU 203.

MU 205 - JAZZ THEORY

Semester 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. Offered every other Fall semester. Prerequisites: MU 201.

MU 207 - MUSIC TECHNOLOGY I

Semester Hours: 3

Students will learn the basics of using a computer interface to create and edit music, using a software MIDI sequencer and Digital Audio Workstation. Students will learn the basics of MIDI sequencing and music production. Prerequisites: MU 106.

MU 208 - MUSIC TECHNOLOGY II

Semester Hours: 3

Students will learn advanced techniques in digital audio production, including (but not limited to): Advanced MIDI sequencing, audio sampling, and production/mastering. Prerequisites: MU 106, MU 207.

MU 301 - THEORY OF MUSIC III

Semester Hours: 3

A study on chromatic harmony and a continuation of the studies of MU 201 and MU 202. Prerequisites: MU 202 and MU 204.

MU 302 - MUSICAL MATLS OF MODERN ERA

Semester Hours: 3

Systems of tonal organization, compositional procedures, terminology, and analytical methods that related to music since 1900. Offered every other Fall semester only. Prerequisites: MU 301 and MU 303 and MU 304.

MU 303 - MUSICIANSHIP SKILLS III

Semester Hour: 1

Continuation of MU 204. Offered Spring semesters only. Prerequisites: MU 202 and MU 204.

MU 305 - MUSIC TECHNOLOGY III

Semester Hours: 3

This course will focus primarily on analogue and digital audio systems setup and implementation. Mixing consoles, amplifiers, loudspeakers, microphones, keyboards, playback equipment, processing, cabling, configuration, computer hardware and software will be discussed and demonstrated in depth. Prerequisite: MU 106.

MU 306 - MUSIC TECHNOLOGY IV

Semester Hours: 3

An exploration of music technology hardware and software, including and overview of acoustics, MIDI and digital audio data structures, and an introduction to multimedia authoring. Offered every other Spring semester only. Prerequisites: MU 106 and EE 100.

MU 311 - HISTORY OF MUSIC I

Semester Hours: 3

Focus on music as an art in western civilization to 1750. Representative musical works and style. Understanding of musical concepts in view of historical background and cultural context. Offered Fall semesters only. Prerequisites: MU 100 and MU 301.

MU 312 - HISTORY OF MUSIC II

Semester Hours: 3

Focus on music as an art in western civilization from 1750 to the present. Representative musical works and style. Understanding of musical concepts in view of historical background and cultural context. Offered Spring semesters only. Prerequisites: MU 100 and MU 301.

MU 313 - SURVEY OF CHURCH MUSIC

Semester Hours: 3

Explores Christian music from historical and musical perspectives. Prerequisites: MU 100 and MU 301.

MU 314 - THE BEATLES

Semester Hours: 3

The purpose of this course is to familiarize the student with the music, lyrics, recordings, personal and public lives, production techniques, career strategy, social ramifications, and technological impact of the musical group known as The Beatles. The course will provide the student with an appreciation for the music itself, and a broader comprehension of the social, economic, political, and cultural upheavals that gave rise to the musical trends of the Sixties.

MU 316 - HIST & APPRECIATION OF JAZZ

Semester 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. Every other spring semester only. Prerequisite: MU 100.

MU 317 - JAZZ ARRANGING

Semester Hours: 2

This course provides the student with instruction in arranging for small and large jazz ensembles, both instrumental and vocal. Offered every other Spring semester only. Prerequisite: MU 205.

MU 320 - PIANO PEDAGOGY

Semester Hours: 2

Materials, techniques, and practices in teaching beginners and students through lower advanced grades of piano. Practical experience. Offered upon demand. Prerequisite: approval of instructor.

MU 321 - PIANO PEDAGOGY II

Semester Hours: 2

An examination of relevant methods in piano pedagogy and technique for all levels of instruction. The course will also assess the historical achievements made by previous pedagogues in the field of piano pedagogy. Prerequisite: MU 320.

MU 322 - DICTION FOR SINGERS

Semester Hours: 2

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. Offered every Fall semester only. Prerequisite: MUA 111.

MU 325 - CONDUCTING

Semester Hours: 2

Basic techniques of choral and instrumental conducting. Offered Fall semesters only. Prerequisite: MU 301.

MU 399 - SPECIAL TOPICS IN MUSIC

Semester Hours: 3

Special topics in music. Focus and emphasis of topics announced in advance. Offered upon demand.

MU 401 - FORM AND ANALYSIS

Semester Hours: 2

Musical forms and analysis. Offered every other Fall semester only. Prerequisites: MU 303 and 312.

MU 402 - CHURCH MUSIC METHODS, MATERIAL & ADMINISTRATION

Semester Hours: 3

Church Music Methods, Materials, and Administration. Prerequisite: MU 301.

MU 404 - MUSIC TECHNOLOGY INDIV PROJECT

Semester Hour: 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. Prerequisite: MU 306.

MU 406 - INTERNSHIP IN MUSIC TECHNOLOGY

Semester Hours: 3

An internship of eight hours per week working in the music technology industry. Offered upon demand. Prerequisite: MU 306.

MU 407 - INTERNSHIP MUSIC BUSINESS

Semester Hours: 3

Internship in Music Business. Prerequisites: MU 100 and MU 110 and MU 301 and MKT 301 and MGT 301 and FIN 410.

MU 408 - INTERNSHIP CHURCH MUSIC

Semester Hours: 3

An internship of nine hours per week working in church music. Prerequisites: MU 100 and MU 301 and MU 313 and MU 402 and MUE 328.

MU 409 - INTERNSHIP GRP PIANO PEDAGOGY

Semester Hour: 1

An internship of three hours per week working with an approved group piano program. Prerequisites: MU 100 and MU 321 and MU 420 and MUE 328.

MU 410 - INTERNSHIP INDIVID PIANO PEDAG

Semester Hours: 3

An internship of nine hours per week working with a local piano teacher. Prerequisites: MU 100 and MU 321 and MU 420 and MUE 328.

MU 411 - INTNSHIP INDVL PIANO PEDAGOGY

Semester Hours: 3

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. Prerequisites: MU 100 and MU 321 and MU 420 and MUE 328.

MU 416 - ORCHESTRATION

Semester Hours: 2

Instruments of the band and orchestra, their ranges, transpositions, and capabilities. Practical experience in arranging for instruments. Offered every other Fall semester only. Prerequisite: MU 302.

MU 420 - PIANO LITERATURE

Semester Hours: 2

Music for string keyboard instruments from the pre-pianoforte period to the present. Representative works from all periods. Offered upon demand. Prerequisites: MU 302 and MU 304 and MU 312.

MU 425 - ADVANCED CONDUCTING

Semester Hours: 2

Review of basic conducting patterns. Emphasis on communication as the role of the conductor. Detailed score preparation. Offered every other Spring semester only. Prerequisite: MU 325.

MU 440 - STUDIO INSTR-VOICE

Semester Hours: 0.5

Music, BA - Church Music Emphasis

The Bachelor of Arts in Music with an Emphasis in Church Music includes the standard College of Liberal Arts General Education Requirements, the Music Core, an additional 21 semester hours of music, sociology, and psychology coursework, and electives to total 120 semester hours. The core of this emphasis is a traditional music degree, with the same "classical" performance requirements as in the other music emphases. Students with an interest in church music will benefit from the degree offering.

- Music, BA requires 120 credit hours.
- No minor is required.
- Must have a 2.0 GPA in major and overall.
- No more than 6 credit hours of HPE may count in degree requirements.

- 36 of 120 credit hours must be taken at 300 level or higher.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements:

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts		3
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose any two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	

ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

Students must have a two course sequence in either Literature or History.

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Pre-Professional Courses 3

Any WLC 100 or 200 level course

Music Core ¹

The Music Core consists of a common 40 semester hours of music courses that are included in every Bachelor of Arts degree in Music.

Principal Instrument 9

MUA 200-level	
MUA 300-level	
MUA 400-level	
MUA 498	SENIOR RECITAL

Music Theory 12

MU 201	MUSIC THEORY I
MU 203	MUSICIANSHIP SKILLS I
MU 202	MUSIC THEORY II
MU 204	MUSICIANSHIP SKILLS II
MU 301	THEORY OF MUSIC III
MU 303	MUSICIANSHIP SKILLS III

Ensembles ¹ 7

MUX 300-level	
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Additional Music Requirements 9

MU 106	INTRO TO MUSIC TECHNOLOGY	
MU 311	HISTORY OF MUSIC I	
MU 312	HISTORY OF MUSIC II	
MU 325	CONDUCTING	
Music Forum		0
Students must pass this course 7 times, transfer students must pass this course for every semester they are in enrolled as a Music major at UAH		
MU 199	MUSIC FORUM	
Church Music Emphasis		21
MU 313	SURVEY OF CHURCH MUSIC	
MU 402	CHURCH MUSIC METDS, MATRL & AD	
MU 408	INTERNSHIP CHURCH MUSIC	
MUA 111 & MUA 121	STUDIO INSTR-VOICE and STUDIO INSTR-ORGAN	
MUE 328	TEACHING GENERAL MUSIC	
PHL 314	ASIAN PHILOSOPHY	
SOC 375	SOCIAL PSYCHOLOGY	
Elective Courses		
Elective hours vary by program, see advisor.		
Total Semester Hours		120

¹ Must include at least one hour of MUX 396

Music, BA - Jazz Emphasis

The Bachelor of Arts in Music with an Emphasis in Jazz includes the standard College of Liberal Arts General Education Requirements, the Music Core, an additional 25 semester hours of music coursework, and electives to total 120 semester hours. The core of this emphasis is a traditional music degree, with the same "classical" performance requirements as in the other music emphases. Students desiring additional studies in jazz beyond the standard music major will benefit from this degree offering.

- Music, BA requires 120 credit hours.
- No minor is required.
- Must have a 2.0 GPA in major and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 36 of 120 credit hours must be taken at 300 level or higher.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements:

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts		3
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	

EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose any two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113/116	GEN PHYSICS W/CALC III	
History and Social and Behavioral Sciences		
12 hours of History and Social and Behavioral Sciences chosen from the following categories below		
History: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two or three		6-9
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	

GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
Pre-Professional Courses		3
Any WLC 100 or 200 level course		
Music Core ¹		
The Music Core consists of a common 40 semester hours of music courses that are included in every Bachelor of Arts degree in Music.		
Principal Instrument		9
MUA 200-level		
MUA 300-level		
MUA 400-level		
MUA 498	SENIOR RECITAL	
Music Theory		12
MU 201	MUSIC THEORY I	
MU 203	MUSICIANSHIP SKILLS I	
MU 202	MUSIC THEORY II	
MU 204	MUSICIANSHIP SKILLS II	
MU 301	THEORY OF MUSIC III	
MU 303	MUSICIANSHIP SKILLS III	
Ensembles ¹		7
MUX 300-level		
Additional Music Requirements		9
MU 106	INTRO TO MUSIC TECHNOLOGY	
MU 311	HISTORY OF MUSIC I	
MU 312	HISTORY OF MUSIC II	
MU 325	CONDUCTING	
Music Forum		0
Students must pass this course 7 times, transfer students must pass this course for every semester they are in enrolled as a Music major at UAH		
MU 199	MUSIC FORUM	
Jazz Emphasis		25
MUJ 200 level		
At least three semesters		
MUJ 498	SENIOR JAZZ RECITAL	
MU 205	JAZZ THEORY	
MU 317	JAZZ ARRANGING	
MU 316	HIST & APPRECIATION OF JAZZ	
MUJ 131	JAZZ STUDIO INSTR-PIANO	
Elective Courses		
Elective hours vary by program, see advisor.		
Total Semester Hours		120

¹ Must include at least one hour of MUX 396

Music, BA - Liberal Arts Emphasis

The Bachelor of Arts in Music with an Emphasis in Liberal Arts includes the General Education Requirements, the Music Core, a minor (or second major) in a discipline other than music, and electives to total 120 semester hours. This emphasis serves as a traditional liberal arts education. Students with dual interests and abilities will benefit from this degree offering.

- Music, BA requires 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements:

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts		3
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	

MA 171	CALCULUS A	
Natural Sciences: Choose any two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113/116	GEN PHYSICS W/CALC III	
History and Social and Behavioral Sciences		
12 hours of History and Social and Behavioral Sciences chosen from the following categories below		
History: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two or three		6-9
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
Code	Title	Semester Hours
Pre-Professional Courses		3
Any WLC 100 or 200 level course		
Music Core ¹		
The Music Core consists of a common 40 semester hours of music courses that are included in every Bachelor of Arts degree in Music.		
Principal Instrument		9
MUA 200-level		
MUA 300-level		
MUA 400-level		

MUA 498	SENIOR RECITAL	
Music Theory		12
MU 201	MUSIC THEORY I	
MU 203	MUSICIANSHIP SKILLS I	
MU 202	MUSIC THEORY II	
MU 204	MUSICIANSHIP SKILLS II	
MU 301	THEORY OF MUSIC III	
MU 303	MUSICIANSHIP SKILLS III	
Ensembles ¹		7
MUX 300-level		
Additional Music Requirements		9
MU 106	INTRO TO MUSIC TECHNOLOGY	
MU 311	HISTORY OF MUSIC I	
MU 312	HISTORY OF MUSIC II	
MU 325	CONDUCTING	
Music Forum		0
Students must pass this course 7 times, transfer students must pass this course for every semester they are in enrolled as a Music major at UAH		
MU 199	MUSIC FORUM	
Minor Courses		18
Elective Courses		
Elective hours vary by program, see advisor.		
Total Semester Hours		120

¹ Must include at least one hour of MUX 396

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
FYE 101	CHARGER SUCCESS	1
Math		3
MU 106	INTRO TO MUSIC TECHNOLOGY	1
MU 100	INTRO TO MUSIC LITERATURE	3
Principle Instrument		1.5
Term Semester Hours:		12.5
Spring		
EH 102	COLLEGE WRITING II	3
MU 201 & MU 203	MUSIC THEORY I and MUSICIANSHIP SKILLS I	4
Science w/Lab		4
Principle Instrument		1.5
Ensemble		1
Term Semester Hours:		13.5

Year 2

Fall		
EH 207 or EH 208	READINGS LITERATURE/CULTURE I or READINGS LITERATURE/CULTURE 2	3
WLC 101		3
Science w/Lab		4
Principle Instrument		1.5
MU 202 & MU 204	MUSIC THEORY II and MUSICIANSHIP SKILLS II	4

Ensemble		1
Term Semester Hours:		16.5
Spring		
WLC 102		3
Social/Behavioral Science		3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
Principle Instrument		1.5
MU 301	THEORY OF MUSIC III	3
or MU 303	or MUSICIANSHIP SKILLS III	
Ensemble		1
Term Semester Hours:		14.5
Year 3		
Fall		
Humanities		3
HY 103	WORLD HISTORY TO 1500	3
or HY 104	or WORLD HISTORY SINCE 1500	
Principle Instrument 4XX		1.5
Ensemble and Electives		2
MU 311	HISTORY OF MUSIC I	3
MU 325	CONDUCTING	2
Term Semester Hours:		14.5
Spring		
HY 103	WORLD HISTORY TO 1500	3
or HY 104	or WORLD HISTORY SINCE 1500	
Social/Behavioral Science		3
MU 312	HISTORY OF MUSIC II	3
MUA 498		1.5
Ensemble		1
Minor Course		3
Term Semester Hours:		14.5
Year 4		
Fall		
Ensemble		1
Minor Courses		9
Electives		6
Term Semester Hours:		16
Spring		
Ensemble		1
Minor Courses		9
Electives		6
Term Semester Hours:		16
Total Semester Hours:		118

Music, BA - Music Business Emphasis

The Bachelor of Arts in Music with an Emphasis in Music Business includes the standard College of Liberal Arts General Education Requirement, the Music Core, an additional 21 semester hours of music and business coursework, and electives to total 120 semester hours. The core of this emphasis is a traditional music degree, with the same "classical" performance requirements as in the other music emphases. Students with dual interests in music and business will benefit from this degree offering.

- Music, BA requires 120 credit hours.
- No minor is required.

- Must have a 2.0 GPA in major and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 36 of 120 credit hours must be taken at 300 level or higher.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements:

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts		3
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose any two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	

CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103	ENVIRONMENTAL EARTH SCIENCE
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

Students must have a two course sequence in either Literature or History.

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Pre-Professional Courses 3

Any WLC 100 or 200 level course

Music Core¹

The Music Core consists of a common 40 semester hours of music courses that are included in every Bachelor of Arts degree in Music.

Principal Instrument 9

MUA 200-level	
MUA 300-level	
MUA 400-level	
MUA 498	SENIOR RECITAL

Music Theory 12

MU 201	MUSIC THEORY I
MU 203	MUSICIANSHIP SKILLS I
MU 202	MUSIC THEORY II
MU 204	MUSICIANSHIP SKILLS II
MU 301	THEORY OF MUSIC III
MU 303	MUSICIANSHIP SKILLS III

Ensembles ¹	7
MUX 300-level	
Additional Music Requirements	9
MU 106	INTRO TO MUSIC TECHNOLOGY
MU 311	HISTORY OF MUSIC I
MU 312	HISTORY OF MUSIC II
MU 325	CONDUCTING
Music Forum	0
Students must pass this course 7 times, transfer students must pass this course for every semester they are in enrolled as a Music major at UAH	
MU 199	MUSIC FORUM
Music Business Emphasis	21
MU 110	INTRO ARTS MANAGEMENT
MU 407	INTERNSHIP MUSIC BUSINESS
MKT 301	PRINCIPLES OF MARKETING
MGT 301	MANAGING ORGANIZATIONS
Choose two:	
MGT 101	INTRO ENTREPRENEURSHIP
MGT 405	NEW VENTURE STRATEGIES
MKT 315	SALES MGT/PROF SELLING
MKT 420	SERVICES MARKETING
Electives	
Elective Hours vary by program, see advisor.	
Total Semester Hours	120
¹ Must include at least one hour of MUX 396	

Music, BA - Music Education Emphasis

The Bachelor of Arts in Music with an Emphasis in Music Education includes 38 semester hours of General Education Requirements, the 40 semester hour Music Core, an additional 21 semester hours of music and professional music education coursework, and 37 semester hours of courses within the Department of Education, for a total of 136 semester hours. The course of study integrates music and professional education courses to develop a superior music teacher, certified to teach at all levels P-12 (Class B Professional Teacher's Certificate) with emphasis in either vocal or instrumental music. Students must demonstrate throughout their course of study competencies in both performance and teaching. Because of the demands of this program, there is little opportunity to elect courses other than those required and outlined below.

General Education Requirements for Vocal and Instrumental Music Education

The General Education Requirements for the Music Education Emphasis are different from the General Education Requirements for other music emphases. The Music Education Emphasis leads to meeting the requirements for earning an Alabama Class B Professional Teacher's Certificate.

- Music, BA requires 120 credit hours.
- No minor is required.
- Must have a 2.0 GPA in major and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 36 of 120 credit hours must be taken at 300 level or higher.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements:

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	

EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts		3
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose any two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113/116	GEN PHYSICS W/CALC III	
History and Social and Behavioral Sciences		
12 hours of History and Social and Behavioral Sciences chosen from the following categories below		

History: Choose one or two 3-6

Students must have a two course sequence in either Literature or History.

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Requirements for Vocal Music Education Students

Code	Title	Semester Hours
General Education Requirements for Vocal and Instrumental Music Education		
College General Education Requirements		38
Music Core ¹		
200-Level Studio Instruction (4 x 1.5) (MUA 2_1)		4
400-Level Studio Instruction (MUA 4_1)		1.5
MUA 498	SENIOR RECITAL	1.5
MUX 3XX	Ensembles ²	7
MU 100	INTRO TO MUSIC LITERATURE	3
MU 106	INTRO TO MUSIC TECHNOLOGY	1
MU 201	MUSIC THEORY I	3
MU 202	MUSIC THEORY II	3
MU 301	THEORY OF MUSIC III	3
MU 203	MUSICIANSHIP SKILLS I	1
MU 204	MUSICIANSHIP SKILLS II	1
MU 303	MUSICIANSHIP SKILLS III	1
MU 311	HISTORY OF MUSIC I	3
MU 312	HISTORY OF MUSIC II	3
MU 325	CONDUCTING	2
MU 199	MUSIC FORUM (0 semester hour x 7 sem.)	0
Additional Music Education Emphasis Courses		
Secondary Instrument:		
MUA 131	STUDIO INSTR-PIANO (3 x 1)	1
MUA 141	STUDIO INSTR-GUITAR	1
or MUA 151	STUDIO INSTR-STRINGS	
MU 322	DICTION FOR SINGERS	2
MUE 321	CHORAL/INSTRUMENTAL DIR OBSERV	1
MU 302	MUSICAL MATLS OF MODERN ERA	3
MU 401	FORM AND ANALYSIS	2

MU 416	ORCHESTRATION	2
MU 425	ADVANCED CONDUCTING	2
MUE 328	TEACHING GENERAL MUSIC	3
MUE 428	VOCAL/CHORAL METH SEC SCH	3
Piano Proficiency Exam		
Education		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 307	MULTICULTURAL FND EDUCATION	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 408	TCHG READING/CONTENT AREA	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 499	P-12 INTERNSHIP (Music)	12
Total Semester Hours		133

¹ The Music Core consists of a common 40 semester hours of music courses that are included in every Bachelor of Arts degree in Music. This part of the curriculum includes private lessons, ensembles, and courses in music history and literature, music theory, conducting, and music technology. See the course lists below for specifics.

² At least half must be large conducted ensembles and at least one semester hour must be chamber ensembles.

Requirements for Instrumental Music Education Students

Code	Title	Semester Hours
General Education Requirements for Vocal and Instrumental Music Education		
College General Education Requirements		38
Music Core ¹		
200-Level Studio Instruction (4 x 1.5) (MUA 2_1)		4
400-Level Studio Instruction (MUA 4_1)		1.5
MUA 498	SENIOR RECITAL	1.5
MUX 3XX	Ensembles ²	7
MU 100	INTRO TO MUSIC LITERATURE	3
MU 106	INTRO TO MUSIC TECHNOLOGY	1
MU 201	MUSIC THEORY I	3
MU 202	MUSIC THEORY II	3
MU 301	THEORY OF MUSIC III	3
MU 203	MUSICIANSHIP SKILLS I	1
MU 204	MUSICIANSHIP SKILLS II	1
MU 303	MUSICIANSHIP SKILLS III	1
MU 311	HISTORY OF MUSIC I	3
MU 312	HISTORY OF MUSIC II	3
MU 325	CONDUCTING	2
MU 199	MUSIC FORUM (0 semester hour x 7 sem.)	0
Additional Music Education Emphasis Courses		
Secondary Instrument:		
MUA 161 or MUA 171	STUDIO INSTR-WOODWINDS (2x1) STUDIO INSTR-BRASS	1
MUA 141 or MUA 151	STUDIO INSTR-GUITAR STUDIO INSTR-STRINGS	1
MUA 181	STUDIO INSTR-PERCUSSION	1

MUE 321	CHORAL/INSTRUMENTAL DIR OBSERV	1
MU 302	MUSICAL MATLS OF MODERN ERA	3
MU 401	FORM AND ANALYSIS	2
MU 416	ORCHESTRATION	2
MU 425	ADVANCED CONDUCTING	2
MUE 328	TEACHING GENERAL MUSIC	3
MUE 429	ORG & DIR INSTRU GRP SEC SCH	3
Piano Proficiency Exam		
Education		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 499	P-12 INTERNSHIP (Music)	12
Total Semester Hours		132

¹ The Music Core consists of a common 40 semester hours of music courses that are included in every Bachelor of Arts degree in Music. This part of the curriculum includes private lessons, ensembles, and courses in music history and literature, music theory, conducting, and music technology. See the course lists below for specifics.

² At least half must be large conducted ensembles and at least one semester hour must be chamber ensembles.

Music, BA - Music Technology Emphasis

The Bachelor of Arts in Music with an Emphasis in Music Technology includes the standard College of Arts, Humanities, and Social Sciences General Education Requirements, the Music Core, an additional 22 semester hours of music technology, electrical engineering, and computer engineering coursework, and electives to total 120 semester hours. The core of this emphasis is a traditional music degree, with the same "classical" performance requirements as in the other music programs. Students with dual interests in music and computer technology will benefit from this degree offering.

- Music, BA requires 120 credit hours.
- No minor is required.
- Must have a 2.0 GPA in major and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 36 of 120 credit hours must be taken at 300 level or higher.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements:

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts		3
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		

EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose any two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113/116	GEN PHYSICS W/CALC III	
History and Social and Behavioral Sciences		
12 hours of History and Social and Behavioral Sciences chosen from the following categories below		
History: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two or three		6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Pre-Professional Courses	3
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Any WLC 100 or 200 level course

Music Core¹

The Music Core consists of a common 40 semester hours of music courses that are included in every Bachelor of Arts degree in Music.

Principal Instrument	9
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MUA 200-level

MUA 300-level

MUA 400-level

MUA 498 SENIOR RECITAL

Music Theory	12
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MU 201 MUSIC THEORY I

MU 203 MUSICIANSHIP SKILLS I

MU 202 MUSIC THEORY II

MU 204 MUSICIANSHIP SKILLS II

MU 301 THEORY OF MUSIC III

MU 303 MUSICIANSHIP SKILLS III

Ensembles ¹	7
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MUX 300-level

Additional Music Requirements	9
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MU 106 INTRO TO MUSIC TECHNOLOGY

MU 311 HISTORY OF MUSIC I

MU 312 HISTORY OF MUSIC II

MU 325 CONDUCTING

Music Forum	0
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Students must pass this course 7 times, transfer students must pass this course for every semester they are in enrolled as a Music major at UAH

MU 199 MUSIC FORUM

Music Technology Emphasis	22
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MU 207 MUSIC TECHNOLOGY I	3
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MU 208 MUSIC TECHNOLOGY II	3
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MU 305 MUSIC TECHNOLOGY III	3
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MU 306 MUSIC TECHNOLOGY IV	3
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MU 404 MUSIC TECHNOLOGY INDIV PROJECT	1
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MU 406 INTERNSHIP IN MUSIC TECHNOLOGY	3
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CM 260 VIDEO PRODUCTION	3
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Elective Courses

Elective hours vary by program, see advisor.

Total Semester Hours 120

¹ Must include at least one hour of MUX 396

Music, BA - Performance Emphasis

The Bachelor of Arts in Music with an Emphasis in Performance includes the standard College of Liberal Arts General Education Requirements, the Music Core, an additional 21 semester hours of music coursework, and electives to total 120 semester hours. Students desiring additional performance studies beyond the standard music major will benefit from this degree offering.

- Music, BA requires 120 credit hours.
- No minor is required.
- Must have a 2.0 GPA in major and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 36 of 120 credit hours must be taken at 300 level or higher.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements:

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts		3
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	

MA 113	PRECALCULUS TRIGONOMETRY
MA 115	PRECALCULUS ALGEBRA & TRIG
MA 120	MATH PROFESSIONAL APPLICATIONS
MA 171	CALCULUS A

Natural Sciences: Choose any two 8

AST 106	EXPLORING THE COSMOS I
AST 107	EXPLORING THE COSMOS II
BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103	ENVIRONMENTAL EARTH SCIENCE
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

Students must have a two course sequence in either Literature or History.

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Pre-Professional Courses 3

Any WLC 100 or 200 level course

Music Core ¹

The Music Core consists of a common 40 semester hours of music courses that are included in every Bachelor of Arts degree in Music.

Principal Instrument 9

MUA 200-level		
MUA 300-level		
MUA 400-level		
MUA 498	SENIOR RECITAL	
Music Theory		12
MU 201	MUSIC THEORY I	
MU 203	MUSICIANSHIP SKILLS I	
MU 202	MUSIC THEORY II	
MU 204	MUSICIANSHIP SKILLS II	
MU 301	THEORY OF MUSIC III	
MU 303	MUSICIANSHIP SKILLS III	
Ensembles ¹		7
MUX 300-level		
Additional Music Requirements		9
MU 106	INTRO TO MUSIC TECHNOLOGY	
MU 311	HISTORY OF MUSIC I	
MU 312	HISTORY OF MUSIC II	
MU 325	CONDUCTING	
Music Forum		0
Students must pass this course 7 times, transfer students must pass this course for every semester they are in enrolled as a Music major at UAH		
MU 199	MUSIC FORUM	
Performance Emphasis		21
MUA 300 level		
MU 302	MUSICAL MATLS OF MODERN ERA	
MU 401	FORM AND ANALYSIS	
MU 425	ADVANCED CONDUCTING	
MUA 400 level		
MUA 499	PERFORMANCE EMPHASIS RECITAL	
Elective Hours		
Upper Level Electives 300+		
Elective Courses		
Elective hours vary by program, see advisor.		
Total Semester Hours		120

¹ Must include at least one hour of MUX 396

Music, BA - Piano Pedagogy Emphasis

The Bachelor of Arts in Music with an Emphasis in Piano Pedagogy includes the standard College of Liberal Arts General Education Requirements, the Music Core, an additional 21 semester hours of music, sociology, and business coursework, and electives to total 120 semester hours. The core of this emphasis is a traditional music degree, with the same "classical" performance requirements as in the other music emphases. Students with an interest in church music will benefit from the degree offering.

- Music, BA requires 120 credit hours.
- No minor is required.
- Must have a 2.0 GPA in major and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 36 of 120 credit hours must be taken at 300 level or higher.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements:

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts		3
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose any two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	

PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

Students must have a two course sequence in either Literature or History.

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Pre-Professional Courses 3

Any WLC 100 or 200 level course

Music Core¹

The Music Core consists of a common 40 semester hours of music courses that are included in every Bachelor of Arts degree in Music.

Principal Instrument 9

MUA 200-level	
MUA 300-level	
MUA 400-level	
MUA 498	SENIOR RECITAL

Music Theory 12

MU 201	MUSIC THEORY I
MU 203	MUSICIANSHIP SKILLS I
MU 202	MUSIC THEORY II
MU 204	MUSICIANSHIP SKILLS II
MU 301	THEORY OF MUSIC III
MU 303	MUSICIANSHIP SKILLS III

Ensembles¹ 7

MUX 300-level	
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Additional Music Requirements 9

MU 106	INTRO TO MUSIC TECHNOLOGY
MU 311	HISTORY OF MUSIC I
MU 312	HISTORY OF MUSIC II
MU 325	CONDUCTING

Music Forum 0

Students must pass this course 7 times, transfer students must pass this course for every semester they are in enrolled as a Music major at UAH

MU 199	MUSIC FORUM	
Piano Pedagogy Emphasis		22
MU 320	PIANO PEDAGOGY	
MU 321	PIANO PEDAGOGY II	
MU 420	PIANO LITERATURE	
MU 409	INTERNSHIP GRP PIANO PEDAGOGY	
MU 410	INTERNSHIP INDIVID PIANO PEDAG	
MU 110	INTRO ARTS MANAGEMENT	
MUE 328	TEACHING GENERAL MUSIC	
MKT 301	PRINCIPLES OF MARKETING	
Elective Courses		
Elective hours vary by program, see advisor.		
Total Semester Hours		120

¹ Must include at least one hour of MUX 396

Music Minor

Students may select music as a supportive minor to their major discipline.

A total of 23 semester hours of music are necessary (12 semester hours upper-level), including the following courses:

Code	Title	Semester Hours
MU 100	INTRO TO MUSIC LITERATURE	3
MU 201	MUSIC THEORY I	3
MU 203	MUSICIANSHIP SKILLS I	1
MUX 3XX	Ensemble	6
MU 3XX	Upper Level Electives (not ensembles)	6
MUA or MUJ 1x1 - Studio Instruction		4
Total Semester Hours		23

Music Technology Minor

Students may select music technology as a supportive minor for Computer Engineering, Electrical Engineering and Computer Science.

The music technology minor includes the following courses:

Code	Title	Semester Hours
MU 100	INTRO TO MUSIC LITERATURE	3
MU 106	INTRO TO MUSIC TECHNOLOGY	1
MU 201	MUSIC THEORY I	3
MU 203	MUSICIANSHIP SKILLS I	1
MU 202	MUSIC THEORY II	3
MU 204	MUSICIANSHIP SKILLS II	1
MU 306	MUSIC TECHNOLOGY IV	3
MU 404	MUSIC TECHNOLOGY INDIV PROJECT	1
MU 406	INTERNSHIP IN MUSIC TECHNOLOGY	3
MUX 3XX	Ensemble	2
Total Semester Hours		21

Philosophy

332 Morton Hall
Telephone 256.824.2338
Email: nick.jones@uah.edu

Mission

To instruct people in critical and imaginative thinking, to teach Western and Eastern philosophical traditions, and to inspire the wonder at the world that Plato says begins all philosophical reflection.

The department of Philosophy offers the following degree programs:

- Philosophy, BA (p. 144)
- Philosophy Minor (p. 147)

Program Objectives

1. Enable our students both to understand and accept their responsibilities as citizens and future leaders and also to succeed in their professional lives with the skills of critical thinking, imaginative problem-solving, and rigorous thought, which philosophy instruction imparts.
2. Promote the active development and dissemination of high-quality research. Every member of the department should be actively engaged in the production and publication of original philosophical works.
3. Fulfill service responsibilities to the university, the wider philosophical community, and finally, by promoting educational programs aimed at the university and larger community, to educate the general public about the value of philosophy.

Major in Philosophy

- Philosophy, BA (p. 144)

Minor in Philosophy

- Philosophy (p. 147)

PHL 101 - INTRODUCTION TO PHILOSOPHY
Semester Hours: 3

Introduction to philosophical reflection focusing upon central problems in the major branches of the western tradition: metaphysics, epistemology and value theory.

PHL 102 - INTRO TO ETHICS
Semester 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 103 - INTRODUCTION TO LOGIC
Semester Hours: 3

Methodology of formal and informal reasoning.

PHL 150 - TECH, SCIENCE & HUMAN VALUES
Semester Hours: 3

A philosophical examination of the intersection of human values with science and technology. Questions include: what exists, the nature and extent of knowledge, and moral problems posed by technical and scientific change.

PHL 220 - CRIT THINKING FOR INTEL ANALYS
Semester Hours: 3

Examines critical reasoning strategies designed to correct cognitive biases and improve tradecraft skills in the context of intelligence analysis.

PHL 301 - ANCIENT PHILOSOPHY
Semester Hours: 3

Survey of classical philosophy from the Pre-Socratics through Aristotle. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 302 - MODERN PHILOSOPHY

Semester Hours: 3

Survey of the British and Continental traditions from Descartes through Kant. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 303 - CONTINENTAL PHILOSOPHY

Semester Hours: 3

Examination of important trends in the Continental tradition from nineteenth through twenty-first century thought.

PHL 310 - PHILOSOPHY OF ART

Semester Hours: 3

Major aesthetic theories of the western tradition, may include visual or non-visual arts. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 311 - PHILOSOPHY OF SCIENCE

Semester Hours: 3

Critical assessment of the historical and logical foundations of the natural and theoretical sciences. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 312 - AMERICAN PHILOSOPHY

Semester Hours: 3

Survey of American thought with emphasis upon the development of pragmatism in the work of Pierce, James, and Dewey. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 314 - ASIAN PHILOSOPHY

Semester Hours: 3

Survey of philosophical traditions from Asia, such as various schools of Buddhism and Hinduism, Confucianism, Daoism. Topics may include: conceptions of human nature and the good life, the nature of the self and its relation to society, comparisons to philosophies from Europe and North America. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 317 - PHILOSOPHY OF MIND

Semester Hours: 3

A philosophical examination of a range of models, theories, and arguments concerning the nature of mind and its relationship to the physical world. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 320 - SYMBOLIC LOGIC

Semester Hours: 3

Symbolic deductive logic, including propositional calculus (truth-functional logic), predicate calculus (propositional functions and quantification), and the logic of relations. Prerequisite: PHL 201.

PHL 330 - CLASSICAL POLITICAL PHILOSOPHY

Semester Hours: 3

Careful analysis of the roots of political inquiry in selected works of ancient and medieval political philosophers. Major themes include the search for a just social order, the proper relationship between the citizen and the state, and other fundamental concepts of western political institutions. Prerequisite: PHL 101 or PHL 102 or PHL 202 or PSC 101.

PHL 332 - MODERN POLITICAL PHILOSOPHY

Semester 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. Prerequisite: PHL 101 or PHL 102 or PHL 202 or PSC 101.

PHL 335 - FEMINIST PHILOSOPHY

Semester Hours: 3

Philosophical examination of issues related to feminism and feminist theory. Topics may include: women in the history of philosophy, contemporary feminist political theory, feminist ethics, feminist epistemology, or gender theory (including racial and sexual identity). Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 337 - PHILOSOPHY OF RACE

Semester Hours: 3

Philosophical examination of the nature and importance of race. Topics may include: the debate between essentialist and constructionist views of race, the political importance of race, and the intersection of race and other forms of identity. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 385 - SELECTED TOPICS

Semester Hours: 3

Intensive examination of particular problems, periods, or movements in the history of philosophy. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 395 - RESEARCH SEMINAR

Semester Hours: 3

Intensive examination of particular problems, periods, or movements in the history of philosophy. Intensive examination of selected topics leading to the preparation of a substantial philosophical paper. Required of all majors. May be taken twice for credit. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 397 - PHILOSOPHY INTERNSHIP

Semester Hours: 1-3

A supervised experience in a professional environment enhanced by a student's background in philosophy. Paid or unpaid. Prerequisites: 18 hrs of PHL, JR/SR standing, minimum 3.0 GPA in PHL Major, approval of department chair.

PHL 399 - DIR STUDY IN PHILOSOPHY

Semester Hours: 1-3

Independent study in an area of philosophy selected in consultation with faculty advisor. Requires approval of department chair. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 401 - METAPHYSICS

Semester Hours: 3

Critical examination of traditional and contemporary responses to questions about the nature of reality. Prerequisite: 6 hrs of PHL, except PHL 201.

PHL 402 - EPISTEMOLOGY

Semester 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. Prerequisite: 6 hrs of PHL, except PHL 201.

PHL 403 - ADV MORAL PHILOSOPHY

Semester Hours: 3

Critical examination of significant works in moral and political philosophy such as the relationship between morality and human nature, the individual and the state, and the consequences of actions. Prerequisite: 6 hrs of PHL, except PHL 201.

PHL 438 - CONTEMPORARY POLITICAL THOUGHT

Semester 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. Prerequisite: 6 hrs of PHL or PSC, except PHL 201.

Philosophy, BA

Students majoring in philosophy must complete a minimum of 30 semester hours in philosophy with at least 21 semester hours at the 300-level or above.

- Philosophy, BA requires 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a minor consisting of 21 credit hours, at least 12 credit hours at the 300-level or higher.
- Must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements:

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	

Humanities and Fine Arts 12

12 hours of Humanities and Fine Arts chosen from the following categories below

Fine Arts: Choose one 3

ARH 100	ARH SURV:ANCIENT-MEDIEVAL
ARH 101	ARH SURV:RENAISSANCE-MODERN
ARH 103	ARH SUR:NON-WESTERN TRADITIONS
ARS 160	DRAWING: FOUNDATIONS
MU 100	INTRO TO MUSIC LITERATURE
TH 122	THEATRE APPRECIATION

Literature: Choose one or two 3-6

Students must have a two course sequence in either Literature or History.

EH 207	READINGS LITERATURE/CULTURE I
EH 208	READINGS LITERATURE/CULTURE 2
EH 242	MYTHOLOGY

Humanities: 6

PHL 102	INTRO TO ETHICS
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Mathematics and Natural Sciences

PHL 103	INTRODUCTION TO LOGIC
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Mathematics: Choose one 3-4

MA 107	ALGEBRA WITH APPLICATIONS
MA 110	FINITE MATHEMATICS
MA 112	PRECALCULUS ALGEBRA
MA 113	PRECALCULUS TRIGONOMETRY
MA 115	PRECALCULUS ALGEBRA & TRIG
MA 120	MATH PROFESSIONAL APPLICATIONS
MA 171	CALCULUS A

Natural Sciences: Choose two 8

AST 106	EXPLORING THE COSMOS I
AST 107	EXPLORING THE COSMOS II
BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103	ENVIRONMENTAL EARTH SCIENCE
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
Pre-Professional		19
Any WLC course at the 100 or 200 level		
Pre-professional Electives ²		
Choose additional courses from the above listed Humanities, Fine Arts, Mathematics, Sciences, History, and Social and Behavioral Sciences.		
Philosophy Courses		30
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 301	ANCIENT PHILOSOPHY	
PHL 302	MODERN PHILOSOPHY	
PHL 395	RESEARCH SEMINAR	
PHL 401	METAPHYSICS	
or PHL 402	EPISTEMOLOGY	
or PHL 403	ADV MORAL PHILOSOPHY	
PHL Elective		
Choose three PHL Electives 300+		9
Minor Courses		21
Elective Courses		
Elective courses vary by program, see advisor.		
Total Semester Hours		120

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
FYE 101	CHARGER SUCCESS	1
Math		3
Science w/Lab		4
PHL 1XX		3
Term Semester Hours:		14
Spring		
EH 102	COLLEGE WRITING II	3
PHL 102	INTRO TO ETHICS	3
HY 103	WORLD HISTORY TO 1500	3
or HY 104	or WORLD HISTORY SINCE 1500	
Social/Behavioral Science		3
Science w/Lab		4
Term Semester Hours:		16

Year 2

Fall

PHL 103	INTRODUCTION TO LOGIC	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
Science w/Lab		4
WLC 101		3
Social/Behavioral Science		3
Term Semester Hours:		16

Spring

Humanities or Literature		3
Social/Behavioral Science		3
Area V		6
PHL 300+ Elective		3
Term Semester Hours:		15

Year 3**Fall**

PHL 301	ANCIENT PHILOSOPHY	3
PHL 300+ Elective		3
Minor Course		3
Area V Courses		6
Term Semester Hours:		15

Spring

PHL 302	MODERN PHILOSOPHY	3
Minor Courses		6
Area V Course		3
Elective		3
Term Semester Hours:		15

Year 4**Fall**

PHL 395	RESEARCH SEMINAR	3
PHL 300+ Elective		3
Minor Courses		6
Elective		3
Term Semester Hours:		15

Spring

PHL 4XX		3
Minor Courses		6
Electives		6
Term Semester Hours:		15
Total Semester Hours:		121

Philosophy Minor

Students minoring in philosophy must complete at least 21 semester hours in philosophy including PHL 103 and PHL 102. Recommendations concerning which courses might best complement a student's major and related interests are available from the philosophy faculty upon request. Appropriate philosophy courses may also be used as part of a program of cognate studies with other disciplines. Such a program must include at least 12 semester hours in courses numbered 300 or above.

Code	Title	Semester Hours
PHL 102	INTRO TO ETHICS	3
PHL 103	INTRODUCTION TO LOGIC	3
PHL 301	ANCIENT PHILOSOPHY	3

or PHL 302	MODERN PHILOSOPHY	
PHL Any level		3
PHL 300+		9
Total Semester Hours		21

Science, Technology, and Society Minor

332 Morton Hall
(256) 824-2338
Dr. Nicholaos J. Jones, Coordinator

The Program in Science, Technology, and Society (STS) integrates concepts and methods from the humanities and the social sciences in order to provide an interdisciplinary perspective on science and technology as human activities with cultural and political consequences. Topics of interest include the varied social and historical contexts that produce scientific knowledge, the ways in which political and cultural values affect scientific and technological research, the impact of technological innovation on different social classes, and the significance of scientific and technological progress for what it means to be human. The STS minor responds to a growing need for professionals who integrate perspectives from multiple academic disciplines to address the contemporary social significance and political impacts of science and technology. Even for those majoring in a discipline with a clear career track, STS courses teach skills that open options for pivoting into other careers.

General Requirements

The STS minor requires 21 credit hours. This involves three core courses (9 credit hours) and at least four electives. No more than two courses from the same discipline can count toward the 12 hours of electives. The minor program also must be approved by the STS Coordinator.

At least 12 of the 21 credit hours must be in courses numbered 300 or above, and at least 6 of these 12 hours must be taken at UAH. Of the 21 credits, up to 6 hours may count toward a students' major program and up to 6 hours may count toward GER credit, but no course may count toward all three areas (GER, Major, and the STS Minor).

Students can count up to 6 credits of mathematics, science, or engineering courses outside of their major toward the 12 elective credits; for majors in College of Arts, Humanities, and Social Sciences, these cannot include any courses applied toward GER Mathematics and Science requirements.

Code	Title	Semester Hours
Core Courses		
PHL 150	TECH, SCIENCE & HUMAN VALUES	3
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	3
Select one of the following:		3
HY 393	HISTORY OF SCIENCE TO 1700	
HY 394	HISTORY OF MODERN SCIENCE	
HY 368	AMERICAN ENVIRONMENTAL HISTORY	
HY 370	TECHNOLOGY IN AMERICAN HISTORY	
Elective Courses ¹		
Select 12 semester hours from the following:		12
Any core HY course not taken to satisfy the History component of the Core Courses (HY 393, HY 394, HY 368, HY 370)		
EH 425	LITERATURE, SCIENCE & TECH	
HY 395	HY MED ANTIQTY ENLITNMENT	
HY 451	SCIENCE & RELIGION IN HISTORY	
SOC 369	ENVIRONMENTAL SOCIOLOGY	
SOC 480	SOCIOLOGY SCIENCE & TECHNOLOGY	
PHL 311	PHILOSOPHY OF SCIENCE	
PY 403	HUMAN FACTORS PSYCHOLOGY	
With semester-specific approval from the STS Coordinator, electives also include:		
EH 415	ANGLOPHONE/POSTCOLONIAL LIT	
EH 418	REP TEXTS-WOMEN WRITERS	
PHL 301	ANCIENT PHILOSOPHY	
With approval from the STS Coordinator, further courses also may be included as electives		
Total Semester Hours		21

- ¹ The elective courses further explore the impact and significance of science and technology on society and human experience. Students may apply no more than 6 semester hours from any one discipline to their electives.

New courses may be added to this list when approved for inclusion by the Program in Science, Technology, and Society Advisory Committee. For a current listing of approved courses and for additional information on the STS minor, please contact the STS Coordinator or see our website at (<http://www.uah.edu/ahs/departments/sts>)<http://www.uah.edu/ahs/departments/sts>.

Political Science

250 Morton Hall
Telephone: 256.824.6192
Email: polsci@uah.edu

The academic discipline of political science introduces students to critical thinking about the intellectual origins, defense, and critique of government, politics, and society in the United States and throughout the world. Political science classes focus on fundamental questions of governance: How should state and society be organized? How do the values of civil society and economy influence political thinking? Who should exercise political power and who should not? What constitutes justice?

The Department of Political Science offers the following degree programs:

- Political Science, BA
- Political Science Minor
- Public Affairs, MA

Program Objectives

The Department of Political Science offers the Bachelor of Arts in Political Science, the Minor in Political Science, and the Master of Arts in Public Affairs (public policy). Faculty members and students engage in empirical research and ethical critique of current events and competing explanations of those events with regard to government, politics, and society. They take into account politically relevant conceptual elements and practices embedded in or struggling against the intellectual foundations and elaborate edifices of diverse political arrangements and causes. Faculty members profess certain acumen in the discipline within which they teach and do research and thus have accumulated more accurate and sophisticated explanations and discoveries into the human condition, particularly as they relate to living socially and making decisions collectively.

Major in Political Science

- Political Science, BA (p. 152)

Minors in Political Science

- Political Science (p. 155)

PSC 101 - INTRO TO AMERICAN GOVERNMENT
Semester Hours: 3

What motivates individuals and groups to act politically? This course introduces students to political structures, decision-making, and public policy in the U.S. The role of history in the development of current institutional structures and current political developments will be considered.

PSC 102 - INTRO TO COMPARATIVE POLITICS
Semester Hours: 3

In this class we explore ways to compare countries and political systems. We study a wide variety of countries for a better understanding of political dynamics around the world. This includes countries at various stages of industrialization and democratization, in different regions of the globe.

PSC 103 - INTRO TO STATE & LOCAL GOVT
Semester Hours: 3

Surveys the principles, forms, functions, and processes of state and local governments in the context of the American federal system, with specific emphasis on the political environment. Students will better understand the major functions of -and the issues facing- state and local governments.

PSC 260 - INTRODUCTION TO INTERNATIONAL RELATIONS
Semester Hours: 3

Examination of the basic factors underlying the conduct of international relations, focusing on conflict and changes taking place due to globalization. This course also seeks to stimulate intellectual curiosity, enhance critical thinking, and improve oral and writing skills.

PSC 300 - INTRO SOCIAL SCIENCE STATISTIC

Semester Hours: 3

This course covers basic statistical concepts, techniques, and the language of statistics; simple statistical modeling correlation and regression analysis; and nonlinear models and categorical models. Students will apply appropriate methods to analyze real world problems.

PSC 302 - THE AMERICAN CONGRESS

Semester Hours: 3

Studies the organization and role of the Congress, its leadership, internal processes, and relationships with other parts of the political system. The goal is to understand why Congress looks and acts the way it does, whose interests are represented, and how and why policies emerge as they do. Prerequisite: PSC 101.

PSC 304 - AMERICAN PRESIDENCY

Semester Hours: 3

Examination of the institution of the American presidency, its power, and the forces that shape it. Focus on developing students' ability to think conceptually and critically about the presidency, the president's role in the the political system, and American politics in general. Prerequisite: PSC 101.

PSC 309 - POLI PARTIES/INTEREST GR

Semester Hours: 3

A survey of major linkages between citizens and government, this course studies the formation, organization, activities, and impacts of political parties and interest groups - and factors affecting them. Students will think critically about these institutions and their roles in the American system. Prerequisite: PSC 101.

PSC 330 - CLASSI POLITI PHILOSOPHY

Semester Hours: 3

Careful analysis of the roots of political inquiry in selected works of ancient and medieval political philosophers. Major themes include the search for a just social order, the proper relationship between the citizen and the state, and other fundamental concepts of western political institutions. Prerequisite: PSC 101 or PHL 101 or PHL 102 or PHL 202 or permission of instructor.

PSC 332 - MODERN POLITICAL PHILOSO

Semester 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. Prerequisite: PSC 101 or PHL 101 or PHL 102 or PHL 202 or permission of instructor.

PSC 334 - AMER POLITICAL THOUGHT

Semester 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. Prerequisite: PSC 101.

PSC 399 - CURRENT AFFAIRS

Semester Hour: 1

An examination of current national and international issues. Focus is on developing critical reading, listening, and writing skills. The course may be repeated up to three times.

PSC 420 - FEDERALISM & INTERGOV RELATION

Semester Hours: 3

Designed to help students navigate complex relationships among the 90,000+ government in the U.S., this course examines the framework of federalism and the tools available to governments to influence public policy outcomes. Students will investigate the impacts of these relationships on policy. Prerequisite: PSC 101.

PSC 436 - POLITICAL IDEOLOGIES

Semester Hours: 3

Critical examination of the philosophical foundations and political ethics of contemporary political ideologies. Among the major ideologies studied will be relevant examples of conservatism, liberalism, Marxism, Nazism, and religion, such as liberation theology and Islamism. Prerequisite: PSC 101.

PSC 438 - CONTEMPORARY POLITICAL THOUGHT

Semester 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.

PSC 440 - REGIONAL STUDIES

Semester Hours: 3

This class compares and examines the politics of Asia, Latin America, the Middle East, or Africa, depending on the term. We focus on select countries of themes within each region as part of our study of political structures, history, and culture, for a deeper understanding of each area. Prerequisites: PSC 101 and PSC 102.

PSC 451 - LAW, COURTS, & PUBLIC POLICY

Semester Hours: 3

Examines the role of the courts in the making of public policy in the United States, with an emphasis on the use of the courts by interest groups seeking to achieve specific policy goals. Prerequisite: PSC 101.

PSC 452 - AMER CONSTITUTIONAL LAW

Semester Hours: 3

Examination of the structure of the federal government and its powers through an analysis of leading cases from the Supreme Court. Topics include federalism, separation of powers, and the proper role and decision-making process of the Supreme Court. Prerequisite: PSC 101.

PSC 454 - CIVIL LIBERTIES

Semester Hours: 3

Examines the relationship between the government and individuals in American society through an analysis of Supreme Court cases. The focus is on contemporary questions about the rights of individuals and appropriate limits to freedom of action set by government. Prerequisite: PSC 101.

PSC 462 - DECISION-MAKING FORN & SEC POLY

Semester Hours: 3

An examination of the history, culture, policies, and structures shaping the development of U.S. foreign and national security policies. Special attention will be placed on the roles of Congress, National Security Council, Defense Department, State Department, and the intelligence community. Prerequisite: PSC 101.

PSC 464 - AMERICAN FOREIGN POLICY

Semester Hours: 3

An examination of the substance of contemporary U.S. foreign policies and the goals the country seeks to achieve around the world. Students will attempt to evaluate the effectiveness of those policies and examine why it is often difficult for the country to achieve its goals. Prerequisite: PSC 101.

PSC 466 - NATIONAL SECURITY STRGY & POLY

Semester Hours: 3

An examination of current U.S. national security strategy and policy. The course will review current strategy and policy documents, examine specific responses to the variety of threats facing the United States, and evaluate whether those policies are effective at achieving their goals. Prerequisite: PSC 101.

PSC 470 - ISSUES IN SECURITY POLICY

Semester Hours: 3

Examination of select security-related policy issues. The content of this course will vary during different terms, and students may take the course multiple times so long as the content differs. Prerequisite: PSC 101.

PSC 480 - ADVANCED TOPICS IN PSC

Semester Hours: 3

Select topics in local, state, national and world politics. This course may be repeated for credit as long as content of the course has changed.

PSC 484 - SENIOR SEMINAR

Semester Hours: 3

This class engages students in an advanced examination of the subfields of political science that are offered by the department. The course may be repeated with different faculty for up to 6 hours of credit. Prerequisites: PSC 101 and PSC 102.

PSC 495 - INTERNSHIP IN GOVERNMENT

Semester Hours: 1-6

Students may receive academic credit for an internship with a local, state, or federal governmental agency, or with political, legal, or public policy related organizations. Prerequisite: Instructor Permission.

PSC 498 - DIRECTED READINGS & RESEARCH

Semester Hours: 3

Supervised in-depth readings and/or individual research in an area of specialized interest to both student and instructor. Open to all students who have completed 15 semester hours in Political Science and have permission of the instructor.

Political Science, BA

- Political Science, BA requires 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- Students must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level except for WLC 204		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3-4
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	

MA 113	PRECALCULUS TRIGONOMETRY
MA 115	PRECALCULUS ALGEBRA & TRIG
MA 120	MATH PROFESSIONAL APPLICATIONS
MA 171	CALCULUS A

Natural Sciences: Choose two 8

AST 106	EXPLORING THE COSMOS I
AST 107	EXPLORING THE COSMOS II
BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103	ENVIRONMENTAL EARTH SCIENCE
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences 12

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

Students must have a sequence in either History or Literature

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
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Pre-Professional 10

Any WLC 100 or 200 level except for WLC 204

Pre-professional electives: Choose 7 credit hours from the approved list above in Humanities, Fine Arts, Mathematics, History, Science, or Social and Behavioral Sciences.

Political Science Courses 36

PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS

PSC 103	INTRO TO STATE & LOCAL GOVT	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
PSC 330	CLASSI POLITI PHILOSOPHY	
or PSC 332	MODERN POLITICAL PHILOSO	
PSC 484	SENIOR SEMINAR	
PSC Elective 100+		
Choose four PSC Electives 300+		
PY 300	PSYCHOLOGICAL STATISTICS	
or SOC 303	STATISTICS/SOCIAL SCIENCES	
Minor Courses		18
Elective Courses		
Elective hours vary by program, see advisor.		
Total Semester Hours		120

Students with a major in Political Science must choose either a minor from another discipline or 21 semester hours of cognate studies involving courses from two or more disciplines, of which 12 semester hours must be in upper-level courses with a minimum of six semester hours from each discipline. Students are advised to officially declare a major and to obtain a Program of Study by the beginning of the sophomore year, if not before. Students may initiate a Program of Study by meeting with an advisor in the College of Arts, Humanities, and Social Sciences (Morton Hall 336). After the Program of Study is completed, a Political Science academic advisor will be assigned to the student and will meet with him or her in the Program of Study development process. Transfer students are advised to consult with the chair of the department before scheduling courses.

JUMP Program in Political Science

Through the Joint Undergraduate Master's Program (JUMP) undergraduate students majoring in Political Science may take up to 12 semester hours of approved courses at the graduate level while completing their BA degrees. These courses double-count toward both the BA in Political Science and the MA in Public Affairs (public policy) degrees at UAH, allowing students to earn their MA degree more rapidly.

Students admitted to the JUMP program continue to pay undergraduate tuition for the graduate courses they take as part of the program, do not have to take the Graduate Record Examination (GRE), and do not have to pay a Graduate School application fee.

Students must apply and be accepted into the program, before they may take coursework that will count toward both degree programs. Students must meet the following criteria:

- Have advanced Sophomore or Junior standing
- Have a GPA of 3.25 or better
- Have completed at least nine semester hours of PSC coursework at UAH, with at least six semester hours at the 300-level or above

Year 1

		Semester Hours
Fall		
EH 101	COLLEGE WRITING I	3
Math		3
Fine Arts		3
PSC 101	INTRO TO AMERICAN GOVERNMENT	3
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		13
Spring		
EH 102	COLLEGE WRITING II	3
Humanities		3
PSC 103	INTRO TO STATE LOCAL GOVT	3
Science w/Lab		4
Social/Behavioral Science		3
Term Semester Hours:		16

Year 2

Fall		
WLC 101		3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	

PSC 102	INTRO TO COMPARATIVE POLITICS	3
Social/Behavioral Science		3
Science w/Lab		4
Term Semester Hours:		16
Spring		
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	3
HY 103	WORLD HISTORY TO 1500	3
or HY 104	or WORLD HISTORY SINCE 1500	
Area V Courses		6
Term Semester Hours:		15
Year 3		
Fall		
SOC 303	STATISTICS/SOCIAL SCIENCES	3
or PY 300	or PSYCHOLOGICAL STATISTICS	
HY 103	WORLD HISTORY TO 1500	3
or HY 104	or WORLD HISTORY SINCE 1500	
Area V Course		3
PSC 330	CLASSI POLITI PHILOSOPHY	3
or PSC 332	or MODERN POLITICAL PHILOSO	
Minor Course		3
Term Semester Hours:		15
Spring		
PSC 300+ Courses		6
Minor Courses		6
Elective		3
Term Semester Hours:		15
Year 4		
Fall		
PSC 484	SENIOR SEMINAR	3
PSC 300+ Courses		6
Minor Courses		6
Term Semester Hours:		15
Spring		
Minor Courses		6
PSC Elective		3
Electives		6
Term Semester Hours:		15
Total Semester Hours:		120

Political Science Minor

The student choosing a Minor in Political Science must take 21 semester hours of coursework including:

Code	Title	Semester Hours
PSC 101	INTRO TO AMERICAN GOVERNMENT	3
PSC 102	INTRO TO COMPARATIVE POLITICS	3
PSC 103	INTRO TO STATE & LOCAL GOVT	3
or PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	

Psychology

335 Morton Hall

Telephone: 256.824.6191

Email: psychol@uah.edu

The Department of Psychology offers the B.A. and M.A. degrees in psychology. Psychology is an exciting and interesting scientific field that concerns why people think and behave the way they do. It is a tremendously varied field and a discipline with a bright and promising future. Though relatively young, psychology is an expansive discipline that incorporates topics from other disciplines such as biology, business, engineering, and education. Studying psychology requires students to solve problems, reason verbally and quantitatively, organize material, think critically, communicate clearly, and work effectively with others. At UAH, the psychology department is small and very student-centered. Students may take courses in clinical, experimental, social, developmental, cognitive, perceptual, biological, personality, industrial, and counseling psychology. In particular, students are required to gain an appreciation of the methods and tools used by psychologists to perform research. Our capstone course in supervised research allows majors to demonstrate those skills working with individual faculty members.

The department of Psychology offers the following degree programs:

- Psychology, BA (p. 156)

Mission

The focus of the Department of Psychology is threefold:

- teaching
- scholarship
- service

Consequently, the mission of the department centers upon development of students, development of faculty and scholarly activities, and service to scholarly and professional societies as well as to appropriate communities including those within UAH.

The Department of Psychology supports the Mission of the College of Liberal Arts in a variety of ways. We provide close interactions between teachers and learners in our seminar courses, as well as in our research courses and internship opportunities. The Department of Psychology encourages personal and professional growth in its promotion of students' career exploration, knowledge acquisition, skill development (i.e., critical thinking, technical writing, oral communication, and statistical analyses), and valuation of diversity.

Social Science Composite for Secondary Education Majors

Students planning to teach psychology in secondary schools will need to complete the Social Science Composite which includes courses in history, psychology, sociology, political science, and economics. The psychology courses included in this composite are PY 101, PY 102, and PY 375. Students seeking certification in secondary education should contact the Education Department for specific requirements.

The department of Psychology offers the following degree programs:

- Psychology, BA (p. 156)

Psychology, BA

The program of study for a psychology major includes 35 semester hours of psychology with at least 26 semester hours numbered 300 or above. In addition, the psychology major must be accompanied by a minor that meets the requirements designated by the selected discipline. Course work required for the major is specified below in Curriculum for Majors.

- Psychology, BA requires 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose two		6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	

PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113/116	GEN PHYSICS W/CALC III	

History and Social and Behavioral Sciences 12

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one sequence 6

HY 103 & HY 104	WORLD HISTORY TO 1500 and WORLD HISTORY SINCE 1500	
HY 221 & HY 222	UNITED STATES TO 1877 and UNITED STATES SINCE 1877	

Social and Behavioral Sciences: Choose two 6

ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	

Code	Title	Semester Hours
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Pre-Professional

Preprofessional Electives 19

Choose from the above categories in Fine Arts, Humanities, Social and Behavioral Sciences, History, Mathematics, and Science. A maximum of 9 credit hours in Mathematics and Science can be applied towards this area.

Psychology Courses

PY 101	GENERAL PSYCHOLOGY I	3
PY 102	APPLICATIONS IN PSYCHOLOGY	3
PY 300 & 300L	PSYCHOLOGICAL STATISTICS and PSYCHOLOGICAL STATISTICS LAB	4
PY 302	EXPERIMENTAL PSYCHOLOGY	4
PY 498	HUMAN RESEARCH I	3

Select 2 courses from Group A 6

PY 314	Course PY 314 Not Found	
PY 316	PERCEPTION	
PY 436	BIOLOGICAL PSYCHOLOGY	
PY 480	COGNITION	

Select 2 courses from Group B 6

PY 301	PERSONALITY	
PY 375	SOCIAL PSYCHOLOGY	
PY 415	DEVELOPMENTAL PSYCHOLOGY	
PY 435	PSYCHOPATHOLOGY	

PY Elective 300+ 3

PY Elective 200+		3
Minor Courses		21
Elective Courses		
Elective courses vary by program, see advisor.		
Total Semester Hours		120
Year 1		
Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
PY 101	GENERAL PSYCHOLOGY I	3
Math		3
FYE 101	CHARGER SUCCESS	1
Fine Arts		3
	Term Semester Hours:	13
Spring		
PY 102	APPLICATIONS IN PSYCHOLOGY	3
EH 102	COLLEGE WRITING II	3
Science w/Lab		4
Social/Behavioral Science		3
Humanities or Fine Arts		3
	Term Semester Hours:	16
Year 2		
Fall		
WLC 101		3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
PY 300	PSYCHOLOGICAL STATISTICS	3
HY 103	WORLD HISTORY TO 1500	3
or HY 104	or WORLD HISTORY SINCE 1500	
Science w/Lab		4
	Term Semester Hours:	16
Spring		
EH 208	READINGS LITERATURE/CULTURE 2	3
or EH 207	or READINGS LITERATURE/CULTURE I	
HY 103	WORLD HISTORY TO 1500	3
or HY 104	or WORLD HISTORY SINCE 1500	
PY 302	EXPERIMENTAL PSYCHOLOGY	4
Social/Behavioral Science		3
Area V Course		3
	Term Semester Hours:	16
Year 3		
Fall		
Area V Courses		6
Minor Course		3
PY Group A Course		3
PY Group B Course		3
	Term Semester Hours:	15
Spring		
PY Group B Course		3
PY 300+ Elective		3
Minor Course		3

Area V Courses	6
Term Semester Hours:	15
Year 4	
Fall	
PY Group A Course	3
Minor Courses	6
Elective	2
PY 498	HUMAN RESEARCH I
Term Semester Hours:	14
Spring	
PY Elective	3
Minor Courses	9
Elective	2
Term Semester Hours:	14
Total Semester Hours:	119

Students in the Psychology, BA program have the choice of two tracks: Psychological Services or Psychological Science. For more information on each, please see below:

- Psychology, BA - Psychological Services Track (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/psychology/psychology-ba-psychological-services-track>)
- Psychology, BA - Psychological Science Track (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/psychology/psychology-ba-psychological-science-track>)

Psychology Minor

A minor in psychology consists of 21 semester hours of psychology courses of which 12 semester hours must be numbered 300 or above. Course work required for the minor is specified below.

Curriculum for Minors

Code	Title	Semester Hours
PY 101	GENERAL PSYCHOLOGY I	3
PY 102	APPLICATIONS IN PSYCHOLOGY	3
Select one course from Group A:		3
Group A:		
PY 314	Course PY 314 Not Found	
PY 316	PERCEPTION	
PY 380	Course PY 380 Not Found	
PY 436	BIOLOGICAL PSYCHOLOGY	
Select one course from Group B:		3
Group B:		
PY 301	PERSONALITY	
PY 315	Course PY 315 Not Found	
PY 375	SOCIAL PSYCHOLOGY	
PY 433	Course PY 433 Not Found	
PY electives (6 semester hours must be 300-level or above)		9
Total Semester Hours		21

Science, Technology, and Society Minor

332 Morton Hall
(256) 824-2338
Dr. Nicholaos J. Jones, Coordinator

The Program in Science, Technology, and Society (STS) integrates concepts and methods from the humanities and the social sciences in order to provide an interdisciplinary perspective on science and technology as human activities with cultural and political consequences. Topics of interest include the varied social and historical contexts that produce scientific knowledge, the ways in which political and cultural values affect scientific and technological research, the impact of technological innovation on different social classes, and the significance of scientific and technological progress for what it means to be human. The STS minor responds to a growing need for professionals who integrate perspectives from multiple academic disciplines to address the contemporary social significance and political impacts of science and technology. Even for those majoring in a discipline with a clear career track, STS courses teach skills that open options for pivoting into other careers.

General Requirements

The STS minor requires 21 credit hours. This involves three core courses (9 credit hours) and at least four electives. No more than two courses from the same discipline can count toward the 12 hours of electives. The minor program also must be approved by the STS Coordinator.

At least 12 of the 21 credit hours must be in courses numbered 300 or above, and at least 6 of these 12 hours must be taken at UAH. Of the 21 credits, up to 6 hours may count toward a students' major program and up to 6 hours may count toward GER credit, but no course may count toward all three areas (GER, Major, and the STS Minor).

Students can count up to 6 credits of mathematics, science, or engineering courses outside of their major toward the 12 elective credits; for majors in College of Arts, Humanities, and Social Sciences, these cannot include any courses applied toward GER Mathematics and Science requirements.

Code	Title	Semester Hours
Core Courses		
PHL 150	TECH, SCIENCE & HUMAN VALUES	3
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	3
Select one of the following:		3
HY 393	HISTORY OF SCIENCE TO 1700	
HY 394	HISTORY OF MODERN SCIENCE	
HY 368	AMERICAN ENVIRONMENTAL HISTORY	
HY 370	TECHNOLOGY IN AMERICAN HISTORY	
Elective Courses ¹		
Select 12 semester hours from the following:		12
Any core HY course not taken to satisfy the History component of the Core Courses (HY 393, HY 394, HY 368, HY 370)		
EH 425	LITERATURE, SCIENCE & TECH	
HY 395	HY MED ANTIQTY ENLITNMENT	
HY 451	SCIENCE & RELIGION IN HISTORY	
SOC 369	ENVIRONMENTAL SOCIOLOGY	
SOC 480	SOCIOLOGY SCIENCE & TECHNOLOGY	
PHL 311	PHILOSOPHY OF SCIENCE	
PY 403	HUMAN FACTORS PSYCHOLOGY	
With semester-specific approval from the STS Coordinator, electives also include:		
EH 415	ANGLOPHONE/POSTCOLONIAL LIT	
EH 418	REP TEXTS-WOMEN WRITERS	
PHL 301	ANCIENT PHILOSOPHY	
With approval from the STS Coordinator, further courses also may be included as electives		
Total Semester Hours		21

¹ The elective courses further explore the impact and significance of science and technology on society and human experience. Students may apply no more than 6 semester hours from any one discipline to their electives.

New courses may be added to this list when approved for inclusion by the Program in Science, Technology, and Society Advisory Committee. For a current listing of approved courses and for additional information on the STS minor, please contact the STS Coordinator or see our website at (<http://www.uah.edu/ahs/departments/sts>)<http://www.uah.edu/ahs/departments/sts>.

Sociology

344 Morton Hall
Telephone: 256.824.6190

Email: soc@uah.edu

Sociology is a fascinating subject which explores patterns and trends in human behavior, society, and culture. Sociology takes a broad and holistic view of the contexts in which individuals, groups, organizations, and institutions operate. This understanding is indispensable to analysis and decision-making in a wide range of social settings and the development of thoughtful and engaged citizenship. Sociologists bring scientific tools and perspectives to understand causes and consequences of contemporary social issues and problems, and analyze the impact of social policies on groups and organizations. The best sociological analyses combine a focus on important details with analyses about how the details relate to "the big picture." A B.A. in Sociology provides a broad foundation for further studies in law, social work, social policy, psychology, criminology, or public health. Analytical and social science research skills prepare students for careers in market research, human services, government, health care, and law. The B.A. Sociology program at UAH emphasizes the development of both *academic* and *applied skills* that can be useful in a wide range of work settings.

The department of Sociology offers the following degree programs:

- Sociology, BA (p. 165)

Mission

We are committed to providing all students with the knowledge and skills that derive from a sociological perspective. Our curriculum encompasses core areas in the discipline with courses in sociological theory, social inequality, social institutions, social change and sociological methodology. Students may use the sociological perspective in pursuing further studies in the discipline, at work in diverse settings, and as thoughtful and involved members of their communities. Our instructional mission is enhanced by faculty with active research agendas, who explore a variety of social processes and apply to these studies a variety of research techniques. When they bring their expertise to bear on social issues, the faculty also serve the University and the community at large.

The UAH Department of Sociology offers the B.A. with a major in sociology and a minor in sociology.

Students majoring in sociology may optionally complete one of four informal tracks (http://www.uah.edu/images/colleges/liberal-arts/Sociology/Tracks_Pamphlet_9.01-30-2015.pdf):

1. The Community Services Track
2. The Global Structures Track
3. The Environmental Social Science Track
4. The Law and Justice Track

For more information on these tracks, the field of sociology, and the UAH Sociology Department, please consult our webpage, www.uah.edu/sociology.

Major in Sociology

- Sociology, BA (p. 165)

Minors in Sociology

- Sociology (p. 169)

SOC 100 - INTRO TO SOCIOLOGY

Semester Hours: 3

An introduction to the critical and scientific study of society, culture, social institutions and social change. Illuminates the social and cultural context of our lives and is useful for exploring contemporary social issues, problems and change in society.

SOC 102 - ANALYSIS OF SOCIAL PROBLEMS

Semester Hours: 3

Application of the sociological perspective to understanding important contemporary social issues and the social actions and policies that attempt to address them. This course will explore different approaches to understanding the causes of social problems as well as social responses to them. Prerequisite: SOC 100.

SOC 105 - INTRO CULTURAL ANTHROPOLOGY

Semester Hours: 3

Cultural anthropology is one of the four sub-fields of anthropology concerned with a deeper understanding of cultural differences. This course examines cultural diversity in human behavior, social institutions, belief systems, and cultural change from a global and comparative perspective.

SOC 150 - SOCIOLOGICAL PERSP TECH & SCI

Semester 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.

SOC 206 - MARRIAGE AND FAMILY

Semester Hours: 3

Explores family forms and functions across history and across cultures. Students will learn how the family affects and is affected by other social institutions, recent trends in the American family, the contexts in which marriage and families evolve, and key inequalities within and between families. Prerequisite: SOC 100.

SOC 301 - RESEARCH METHODS

Semester Hours: 3

The object of this course is for students to be able to read, interpret, and explain scientific research in social science. Course covers key elements and process of sociological research methods, both qualitative and quantitative.

SOC 302 - SOCIOLOGICAL THEORY

Semester Hours: 3

This course traces the development of major trends of sociological theory, past and present, and major theoretical problem areas. It also addresses how the socio-historical context within which the texts were written influences the issues and ideas expressed. Prerequisite: SOC 100.

SOC 303 - STATISTICS/SOCIAL SCIENCES

Semester Hours: 3

Introduction to the basic quantitative data analysis techniques used by social scientists. Explore the ways researchers use statistics to examine and test ideas about the social world. In the lab, students learn how to use the statistical software SPSS to analyze social science datasets. Prerequisite: SOC 100 and one of the following math courses: MA 107, MA 110, MA 112, MA 113, MA 115, MA 120, MA 171.

SOC 304 - STATISTICS LAB

Semester Hour: 1

SOC 306 - SOCIOLOGY OF GENDER

Semester Hours: 3

Explores how social relationships create, structure and reinforce gender differences and inequalities. Students will learn about the social construction of gender, gender socialization, gender roles, and gender inequalities in income, poverty, occupation, and violence. Prerequisite: SOC 100.

SOC 307 - SOCIOLOGY OF LAW

Semester Hours: 3

This course examines the relationship between law and society from a variety of theoretical perspectives. Topics include the social organization of legal institutions, cultural meanings of law, and social interactions among different actors in the legal context (police, lawyers, judges, legislators, etc). Prerequisite: SOC 100.

SOC 319 - DEVIANCE & SOCIAL CONTROL

Semester 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. Prerequisite: SOC 100.

SOC 320 - SOCIOLOGY OF RELIGION

Semester Hours: 3

Study of religion as a social phenomenon. The course examines sociological theories of religious behavior, religious beliefs, religion as a social institution, religious organization, new religious movements, and religion and social change.

SOC 330 - RACE AND ETHNICITY

Semester Hours: 3

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. Prerequisite: SOC 100.

SOC 340 - SPECIAL TOPICS

Semester 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. Prerequisite: SOC 100.

SOC 350 - SOCIAL STRATIFICATION

Semester Hours: 3

This course explores the causes and consequences of social stratification (focusing on economic inequality) in the United States, including: wealth and income disparities, labor markets, elites/power, impact of gender and race, privilege and oppression, and economic and social welfare policy.

Prerequisite: SOC 100.

SOC 369 - ENVIRONMENTAL SOCIOLOGY

Semester Hours: 3

Examines the ways in which society and the natural environment interact and shape each other. This course engages with the major debates in the field of environmental sociology in order to better understand the challenges and options humans face as we head further into global environmental crisis.

Prerequisite: SOC 100.

SOC 375 - SOCIAL PSYCHOLOGY

Semester 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. Prerequisites: SOC 100 or PY 101.

SOC 376 - MASS MEDIA IN AMERICA

Semester Hours: 3

Mass communication theory, history of American mass media, and criticism of contemporary forms and functions of mass media of communication in the U.S. Prerequisite: SOC 100.

SOC 390 - READINGS & INDIVIDUAL RES

Semester 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. Prerequisite: SOC 100.

SOC 395 - COMMUNITY SERVICES INTERNSHIP

Semester Hours: 3

An experiential-learning course for students who envision working in social service organizations. Internship opportunity is initiated by student and course includes an academic component of readings and assignments agreed upon by student, organizational representative and the internship Coordinator. Prerequisite: SOC 100.

SOC 415 - SOCIOLOGY OF GLOBALIZATION

Semester 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. Prerequisite: SOC 100.

SOC 425 - SOCIOLOGY OF EDUCATION

Semester Hours: 3

This course examines education systems and policies from a sociological perspective. We ask what and how students learn, the function of schools in society, results of recent policy decisions, and how educational systems interact with political, economic, cultural and family institutions. Prerequisite: SOC 100 and Junior or Senior Standing.

SOC 431 - ADVANCED SPECIAL TOPICS

Semester Hours: 3

Special topics of current sociological interest. Course title, credit hours and prerequisites will appear in course schedule. May be taken more than once for credit as long as subtitles differ. Different from SOC 340 Special Topics in terms of level of expectations and/or, prerequisites. Prerequisite: SOC 100.

SOC 435 - SOCIOLOGY OF SOCIAL MOVEMENTS

Semester Hours: 3

This course focuses on a variety of issues related to social movements, including questions about the origins and causes of social movements, the cultural, social and political contexts that impact movements, how movements mobilize people, and the use of strategies and tactics. Prerequisite: SOC 100 AND EITHER SOC 202 OR 300 OR 301.

SOC 439 - COMPLEX ORG INDUSTRIAL SOCIETY

Semester Hours: 3

Mainstream and critical sociological theories for understanding complex organizations in industrial society. Explores historical development, structure and processes, contradictions and conflict, and alternative forms of organizations in contemporary society. Prerequisite: SOC 100.

SOC 444 - SOCIOLOGY OF CULTURE

Semester Hours: 3

Examines the cultural dimensions of important social processes including race, class, gender, power, and resistance. Theoretical and empirical analyses of both high and popular cultural forms and processes of cultural production in various social settings. Prerequisite: SOC 100.

SOC 455 - SOC OF WORK & OCCUPATION

Semester 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, work-leisure relationship. Prerequisite: SOC 100.

SOC 469 - ENVIRONMENTAL JUSTICE

Semester Hours: 3

Examination of (1) how social, economic, and political processes at the local and global levels contribute the distribution of both environmental 'goods' (e.g., clean air and water) and environmental 'bad's (e.g., toxic waste and pollution); (2) the principles and strategies of the environmental justice movement; (3) the interrelations between local and global level processes and their impact upon environmental inequality and the efforts and opportunities of the environmental justice movement. Prerequisites: SOC 100.

SOC 480 - SOCIOLOGY SCIENCE & TECHNOLOGY

Semester Hours: 3

Explores how social relations produce scientific knowledge, the role of science in politics, how men and women move through careers in science differently, how technologies are socially constructed, and the relationship between culture, technology, and the evolution of civilizations. Prerequisite: SOC 100.

SOC 495 - SENIOR CAPSTONE SEMINAR

Semester Hours: 3

Senior majors employ skills and knowledge acquired from courses to develop independent research projects. Course is designed to guide the research process with a focus on literature review, hypothesis development, data collection and analysis, and writing of a research article or formal report resulting from an internship. Prerequisite: SOC 301.

Sociology, BA

Students who major in sociology must complete 34 semester hours of sociology courses. There are six required courses (SOC 100, SOC 301, SOC 302, SOC 303, SOC 304, SOC 495), and 21 of the 34 semester hours must be at the 300-level or above. Students who major in Sociology have the option to pursue a series of informal tracks:

- Community Service
- Law and Justice
- Environmental Social Science
- Global Structures

These tracks do not alter the basic degree requirements listed below. For details on track expectations please consult the Department of Sociology webpage, <http://www.uah.edu/sociology>. Sociology majors planning their course of study should contact the department to learn about the timing and frequency of required course offerings.

- Sociology, BA requires 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		

Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113/116	GEN PHYSICS W/CALC III	

History and Social and Behavioral Sciences 12

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three 6-9

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI
SOC 206	MARRIAGE AND FAMILY

Code	Title	Semester Hours
Pre-Professional		19
WLC 101		3
Pre-professional Electives		16
Choose from the categories above Humanities, Fine Arts, Mathematics, Lab Science, and Social and Behavioral Sciences. Only 9 hours of Mathematics and Lab Sciences can be applied toward this area.		
Sociology Courses		34
SOC 100	INTRO TO SOCIOLOGY	3
SOC 301	RESEARCH METHODS (Offered Fall Only)	3
SOC 302	SOCIOLOGICAL THEORY (Offered Spring only)	3
SOC 303	STATISTICS/SOCIAL SCIENCES	3
SOC 304	STATISTICS LAB	1
SOC 495	SENIOR CAPSTONE SEMINAR (SOC 301 is a pre-requisite)	3
SOC Electives 300+		9
SOC Electives Any Level		9
Minor Courses		21
Elective Courses		
Elective hours vary by program, please see advisor.		
Total Semester Hours		120

Additional Information

As with all students in the College of Liberal Arts, our students will initiate the Program of Study through the College of Liberal Arts Academic Advisor (Morton Hall, Room 336) but they are encouraged to first consult with the Sociology Department Chair or any member of our faculty (all located in Morton Hall, Room 344).

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
Math		3

SOC 100	INTRO TO SOCIOLOGY	3
Fine Arts		3
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		13
Spring		
EH 102	COLLEGE WRITING II	3
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	3
Humanities and Fine Arts		3
Science w/Lab		4
Area V Course		3
Term Semester Hours:		16
Year 2		
Fall		
SOC 206	MARRIAGE AND FAMILY	3
Literature		3
History		3
Science w/Lab		4
Humanities and Fine Arts		3
Term Semester Hours:		16
Spring		
Science w/Lab		4
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
SOC 150	SOCIOLOGICAL PERSP TECH SCI	3
or SOC 105	or INTRO CULTURAL ANTHROPOLOGY	
WLC 101		3
Social/Behavioral Science		3
Term Semester Hours:		16
Year 3		
Fall		
HY 103	WORLD HISTORY TO 1500	3
or HY 104	or WORLD HISTORY SINCE 1500	
Area V Course		3
SOC 301	RESEARCH METHODS (Offered Fall Only)	3
SOC 300+		3
Minor Courses		3
Term Semester Hours:		15
Spring		
SOC 302	SOCIOLOGICAL THEORY (Offered Spring Only)	3
SOC 303	STATISTICS/SOCIAL SCIENCES	3
SOC 304	STATISTICS LAB	1
Minor Courses		6
Elective		3
Term Semester Hours:		16
Year 4		
Fall		
SOC 300+		3
SOC 300+		3
Minor Courses		6
Elective		3
Term Semester Hours:		15

Spring

SOC 495	SENIOR CAPSTONE SEMINAR (SOC 301 is a pre-requisite)	3
Minor Courses		6
Electives		4
Term Semester Hours:		13
Total Semester Hours:		120

Sociology Minor

A student developing a minor in sociology with a major in another discipline must complete 21 semester hours of sociology courses:

Code	Title	Semester Hours
SOC 100	INTRO TO SOCIOLOGY	3
Select 6 semester hours of courses at any level in Sociology		6
Select 12 semester hours of courses at level 300 or above in Sociology		12
Total Semester Hours		21

Note(s):

Sociology courses may also be used in conjunction with courses from other disciplines to form a cognate area of study. Such a program should be developed with the advice of the sociology faculty and must be approved by the chair of the student's major department.

Women's and Gender Studies Minor

344 Morton Hall
256.824.6190
Dr. Chad Thomas, Director

The Women's and Gender Studies program brings together courses and faculty from several colleges of the university to provide an interdisciplinary experience leading to a minor in Women's and Gender Studies. As an area of scholarship, the principal focus is on the contributions, perspectives, and experiences of women in all areas of human endeavor, including the status, portrayal, or achievements of women in areas such as art, history, literature, science, business, engineering, and medicine. It also promotes greater understanding of gender as a fundamental category of meaning, examining the pervasive and often unacknowledged ways that gender shapes and changes our social institutions, individual knowledge, and interpersonal relationships. While the classes included as Women's and Gender Studies courses may be offered in various departments, the minor organizes these courses in a coherent structure such that the sum of the experiences offers a more comprehensive insight into the discipline of Women's Studies than the individual courses provide on their own.

A minor in Women's and Gender Studies consists of 21 semester hours, including one required course (WGS 200), three core courses, and three additional core or elective courses as shown in the following table. Core courses must include at least 3 semester hours of humanities and 3 semester hours of social sciences and management classes listed below. Note that 12 of the 21 semester hours must be at the 300-level or higher. Students must also complete a portfolio and portfolio conference during their final semester at UAH. A student interested in minoring in Women's and Gender Studies should contact the director of the program for advising.

Code	Title	Semester Hours
Required Course		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	3
Core Courses 3 courses required from the following, at least 3 hours in each category:		15
Humanities (at least 3 hours)		
CM 416	WOMEN ORATORS	
EH 414	CREATIVE NONFICTION WRITING	
EH 418	REP TEXTS-WOMEN WRITERS	
EH 461	SHAKESPEARE I	
EH 462	SHAKESPEARE II	
EH 465	DRAMATIC LITERATURE	
HY 367	WOMEN IN U.S. HISTORY	
HY 390	WOMEN IN MODERN EUROPEAN HIS	

HY 483	WOMEN & GENDER LATIN AMERICA
PHL 335	FEMINIST PHILOSOPHY
Social Sciences and Management (at least 3 hours)	
MGT 462	EMPLOYMENT LAW FOR MANAGERS
PY 406	PSYCHOLOGY OF WOMEN
SOC 206	MARRIAGE AND FAMILY
SOC 306	SOCIOLOGY OF GENDER
Elective Course ⁴	
Select up to 3 additional core courses or up to 3 elective courses from the following:	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS
ARH 309	CONTEMPORARY ART & ISSUES
ARH 310	NINETEENTH CENTURY ART
BYS 437	PSYCHOBIOLOGY STRESS & ILLNESS
or PY 437	PSYCHOBIOLOGY STRESS & ILLNESS
CM 330	NONVERBAL COMMUNICATION
or PY 330	NONVERBAL COMMUNICATION
CM 333	INTERPERSONAL COMMUNICATION
CM 433	DARK SIDE INTERPERSONAL COMM
CM 455	COMMUNICATION & CULTURE
EH 242	MYTHOLOGY
EH 403	LITERARY CRITICISM & THEORY
EH 430	THE AMERICAN NOVEL
EH 434	SCIENCE FICTION
EH 438	AFRICAN AMERICAN LITERATURE
EH 451	ARTHURIAN ROMANCE
HY 370	TECHNOLOGY IN AMERICAN HISTORY
HY 383	FOOD AND WORLD HISTORY
HY 482	COMPTV SLAVERY & ABOLITION
HY 484	LATIN AMERICAN HIST THRU FILM
HY 485	NAZI GERMANY AND THE HOLOCAUST
PHL 102	INTRO TO ETHICS
PHL 303	CONTINENTIAL PHILOSOPHY
PHL 337	PHILOSOPHY OF RACE
PSC 438	CONTEMPORARY POLITICAL THOUGHT
or PHL 438	CONTEMPORARY POLITICAL THOUGHT
PY 375	SOCIAL PSYCHOLOGY
or SOC 375	SOCIAL PSYCHOLOGY
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 415	SOCIOLOGY OF GLOBALIZATION
SOC 435	SOCIOLOGY OF SOCIAL MOVEMENTS
WGS 340	SPECIAL TOPICS ⁵
WGS 499	INDEPENDENT STUDY ⁵

Total Semester Hours

21

- ¹ No more than 6 semester hours within a single subject area.
- ² No more than two of the courses applied to the minor can be from the student's major field of study. One course may count towards both the major and the minor.
- ³ Approved Special Topics courses may count as "Core" courses toward the minor. Current approved Special Topics "Core" courses are: ARH 320 ST: Women in Antiquity; ARH 320 ST, Modern Women Artists; EH 440 ST, Friendship in Early Modern England, EH 440 ST, Native Women's Literature; SOC 340 ST: Sociology of Sexuality; WLC 204 ST: Performing Gender: Exploring Gender Roles and Sexuality in International Cinema; WLC 404S ST: Hispanic Women Writers.

- 4 Approved Special Topics courses may count as "Elective" courses toward the minor. Current approved Special Topics "Elective" courses are: PHL 403: Advanced Moral Philosophy: Care Ethics; PSC 440: Regional Studies: African Politics; PSC 440: Regional Studies: Latin American Politics.
- 5 WGS 340 or WGS 499 may count as core courses in various subject areas if these courses carry 3 semester hours credit.

Note:

New courses may be added to this list when approved for inclusion by the Women's and Gender Studies Program Advisory Committee. For current listing of approved Women's and Gender Studies courses and for additional information on the Women's and Gender Studies program, please see our website at www.uah.edu/la/departments/womens-studies/programs/minor

Theatre

325 Morton Hall
Telephone: 256.824.6871
Email: theatre@uah.edu

Merge your academic interests and your passion for the creative arts with a degree in theatre from UAH! We have three areas of specialization: Performance, Technical, Dramaturgy. Each is designed to prepare you for a smooth transition into the world of professional theatre – something our successful, active theatre alumni can attest to!

Whether you choose to focus solely on theatre or combine it with a second major, you'll enjoy all the benefits that our dynamic Theatre Program has to offer, including:

- Personalized attention, thanks to our low student-to-faculty ratio and our nurturing, progressive environment
- Hands-on learning, whether it's performing in a mainstage production or interning with a professional theatre company
- Networking opportunities, as a result of the strong relationships UAH Theatre has with community partners
- Extracurricular activities, like participating in improv and reader's theatre and attending local and regional festivals

But most important of all, your theatre degree will help you master the skills that employers value most, from public speaking and problem solving to creative thinking and collaboration. The end result is a diverse, well-rounded educational foundation that will give you a competitive edge no matter what career path you choose to pursue.

The department of Theatre offers the following degree programs:

- Theatre BA (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/communication-arts/theatre>)
- Theatre Minor (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/communication-arts/theatre-minor>)
- Theatre, BA (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/communication-arts/theatre>)
- Theatre Minor (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/communication-arts/theatre-minor>)

TH 100 - STAGECRAFT

Semester Hours: 3

This course will provide students with the basic knowledge of stage construction, its practices, and implementation. Additional hands-on experience will be gained by working outside of class hours in the scene shop assisting in the construction and installation of main-stage productions.

TH 110 - VOICE AND DICTION

Semester Hours: 3

Examines and practices methods of adjusting vocal articulation, tone, pitch, pace, volume, resonance, and pronunciation for improving or changing voice quality and accents. Understanding the vocal instrument prepares students for acting and for positive self-presentation in the real world.

TH 122 - THEATRE APPRECIATION

Semester Hours: 3

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

TH 150 - SCRIPT ANALYSIS

Semester Hours: 3

This course is a hands-on look into script analysis, using plays from the western theatre canon, some of which will be produced by UAH Theatre during the school year. There will be individual and group work in script analysis, culminating in a full script analysis project at the end of the semester.

TH 221 - ACTING

Semester Hours: 3

This course explores the foundations of acting through an understanding of basic techniques including scene study, script analysis, improvisation, and physical and vocal work. Offered every semester.

TH 225 - ELEMENTS OF THEATRE PRODUCTION

Semester 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. Offered every Spring. Prerequisite: TH 122 or CM 122 or permission of instructor.

TH 321 - ACTING II

Semester Hours: 3

Acting II is a Stanislavsky-based class which will further the growth of skills learned in Acting I, as it applies to more complex characterization. Class work will include sensory exercises, relaxation, concentration, imagination, improvisation, character analysis, and scene work. Prerequisite: TH 221.

TH 322 - THEATRE HISTORY I

Semester 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. Offered every two years.

TH 323 - THEATRE HISTORY II

Semester Hours: 3

Explores the development of theatre art from its origins as rituals around the world to French neoclassicism and Moliere with particular emphasis on the Greeks, Shakespeare, and his contemporaries. Offered every two years.

TH 324 - MODERN AMERICAN THEATRE

Semester Hours: 3

This course is a seminar-style study of current American theatre and plays written in the 21st century. To that end, we will read and write about 8 current American plays, and other articles from theatre journals. At the end of the class, students will understand and be able to explicate in writing, spoken presentation, and/or through creative activity, the present, and possible future impacts of current American theatre on American society.

TH 330 - STAGE MANAGEMENT

Semester Hours: 3

This course concerns the role of the Stage Manager in theatrical productions. It focuses on the stage manager's duties, responsibilities, and procedures from pre-production to post-production. It explores the functions of various members of the production team and how the stage manager's interaction with each member of this team varies. It considers the role of the stage manager as the hub of communication for a production. Prerequisites: TH 122 and TH 225.

TH 340 - SPECIAL TOPICS IN THEATRE

Semester Hours: 3

Topics announced in advance. Representative topics include playwriting, directing, and ancient Greek theatre. May be repeated twice for credit.

TH 355 - SCENE DESIGN

Semester Hours: 3

This class introduces students to the many facets, both artistic and engineering-based, of scene design for the theatre including: history, research, design, stage, direction, technical direction, scenic art and props. Prerequisites: TH 100 and TH 225.

TH 375 - SOUND DESIGN

Semester Hours: 3

This course offers an exploration of the sound design process for the theatre. Script analysis and creating a design concept will underline the structure of the course. The students will have the opportunity to use a DAW (digital audio workstation) and various computer software programs including QLab. The course includes an overview of digital audio data structures, "plug-ins", processing, equalization and standard solutions for interfacing external devices with a computer. The students will participate in two productions and gain valuable hands-on experience. There will be an emphasis on the creative possibilities of sound design for the theatre and multimedia. Prerequisites: TH 225.

TH 390 - TEACHING THEATRE

Semester Hours: 3

This course is designed to help students develop the skills required to coach and direct student actors, focusing on best practices in teaching the fundamentals of directing, including various assessment rubrics and adapting activities to different age groups. The course emphasizes learning by doing. Prerequisite: TH 221.

TH 400 - INTERNSHIP IN THEATRE

Semester Hours: 1-3

Practical experience in the workplace allows the student to apply principles, theories, and skills learned in Theatre Program courses. Arranged by the student with consent of the director of the Theatre Program, the student meets regularly with a faculty advisor, keeps a log of activities, and submits a report on the internship. Prerequisite: Senior Standing with TH major, and permission of instructor.

TH 421 - ACTING III

Semester Hours: 3

This class explores non-realist acting techniques, as a way to expand understanding of different performance and period styles. Students will work in historical periods from the Italian and Elizabethan renaissances and more contemporary styles. Prerequisite: TH 321.

TH 425 - THEATRE MAINSTAGE

Semester Hours: 1-3

This course provides students with an opportunity to experience the complete process of theater 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. Offered every semester.

TH 431 - SR SEM THEA THEORY/RESEARCH

Semester Hours: 3

Senior capstone course involving either a scholarly project or an approved communication-intensive internship combined with a comprehensive examination. Prerequisites: senior standing with TH major, and approval of instructor.

TH 465 - DIRECTING

Semester Hours: 3

In this course, students will develop their skills in theatrical directing and production using script analysis, visual composition, design, and communication. Students will complete hands-on directing scene projects, supplemented with written analysis, dramaturgical research, and design images. Prerequisites: TH 105, and TH 322 or TH 323.

TH 475 - ENTREPRENEURSHIP

Semester Hours: 3

This course explores the current state of the entertainment industry's job market. Students from design, performance, video production, and dramaturgy build and refine the materials they will need to be employed within the entertainment industry. Prerequisites: TH 421, or TH 390, or TH 355, or TH 322 & TH 323.

TH 480 - DRAMATURGY

Semester Hours: 3

Study of the fundamental skills and practical collaborative processes needed to dramaturg a work of theater. Prerequisites: TH 150 and either TH 322 or TH 323.

Women's and Gender Studies Minor

344 Morton Hall

256.824.6190

Dr. Chad Thomas, Director

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A minor in Women's and Gender Studies consists of 21 semester hours, including one required course (WGS 200), three core courses, and three additional core or elective courses as shown in the following table. Core courses must include at least 3 semester hours of humanities and 3 semester hours of social sciences and management classes listed below. Note that 12 of the 21 semester hours must be at the 300-level or higher. Students must also complete a portfolio and portfolio conference during their final semester at UAH. A student interested in minoring in Women's and Gender Studies should contact the director of the program for advising.

Code	Title	Semester Hours
Required Course		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	3
Core Courses 3 courses required from the following, at least 3 hours in each category: ^{1,2,3}		15
Humanities (at least 3 hours)		
CM 416	WOMEN ORATORS	
EH 414	CREATIVE NONFICTION WRITING	
EH 418	REP TEXTS-WOMEN WRITERS	
EH 461	SHAKESPEARE I	
EH 462	SHAKESPEARE II	
EH 465	DRAMATIC LITERATURE	
HY 367	WOMEN IN U.S. HISTORY	
HY 390	WOMEN IN MODERN EUROPEAN HIS	
HY 483	WOMEN & GENDER LATIN AMERICA	
PHL 335	FEMINIST PHILOSOPHY	
Social Sciences and Management (at least 3 hours)		
MGT 462	EMPLOYMENT LAW FOR MANAGERS	
PY 406	PSYCHOLOGY OF WOMEN	
SOC 206	MARRIAGE AND FAMILY	
SOC 306	SOCIOLOGY OF GENDER	
Elective Course ⁴		3
Select up to 3 additional core courses or up to 3 elective courses from the following:		
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARH 309	CONTEMPORARY ART & ISSUES	
ARH 310	NINETEENTH CENTURY ART	
BYS 437	PSYCHOBIOLOGY STRESS & ILLNESS	
or PY 437	PSYCHOBIOLOGY STRESS & ILLNESS	
CM 330	NONVERBAL COMMUNICATION	
or PY 330	NONVERBAL COMMUNICATION	
CM 333	INTERPERSONAL COMMUNICATION	
CM 433	DARK SIDE INTERPERSONAL COMM	
CM 455	COMMUNICATION & CULTURE	
EH 242	MYTHOLOGY	
EH 403	LITERARY CRITICISM & THEORY	
EH 430	THE AMERICAN NOVEL	
EH 434	SCIENCE FICTION	
EH 438	AFRICAN AMERICAN LITERATURE	
EH 451	ARTHURIAN ROMANCE	
HY 370	TECHNOLOGY IN AMERICAN HISTORY	
HY 383	FOOD AND WORLD HISTORY	
HY 482	COMPTV SLAVERY & ABOLITION	
HY 484	LATIN AMERICAN HIST THRU FILM	
HY 485	NAZI GERMANY AND THE HOLOCAUST	
PHL 102	INTRO TO ETHICS	
PHL 303	CONTINENTIAL PHILOSOPHY	
PHL 337	PHILOSOPHY OF RACE	
PSC 438	CONTEMPORARY POLITICAL THOUGHT	
or PHL 438	CONTEMPORARY POLITICAL THOUGHT	
PY 375	SOCIAL PSYCHOLOGY	
or SOC 375	SOCIAL PSYCHOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	

SOC 415	SOCIOLOGY OF GLOBALIZATION
SOC 435	SOCIOLOGY OF SOCIAL MOVEMENTS
WGS 340	SPECIAL TOPICS ⁵
WGS 499	INDEPENDENT STUDY ⁵

Total Semester Hours 21

- 1 No more than 6 semester hours within a single subject area.
- 2 No more than two of the courses applied to the minor can be from the student's major field of study. One course may count towards both the major and the minor.
- 3 Approved Special Topics courses may count as "Core" courses toward the minor. Current approved Special Topics "Core" courses are: ARH 320 ST: Women in Antiquity; ARH 320 ST, Modern Women Artists; EH 440 ST, Friendship in Early Modern England, EH 440 ST, Native Women's Literature; SOC 340 ST: Sociology of Sexuality; WLC 204 ST: Performing Gender: Exploring Gender Roles and Sexuality in International Cinema; WLC 404S ST: Hispanic Women Writers.
- 4 Approved Special Topics courses may count as "Elective" courses toward the minor. Current approved Special Topics "Elective" courses are: PHL 403: Advanced Moral Philosophy: Care Ethics; PSC 440: Regional Studies: African Politics; PSC 440: Regional Studies: Latin American Politics.
- 5 WGS 340 or WGS 499 may count as core courses in various subject areas if these courses carry 3 semester hours credit.

Note:

New courses may be added to this list when approved for inclusion by the Women's and Gender Studies Program Advisory Committee. For current listing of approved Women's and Gender Studies courses and for additional information on the Women's and Gender Studies program, please see our website at www.uah.edu/la/departments/womens-studies/programs/minor

World Languages and Cultures

342 Morton Hall
Telephone: 256.824.1022
Email: leslie.kaiura@uah.edu

The World Languages and Cultures department offers the following degree programs:

- Foreign Languages, BA (p. 182)
- Foreign Languages, BA - Foreign Language and International Trade Concentration (p. 186)
- Certificate in Foreign Languages and Global Engagement (p. 193)

Introduction

The acquisition of a second language, and through it an understanding of another country's culture, is a rich academic experience for all students, not only in the arts, humanities, and social sciences, but also in business, education, nursing, the natural sciences, and engineering. Knowing how to communicate effectively in another language significantly enhances one's career opportunities and contributions as a citizen. This page provides an overview of the academic offerings of the Department of World Languages and Cultures.

Mission Statement

The Department of World Languages and Cultures is dedicated to teaching students the language skills and cultural knowledge necessary for succeeding in today's multilingual world of cultural diversity, global markets, political interdependence, and international scientific and cultural collaboration.

Within the B.A. in Foreign Languages, students may choose French, German, Russian, or Spanish as a focus language, and may also concentrate in Foreign Language and International Trade in cooperation with the College of Business. Students can pursue foreign language teacher certification (<http://catalog.uah.edu/undergrad/colleges-departments/education/curriculum-instruction/foreign-language>) in French, German, or Spanish in conjunction with the College of Education, and they may minor in any of the four focus languages, or take Arabic or Japanese at the introductory and intermediate levels. Students studying languages offered up to the WLC 301 (Conversation) level may also complete the Certificate in Foreign Language and Global Engagement. The Department also serves nursing and pre-health students by offering Spanish for Medical Professionals at the introductory level.

In addition, the Department offers study abroad opportunities and domestic and international internships that give students cultural and professional experience that greatly enhances their career opportunities after graduation. World Languages and Cultures also sponsors language clubs and extracurricular activities that contribute to the university's rich campus life.

The Department offers an integrated curriculum comprising the teaching of linguistic proficiency and the promotion of a critical awareness of other cultures. Faculty use traditional methods as well as varied media and new technologies to engage students with world languages, literature, and film

in their historical, social, and interdisciplinary contexts. World Languages and Cultures faculty promote academic pluralism by fostering a variety of interpretive and pedagogical approaches, and by virtue of their commitment to the highest standards in teaching, research, and service, they aim to uphold and further strengthen the national and international standing of UAH.

Languages Offered

Arabic, French, German, Japanese, Russian, Spanish

The Department of World Languages and Cultures offers the B.A. in Foreign Languages. A student may choose a focus language of French, German, Russian, or Spanish, and may also concentrate in Foreign Language and International Trade or pursue teaching certification. Arabic and Japanese cannot be taken as majors or minors, but can be taken to satisfy the language requirement for the B.A. degree or as electives.

General Education Requirements and Placement Procedures

Three semester hours of credit in one foreign language are required for the B.A. degree. Most introductory language sequences begin in the fall semester, but more limited offerings of 101 level courses are available in spring and summer for students who need to complete their requirements.

Placement Procedures

Placement procedures vary based on each student's level of experience with a language. Students with no previous instruction or experience are placed into WLC 101, while students with some level of instruction or experience are placed as follows:

Native or Near-Native Speakers: Native or near-native speakers of a foreign language may not take introductory and intermediate courses in that language, but are welcome to take upper level courses in their language or introductory level courses in another language. Students in this category should make an appointment with the appropriate language coordinator to take the standardized Web Cape International Foreign Language Placement Exam. They must still take a minimum of three (3) additional semester hours of foreign language course work to complete General Education Requirements for the B.A.

Prior Language Experience: Students with prior foreign language experience and heritage speakers may be placed into a higher level course by taking the Web Cape International Foreign Language Placement Exam. Heritage speakers are classified as individuals who have grown up speaking a language, but who have little or no formal education in that language. Students must still take a minimum of three (3) additional semester hours of foreign language course work to complete General Education Requirements for the B.A.

High School Experience: Students with 0-2 units of high school foreign language study will be placed in WLC 101, while students with 3-4 units will be placed in WLC 201. A minimum grade of C is required for a unit to be counted. Regardless of placement, students must take a minimum of three (3) additional semester hours of foreign language course work to complete General Education Requirements for the B.A. If an interval of two years or more occurs between study of a language in high school and continuation of that language in college, placement levels may be adjusted downward to entry level. Students in this situation, or others who may be uncertain of their skill level, are encouraged to take the Web Cape exam to confirm placement.

Advanced Placement and CLEP Examinations: The Department will award credit to students who have earned a score of three or higher on Advanced Placement (AP) Program examinations of the College Entrance Examination Board according to the following scale:

- Score of 3: 6 semester hours credit (i.e. through 102, 3 semester hours each course)
- Score of 4: 12 semester hours credit (through 202)
- Score of 5: 15 semester hours credit (through 301)

The credit thus awarded will satisfy General Education Requirements for the B.A. and count toward a major, minor, or certificate. However, it will be recorded without grades or quality points and will not be included in the calculation of the grade point average.

Students with CLEP examination scores in a foreign language will be placed on a case-by-case basis in consultation with World Languages and Cultures faculty.

Students Planning to Major or Minor: If students wish to major or minor in French, German, Russian, or Spanish, they may take the Web Cape placement exam to test out of a maximum of twelve (12) hours of course work (WLC 101, 102, 201, 202).

After taking the Web Cape exam, students majoring or minoring in a world language will be placed in an appropriate higher language course. They receive credit hours, without grade/quality points, for the two (2) highest elementary/intermediate language courses as is appropriate. If students test out of more than 6 hours, the remaining courses will be waived with no credit hours granted.

All students, irrespective of language background and placement, must take all remaining upper-level coursework to complete the major or minor.

Majors in World Languages and Cultures

- Foreign Languages, BA (p. 182)
- Foreign Languages, BA - Foreign Language and International Trade Concentration (p. 186)

Minors in Foreign Languages and Literatures

- Foreign Language (p. 192)
- Latin American Studies (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures/latin-american-studies-minor>) (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures/latin-american-studies-minor>)

Certificate in Foreign Language and Global Engagement

- Foreign Language and Global Engagement (p. 193)
- Global Professional Pathways Certificate (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures/global-professional-pathways>)

WLC 101A - INTRO FOREIGN LANG I: ARABIC

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 101F - INTRO FOREIGN LANG I:FRENCH

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 101G - INTRO FOREIGN LANG I:GERMAN

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 101J - INTRO FOREIGN LANG I:JAPANESE

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 101MS - INTRO TO MEDICAL SPANISH

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts with special emphasis on medical terminology and tasks. Conducted in the target language. No prerequisites.

WLC 101R - INTRO FOREIGN LANG I:RUSSIAN

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 101S - INTRO FOREIGN LANG I: SPANISH

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 102A - INTRO FOREIGN LANG II: ARABIC

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101A or placement by exam.

WLC 102F - INTRO FOREIGN LANG II:FRENCH

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101F or placement by exam.

WLC 102G - INTRO FOREIGN LANG II:GERMAN

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101G or placement by exam.

WLC 102J - INTRO FOREIGN LANG II:JAPANESE

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101J or placement by exam.

WLC 102MS - INTRO TO MEDICAL SPANISH II

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts with special emphasis on medical terminology and tasks. Conducted in the target language. Prerequisites: WLC 101MS.

WLC 102R - INTRO FOREIGN LANG II:RUSSIAN

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101R or placement by exam.

WLC 102S - INTRO FOREIGN LANG II:SPANISH

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101S or placement by exam.

WLC 199A - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in world languages, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 199F - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in foreign language, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 199G - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in foreign language, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 199J - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in world languages, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 199R - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in foreign language, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 199S - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in foreign language, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 201A - INTERM FOREIGN LANG I: ARABIC

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102A or placement by exam.

WLC 201F - INTERM FOREIGN LANG:FRENCH

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102F or placement by exam.

WLC 201G - INTERM FOREIGN LANG:GERMAN

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102G or placement by exam.

WLC 201J - INTERM FOREIGN LANG: JAPANESE

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102 or placement by exam.

WLC 201R - INTERM FOREIGN LANG:RUSSIAN

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102R or placement by exam.

WLC 201S - INTERM FOREIGN LANG:SPANISH

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102S or placement by exam.

WLC 202A - INTERM FOREIGN LANG II: ARABIC

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201A or placement by exam.

WLC 202F - INTERM FOREIGN LANG II:FRENCH

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201F or placement by exam.

WLC 202G - INTERM FOREIGN LANG II:GERMAN

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201G or placement by exam.

WLC 202J - INTERM FORGN LANG II:JAPANESE

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201J or placement by exam.

WLC 202R - INTERM FOREIGN LANG II:RUSSIAN

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201R or placement by exam.

WLC 202S - INTERM FOREIGN LANG II:SPANISH

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201S or placement by exam.

WLC 204 - INTERNATIONAL CINEMA

Semester Hours: 3

Analyzes foreign language films centered on changing themes, such as gender issues, family, religion, children and society, the arts. Conducted in English. No prerequisite.

WLC 301A - CONVERSATION: ARABIC

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202A or placement by instructor.

WLC 301F - CONVERSATION:FRENCH

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202F or placement by exam.

WLC 301G - CONVERSATION:GERMAN

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202G or placement by exam.

WLC 301J - CONVERSATION:JAPANESE

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202J or placement by exam.

WLC 301R - CONVERSATION:RUSSIAN

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202R or placement by exam.

WLC 301S - CONVERSATION:SPANISH

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202S or placement by exam.

WLC 302F - COMPOSITION:FRENCH

Semester Hours: 3

Teaches writing skills through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202F or placement by exam.

WLC 302G - COMPOSITION:GERMAN

Semester Hours: 3

Teaches writing skills through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202G or placement by exam.

WLC 302R - COMPOSITION:RUSSIAN

Semester Hours: 3

Teaches writing skills through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202R or placement by exam.

WLC 302S - COMPOSITION:SPANISH

Semester Hours: 3

Teaches writing skills through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202S or placement by exam.

WLC 303F - FOREIGN LANG LIFE & PROF:FRENC

Semester Hours: 3

Teaches foreign language skills for careers in business, technology, politics, etc. Conducted in the target language. Prerequisite: WLC 202F or by placement.

WLC 303G - FOREIGN LANG LIFE & PROF:GERMA

Semester Hours: 3

Teaches foreign language skills for careers in business, technology, politics, etc. Conducted in the target language. Prerequisite: WLC 202G or by placement.

WLC 303R - FOREIGN LANG LIFE & PROF:RUSSI

Semester Hours: 3

Teaches foreign language skills for careers in business, technology, politics, etc. Conducted in the target language. Prerequisite: WLC 202R or by placement.

WLC 303S - FOREIGN LANG LIFE & PROF:SPANI

Semester Hours: 3

Teaches foreign language skills for careers in business, technology, politics, etc. Conducted in the target language. Prerequisite: WLC 202S or by placement.

WLC 304F - CULTURE:FRENCH

Semester Hours: 3

Teaches the arts, histories, social customs, and values of the target culture. Conducted in the target language. Prerequisites: WLC 301F or WLC 302F.

WLC 304G - CULTURE:GERMAN

Semester Hours: 3

Teaches the arts, histories, social customs, and values of the target culture. Conducted in the target language. Prerequisites: WLC 301G or WLC 302G.

WLC 304R - CULTURE:RUSSIAN

Semester Hours: 3

Teaches the arts, histories, social customs, and values of the target culture. Conducted in the target language. Prerequisites: WLC 301R or WLC 302R.

WLC 304S - CULTURE:SPANISH

Semester Hours: 3

Teaches the arts, histories, social customs, and values of the target culture. Conducted in the target language. Prerequisites: WLC 301S or WLC 302S.

WLC 305F - INTRO TO LITERATURE:FRENCH

Semester Hours: 3

Introduces the literature of the target language in cultural contexts. Conducted in the target language. Prerequisite: WLC 301F or WLC 302F.

WLC 305G - INTRO TO LITERATURE:GERMAN

Semester Hours: 3

Introduces the literature of the target language in cultural contexts. Conducted in the target language. Prerequisite: WLC 301G or WLC 302G.

WLC 305R - INTRO TO LITERATURE:RUSSIAN

Semester Hours: 3

Introduces the literature of the target language in cultural contexts. Conducted in the target language. Prerequisite: WLC 301R or WLC 302R.

WLC 305S - INTRO TO LITERATURE:SPANISH

Semester Hours: 3

Introduces the literature of the target language in cultural contexts. Conducted in the target language. Prerequisite: WLC 301S or WLC 302S.

WLC 404F - TEXTS & CONTEXTS:SEM LIT:FRENC

Semester Hours: 3

In-depth study of authors, genres, or movements in cultural contexts. Conducted in the target language. May be repeated when taught with a different topic. Prerequisite: WLC 301F or WLC 302F.

WLC 404G - TEXTS & CONTEXTS:SEM LIT/GERMA

Semester Hours: 3

In-depth study of authors, genres, or movements in cultural contexts. Conducted in the target language. May be repeated when taught with a different topic. Prerequisite: WLC 301G or WLC 302G.

WLC 404R - TEXTS & CONTEXTS:SEM LIT:RUSSI

Semester Hours: 3

In-depth study of authors, genres, or movements in cultural contexts. Conducted in the target language. May be repeated when taught with a different topic. Prerequisite: WLC 301R or WLC 302R. O.

WLC 404S - TEXTS & CONTEXTS:SEM LIT:SPANI

Semester Hours: 3

In-depth study of authors, genres, or movements in cultural contexts. Conducted in the target language. May be repeated when taught with a different topic. Prerequisite: WLC 301S or WLC 302S.

WLC 410 - INT'L INTERN:COMP LANG/CULT

Semester Hours: 3-6

Capstone for majors, offering practical experience in commercial or public organizations domestically or abroad. Conducted in English. Prerequisite: WLC 303.

WLC 499F - INDEPENDENT STUDY:FRENCH

Semester Hours: 3

Independent study and/or study abroad. Prerequisite: WLC 202F.

WLC 499G - INDEPENDENT STUDY:GERMAN

Semester Hours: 3

Independent study and/or study abroad. Prerequisite: WLC 202G.

WLC 499R - INDEPENDENT STUDY:RUSSIAN

Semester Hours: 3

Independent study and/or study abroad. Prerequisite: WLC 202R.

WLC 499S - INDEPENDENT STUDY:SPANISH

Semester Hours: 3

Independent study and/or study abroad. Prerequisite: WLC 202S.

Foreign Language, BA

The major is comprised of twelve courses of which ten will be taught in the focus language (French, German, Russian, Spanish) and two (WLC 204 and WLC 410) will utilize English for in-class discussions.

- Foreign Language, BA requires 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	

PHL 103	INTRODUCTION TO LOGIC
PHL 150	TECH, SCIENCE & HUMAN VALUES
WGS 200	INTRO WOMEN'S & GENDER STUDIES

Mathematics and Natural Sciences

Mathematics: Choose one

MA 107	ALGEBRA WITH APPLICATIONS
MA 110	FINITE MATHEMATICS
MA 112	PRECALCULUS ALGEBRA
MA 113	PRECALCULUS TRIGONOMETRY
MA 115	PRECALCULUS ALGEBRA & TRIG
MA 120	MATH PROFESSIONAL APPLICATIONS
MA 171	CALCULUS A

Natural Sciences: Choose two

8

AST 106	EXPLORING THE COSMOS I
AST 107	EXPLORING THE COSMOS II
BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103	ENVIRONMENTAL EARTH SCIENCE
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two

3-6

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
Pre-Professional		
Pre-professional Electives ²		7
Foreign Language Courses		
WLC 101F or WLC 101G or WLC 101R or WLC 101S or WLC 101MS	INTRO FOREIGN LANG I:FRENCH INTRO FOREIGN LANG I:GERMAN INTRO FOREIGN LANG I:RUSSIAN INTRO FOREIGN LANG I: SPANISH INTRO TO MEDICAL SPANISH	3
WLC 102F or WLC 102G or WLC 102R or WLC 102S or WLC 102MS	INTRO FOREIGN LANG II:FRENCH INTRO FOREIGN LANG II:GERMAN INTRO FOREIGN LANG II:RUSSIAN INTRO FOREIGN LANG II:SPANISH INTRO TO MEDICAL SPANISH II	3
WLC 201F or WLC 201G or WLC 201R or WLC 201S	INTERM FOREIGN LANG:FRENCH INTERM FOREIGN LANG:GERMAN INTERM FOREIGN LANG:RUSSIAN INTERM FOREIGN LANG:SPANISH	3
WLC 202F or WLC 202G or WLC 202R or WLC 202S	INTERM FOREIGN LANG II:FRENCH INTERM FOREIGN LANG II:GERMAN INTERM FOREIGN LANG II:RUSSIAN INTERM FOREIGN LANG II:SPANISH	3
WLC 204	INTERNATIONAL CINEMA	3
WLC 301F or WLC 301G or WLC 301R or WLC 301S	CONVERSATION:FRENCH CONVERSATION:GERMAN CONVERSATION:RUSSIAN CONVERSATION:SPANISH	3
WLC 302F or WLC 302G or WLC 302R or WLC 302S	COMPOSITION:FRENCH COMPOSITION:GERMAN COMPOSITION:RUSSIAN COMPOSITION:SPANISH	3
WLC 303F or WLC 303G or WLC 303R or WLC 303S	FOREIGN LANG LIFE & PROF:FRENC FOREIGN LANG LIFE & PROF:GERMA FOREIGN LANG LIFE & PROF:RUSSI FOREIGN LANG LIFE & PROF:SPANI	3
WLC 304F or WLC 304G or WLC 304R or WLC 304S	CULTURE:FRENCH CULTURE:GERMAN CULTURE:RUSSIAN CULTURE:SPANISH	3
WLC 305F or WLC 305G or WLC 305R or WLC 305S	INTRO TO LITERATURE:FRENCH INTRO TO LITERATURE:GERMAN INTRO TO LITERATURE:RUSSIAN INTRO TO LITERATURE:SPANISH	3
WLC 404F or WLC 404G or WLC 404R or WLC 404S	TEXTS & CONTEXTS:SEM LIT:FRENC TEXTS & CONTEXTS:SEM LIT/GERMA TEXTS & CONTEXTS:SEM LIT:RUSSI TEXTS & CONTEXTS:SEM LIT:SPANI	3
WLC 410	INT'L INTERN:COMP LANG/CULT	3-6
Minor Courses		18
Elective Courses		

Elective hours vary by program, see advisor.

Total Semester Hours 120

Year 1

Fall		Semester Hours
WLC 101F	INTRO FOREIGN LANG I:FRENCH	3
or WLC 101G	or INTRO FOREIGN LANG I:GERMAN	
or WLC 101R	or INTRO FOREIGN LANG I:RUSSIAN	
or WLC 101S	or INTRO FOREIGN LANG I: SPANISH	
or WLC 101MS	or INTRO TO MEDICAL SPANISH	
EH 101	COLLEGE WRITING I	3
FYE 101	CHARGER SUCCESS	1
Math		3
Fine Arts		3
Term Semester Hours:		13

Spring		
WLC 102F	INTRO FOREIGN LANG II:FRENCH	3
or WLC 102G	or INTRO FOREIGN LANG II:GERMAN	
or WLC 102R	or INTRO FOREIGN LANG II:RUSSIAN	
or WLC 102S	or INTRO FOREIGN LANG II:SPANISH	
or WLC 102MS	or INTRO TO MEDICAL SPANISH II	
EH 102	COLLEGE WRITING II	3
Humanities		3
Social/Behavioral Science		3
Science w/Lab		4
Term Semester Hours:		16

Year 2

Fall		
WLC 201F	INTERM FOREIGN LANG:FRENCH	3
or WLC 201G	or INTERM FOREIGN LANG:GERMAN	
or WLC 201R	or INTERM FOREIGN LANG:RUSSIAN	
or WLC 201S	or INTERM FOREIGN LANG:SPANISH	
Science w/Lab		4
Social/Behavioral Science		3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
HY 103	WORLD HISTORY TO 1500	3
or HY 104	or WORLD HISTORY SINCE 1500	
Term Semester Hours:		16

Spring		
WLC 202F	INTERM FOREIGN LANG II:FRENCH	3
or WLC 202G	or INTERM FOREIGN LANG II:GERMAN	
or WLC 202R	or INTERM FOREIGN LANG II:RUSSIAN	
or WLC 202S	or INTERM FOREIGN LANG II:SPANISH	
WLC 204	INTERNATIONAL CINEMA	3
HY 104	WORLD HISTORY SINCE 1500	3
or HY 103	or WORLD HISTORY TO 1500	
Area V Course		3
Literature or Humanities		3
Term Semester Hours:		15

Year 3

Fall

WLC 301F	CONVERSATION:FRENCH	3
or WLC 301G	or CONVERSATION:GERMAN	
or WLC 301R	or CONVERSATION:RUSSIAN	
or WLC 301S	or CONVERSATION:SPANISH	
WLC 303F	FOREIGN LANG LIFE PROF:FRENC	3
or WLC 303G	or FOREIGN LANG LIFE & PROF:GERMA	
or WLC 303R	or FOREIGN LANG LIFE & PROF:RUSSI	
or WLC 303S	or FOREIGN LANG LIFE & PROF:SPANI	
Minor Courses		6
Area V Course		3
Term Semester Hours:		15
Spring		
WLC 302F	COMPOSITION:FRENCH	3
or WLC 302G	or COMPOSITION:GERMAN	
or WLC 302R	or COMPOSITION:RUSSIAN	
or WLC 302S	or COMPOSITION:SPANISH	
WLC 304F	CULTURE:FRENCH	3
or WLC 304G	or CULTURE:GERMAN	
or WLC 304R	or CULTURE:RUSSIAN	
or WLC 304S	or CULTURE:SPANISH	
Minor Courses		6
Area V Course		3
Term Semester Hours:		15
Year 4		
Fall		
WLC 305F	INTRO TO LITERATURE:FRENCH	3
or WLC 305G	or INTRO TO LITERATURE:GERMAN	
or WLC 305R	or INTRO TO LITERATURE:RUSSIAN	
or WLC 305S	or INTRO TO LITERATURE:SPANISH	
Minor Courses		6
Electives		6
Term Semester Hours:		15
Spring		
WLC 404F	TEXTS CONTEXTS:SEM LIT:FRENC	3
or WLC 404G	or TEXTS & CONTEXTS:SEM LIT/GERMA	
or WLC 404R	or TEXTS & CONTEXTS:SEM LIT:RUSSI	
or WLC 404S	or TEXTS & CONTEXTS:SEM LIT:SPANI	
WLC 410	INT'L INTERN:COMP LANG/CULT	3-6
Electives		6
Minor Course		3
Term Semester Hours:		15-18
Total Semester Hours:		120-123

Foreign Languages, BA - Foreign Language and International Trade Concentration

World Languages majors interested in enhancing their preparation for participation in the global economy may wish to consider a focus in international trade, which combines language courses with a study of business and international politics. The Foreign Language and International Trade Program includes the following courses. No minor is required for students who major in foreign languages with the international trade focus.

- Foreign Language, BA requires 120 credit hours.
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a 2.0 GPA in major, minor, and overall.

- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities and Fine Arts: Choose one or two		3-6
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		
Mathematics: Choose one		
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	

CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103	ENVIRONMENTAL EARTH SCIENCE
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG
PH 100	CONCEPTUAL PHYSICS
PH 101	GENERAL PHYSICS I
PH 102	GENERAL PHYSICS II
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113/116	GEN PHYSICS W/CALC III

History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below

History: Choose one or two 3-6

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two or three

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
Pre-Professional		
Pre-professional Electives ²		3
Foreign Language and International Trade Courses		
WLC 101F or WLC 101G or WLC 101R or WLC 101S or WLC 101MS	INTRO FOREIGN LANG I:FRENCH INTRO FOREIGN LANG I:GERMAN INTRO FOREIGN LANG I:RUSSIAN INTRO FOREIGN LANG I: SPANISH INTRO TO MEDICAL SPANISH	3
WLC 102F or WLC 102G or WLC 102R or WLC 102S or WLC 102MS	INTRO FOREIGN LANG II:FRENCH INTRO FOREIGN LANG II:GERMAN INTRO FOREIGN LANG II:RUSSIAN INTRO FOREIGN LANG II:SPANISH INTRO TO MEDICAL SPANISH II	3
WLC 201F or WLC 201G	INTERM FOREIGN LANG:FRENCH INTERM FOREIGN LANG:GERMAN	3

or WLC 201R	INTERM FOREIGN LANG:RUSSIAN	
or WLC 201S	INTERM FOREIGN LANG:SPANISH	
WLC 202F	INTERM FOREIGN LANG II:FRENCH	3
or WLC 202G	INTERM FOREIGN LANG II:GERMAN	
or WLC 202R	INTERM FOREIGN LANG II:RUSSIAN	
or WLC 202S	INTERM FOREIGN LANG II:SPANISH	
WLC 204	INTERNATIONAL CINEMA	3
WLC 301F	CONVERSATION:FRENCH	3
or WLC 301G	CONVERSATION:GERMAN	
or WLC 301R	CONVERSATION:RUSSIAN	
or WLC 301S	CONVERSATION:SPANISH	
WLC 302F	COMPOSITION:FRENCH	3
or WLC 302G	COMPOSITION:GERMAN	
or WLC 302R	COMPOSITION:RUSSIAN	
or WLC 302S	COMPOSITION:SPANISH	
WLC 303F	FOREIGN LANG LIFE & PROF:FRENC	3
or WLC 303G	FOREIGN LANG LIFE & PROF:GERMA	
or WLC 303R	FOREIGN LANG LIFE & PROF:RUSSI	
or WLC 303S	FOREIGN LANG LIFE & PROF:SPANI	
WLC 304F	CULTURE:FRENCH	3
or WLC 304G	CULTURE:GERMAN	
or WLC 304R	CULTURE:RUSSIAN	
or WLC 304S	CULTURE:SPANISH	
WLC 305F	INTRO TO LITERATURE:FRENCH	3
or WLC 305G	INTRO TO LITERATURE:GERMAN	
or WLC 305R	INTRO TO LITERATURE:RUSSIAN	
or WLC 305S	INTRO TO LITERATURE:SPANISH	
WLC 404F	TEXTS & CONTEXTS:SEM LIT:FRENC	3
or WLC 404G	TEXTS & CONTEXTS:SEM LIT/GERMA	
or WLC 404R	TEXTS & CONTEXTS:SEM LIT:RUSSI	
or WLC 404S	TEXTS & CONTEXTS:SEM LIT:SPANI	
WLC 410	INT'L INTERN:COMP LANG/CULT	3-6
Students completing a 6-hour internship abroad may choose between WLC 305 and WLC 404, for a total of 9 hours. Students completing a 3-hour internship must take WLC 305 and 404 to complete degree requirements.		
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	3
ECN 142	PRINC OF MACROECONOMICS	3
ACC 211	PRINC OF FINANCIAL ACCOUNTING	3
ACC 212	MANAGEMENT ACCOUNTING	3
SOC 303 & SOC 304	STATISTICS/SOCIAL SCIENCES and STATISTICS LAB	3-4
or MSC 287	BUSINESS STATISTICS I	
FIN 301	PRINCIPLES OF FINANCE	3
FIN 454	INTERNATIONAL FINANCE	3
MGT 301	MANAGING ORGANIZATIONS	3
MKT 301	PRINCIPLES OF MARKETING	3
MGT 450	INTERNATIONAL BUSINESS	3
or MKT 415	INTERNATIONAL MARKETING	

Elective Courses	13
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Elective hours vary by program, see advisor.

Total Semester Hours	120
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Year 1

Fall		Semester Hours
WLC 101F	INTRO FOREIGN LANG I:FRENCH	3
or WLC 101G	or INTRO FOREIGN LANG I:GERMAN	
or WLC 101R	or INTRO FOREIGN LANG I:RUSSIAN	
or WLC 101S	or INTRO FOREIGN LANG I:SPANISH	
or WLC 101MS	or INTRO TO MEDICAL SPANISH	
EH 101	COLLEGE WRITING I	3
Fine Arts		3
Math		3
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		13

Spring

WLC 102F	INTRO FOREIGN LANG II:FRENCH	3
or WLC 102G	or INTRO FOREIGN LANG II:GERMAN	
or WLC 102R	or INTRO FOREIGN LANG II:RUSSIAN	
or WLC 102S	or INTRO FOREIGN LANG II:SPANISH	
or WLC 102MS	or INTRO TO MEDICAL SPANISH II	
EH 102	COLLEGE WRITING II	3
Humanities/ Fine Arts		3
Science w/Lab		4
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	3
Term Semester Hours:		16

Year 2

Fall		
WLC 201F	INTERM FOREIGN LANG:FRENCH	3
or WLC 201G	or INTERM FOREIGN LANG:GERMAN	
or WLC 201R	or INTERM FOREIGN LANG:RUSSIAN	
or WLC 201S	or INTERM FOREIGN LANG:SPANISH	
Science w/Lab		4
ECN 142	PRINC OF MACROECONOMICS	3
ACC 211	PRINC OF FINANCIAL ACCOUNTING	3
EH 207	READINGS LITERATURE/ CULTURE I	3
or EH 208	or READINGS LITERATURE/ CULTURE 2	
Term Semester Hours:		16

Spring

WLC 202F	INTERM FOREIGN LANG II:FRENCH	3
or WLC 202G	or INTERM FOREIGN LANG II:GERMAN	

or WLC 202R	or INTERM FOREIGN LANG II:RUSSIAN	
or WLC 202S	or INTERM FOREIGN LANG II:SPANISH	
WLC 204	INTERNATIONAL CINEMA	3
HY 104	WORLD HISTORY SINCE 1500	3
or HY 103	or WORLD HISTORY TO 1500	
Literature or Humanities		3
ACC 212	MANAGEMENT ACCOUNTING	3
Term Semester Hours:		15
Year 3		
Fall		
WLC 301F	CONVERSATION:FRENCH	3
or WLC 301G	or CONVERSATION:GERMAN	
or WLC 301R	or CONVERSATION:RUSSIAN	
or WLC 301S	or CONVERSATION:SPANISH	
WLC 303F	FOREIGN LANG LIFE PROF:FRENC	3
or WLC 303G	or FOREIGN LANG LIFE & PROF:GERMA	
or WLC 303R	or FOREIGN LANG LIFE & PROF:RUSSI	
or WLC 303S	or FOREIGN LANG LIFE & PROF:SPANI	
Area V Course ³		
MSC 287	BUSINESS STATISTICS I	3
or SOC 303	or STATISTICS/SOCIAL SCIENCES	
MGT 301	MANAGING ORGANIZATIONS	3
Term Semester Hours:		12
Spring		
WLC 302F	COMPOSITION:FRENCH	3
or WLC 302G	or COMPOSITION:GERMAN	
or WLC 302R	or COMPOSITION:RUSSIAN	
or WLC 302S	or COMPOSITION:SPANISH	
WLC 304F	CULTURE:FRENCH	3
or WLC 304G	or CULTURE:GERMAN	
or WLC 304R	or CULTURE:RUSSIAN	
or WLC 304S	or CULTURE:SPANISH	
FIN 301	PRINCIPLES OF FINANCE	3
HY 103	WORLD HISTORY TO 1500	3
or HY 104	or WORLD HISTORY SINCE 1500	
MKT 301	PRINCIPLES OF MARKETING	3
Term Semester Hours:		15
Year 4		
Fall		
WLC 305F	INTRO TO LITERATURE:FRENCH	3
or WLC 305G	or INTRO TO LITERATURE:GERMAN	
or WLC 305R	or INTRO TO LITERATURE:RUSSIAN	
or WLC 305S	or INTRO TO LITERATURE:SPANISH	
FIN 454	INTERNATIONAL FINANCE	3

MKT 415	INTERNATIONAL MARKETING	3
or MGT 450	or INTERNATIONAL BUSINESS	
Area V Course		3
Elective		3
Term Semester Hours:		15
Spring		
WLC 410	INT'L INTERN:COMP LANG/CULT Students completing a 6-hour internship abroad may choose between WLC 305 and WLC 404 for a total of 9 credit hours. Students completing a 3-hour internship must take WLC 305 and 404 to satisfy degree requirements.	3-6
Area V Course		3
Electives		9
Term Semester Hours:		15-18
Total Semester Hours:		117-120

Foreign Language Minor

Foreign language minors are offered in French, German, Russian, and Spanish. Foreign language majors are permitted to minor in a second foreign language. The Foreign Language Minor Program is comprised of eight courses.

Requirements

Code	Title	Semester Hours
WLC 101F or WLC 101G or WLC 101R or WLC 101S or WLC 101MS	INTRO FOREIGN LANG I:FRENCH INTRO FOREIGN LANG I:GERMAN INTRO FOREIGN LANG I:RUSSIAN INTRO FOREIGN LANG I: SPANISH INTRO TO MEDICAL SPANISH	3
WLC 102F or WLC 102G or WLC 102R or WLC 102S or WLC 102MS	INTRO FOREIGN LANG II:FRENCH INTRO FOREIGN LANG II:GERMAN INTRO FOREIGN LANG II:RUSSIAN INTRO FOREIGN LANG II:SPANISH INTRO TO MEDICAL SPANISH II	3
WLC 201F or WLC 201G or WLC 201R or WLC 201S	INTERM FOREIGN LANG:FRENCH INTERM FOREIGN LANG:GERMAN INTERM FOREIGN LANG:RUSSIAN INTERM FOREIGN LANG:SPANISH	3
WLC 202F or WLC 202G or WLC 202R or WLC 202S	INTERM FOREIGN LANG II:FRENCH INTERM FOREIGN LANG II:GERMAN INTERM FOREIGN LANG II:RUSSIAN INTERM FOREIGN LANG II:SPANISH	3
WLC 301F or WLC 301G or WLC 301R or WLC 301S	CONVERSATION:FRENCH CONVERSATION:GERMAN CONVERSATION:RUSSIAN CONVERSATION:SPANISH	3
WLC 302F or WLC 302G or WLC 302R or WLC 302S	COMPOSITION:FRENCH COMPOSITION:GERMAN COMPOSITION:RUSSIAN COMPOSITION:SPANISH	3
WLC 305F or WLC 305G	INTRO TO LITERATURE:FRENCH INTRO TO LITERATURE:GERMAN	3

or WLC 305R	INTRO TO LITERATURE:RUSSIAN	
or WLC 305S	INTRO TO LITERATURE:SPANISH	
Select one of the following:		3
WLC 303F	FOREIGN LANG LIFE & PROF:FRENC	3
or WLC 303G	FOREIGN LANG LIFE & PROF:GERMA	
or WLC 303R	FOREIGN LANG LIFE & PROF:RUSSI	
or WLC 303S	FOREIGN LANG LIFE & PROF:SPANI	
WLC 304F	CULTURE:FRENCH	3
or WLC 304G	CULTURE:GERMAN	
or WLC 304R	CULTURE:RUSSIAN	
or WLC 304S	CULTURE:SPANISH	
WLC 404F	TEXTS & CONTEXTS:SEM LIT:FRENC	3
or WLC 404G	TEXTS & CONTEXTS:SEM LIT/GERMA	
or WLC 404R	TEXTS & CONTEXTS:SEM LIT:RUSSI	
or WLC 404S	TEXTS & CONTEXTS:SEM LIT:SPANI	
Total Semester Hours		24

Foreign Language and Global Engagement Certificate

(French/German/Russian/Spanish)

The Department of World Languages and Cultures, in collaboration with the Global Studies Program, offers a Certificate in Foreign Language and Global Engagement in French, German, Russian, and Spanish. Other languages such as Japanese and Arabic may also qualify for the certificate if the language is being offered up to the WLC 301 level at UAH, or if an equivalent upper-level course can be completed abroad.

All coursework must be done in a single language. The Certificate is aimed at UAH students and members of the larger community who wish to acquire officially certified world language and culture skills appropriate for global engagement in a breadth of academic contexts (from research collaboration across the disciplines and professions to medical practice, global trade, the arts, and diplomacy). The Certificate also facilitates UAH's evolving study-abroad/research opportunities that require world language skills. Upon successful completion of the Certificate, the students will have acquired intermediate world language proficiency in both oral and written communication appropriate in a variety of everyday situations and professional environments. They will also have gained basic knowledge in the cultural, economic, political, and historical ramifications of globalization.

The requirements for the Certificate are:

Code	Title	Semester Hours
WLC 101F	INTRO FOREIGN LANG I:FRENCH	3
or WLC 101G	INTRO FOREIGN LANG I:GERMAN	
or WLC 101J	INTRO FOREIGN LANG I:JAPANESE	
or WLC 101R	INTRO FOREIGN LANG I:RUSSIAN	
or WLC 101S	INTRO FOREIGN LANG I: SPANISH	
or WLC 101MS	INTRO TO MEDICAL SPANISH	
WLC 102F	INTRO FOREIGN LANG II:FRENCH	3
or WLC 102G	INTRO FOREIGN LANG II:GERMAN	
or WLC 102J	INTRO FOREIGN LANG II:JAPANESE	
or WLC 102R	INTRO FOREIGN LANG II:RUSSIAN	
or WLC 102S	INTRO FOREIGN LANG II:SPANISH	
or WLC 102MS	INTRO TO MEDICAL SPANISH II	
WLC 201F	INTERM FOREIGN LANG:FRENCH	3
or WLC 201G	INTERM FOREIGN LANG:GERMAN	
or WLC 201J	INTERM FOREIGN LANG: JAPANESE	
or WLC 201R	INTERM FOREIGN LANG:RUSSIAN	
or WLC 201S	INTERM FOREIGN LANG:SPANISH	
WLC 202F	INTERM FOREIGN LANG II:FRENCH	3
or WLC 202G	INTERM FOREIGN LANG II:GERMAN	
or WLC 202J	INTERM FORGN LANG II:JAPANESE	

or WLC 202R	INTERM FOREIGN LANG II:RUSSIAN	
or WLC 202S	INTERM FOREIGN LANG II:SPANISH	
WLC 301F	CONVERSATION:FRENCH	3
or WLC 301G	CONVERSATION:GERMAN	
or WLC 301J	CONVERSATION:JAPANESE	
or WLC 301R	CONVERSATION:RUSSIAN	
or WLC 301S	CONVERSATION:SPANISH	
GS 200	GLOBAL SYSTEMS AND CULTURES	3
Total Semester Hours		18

To qualify for the Certificate, a "B" average or higher is required for the world language courses; a grade of "B" or higher is required for GS 200. Students majoring or minoring in world languages can also pursue this Certificate. Native speakers of French, German, Russian, or Spanish cannot pursue the Certificate in their own language but are encouraged to pursue the Certificate in one of the other languages. Since the Certificate is not a Major/Minor, it does not presuppose GER courses or any other coursework prior to the Certificate sequence. It can also be earned as a post-Baccalaureate certificate. Standard UAH admission procedures for degree-seeking students apply.

Students with some prior knowledge of the language can test out of lower courses and be placed into higher courses. For the courses they test out of, students receive credit hours, but no grades or quality points towards completion of the Certificate.

Writing, BA

The Writing Major is an interdisciplinary program designed for students who want to make writing central to their career. The major prepares students for careers in writing-related fields—such as technical writing, publishing, social media consulting, and public relations—or graduate studies in rhetoric and composition, communication, creative writing, education, or law. By combining courses from the English and Communication Arts departments, the major gives students a comprehensive education in writing and rhetorical theory along with the techniques necessary to craft effective documents in multiple genres. All students take six core courses that instill a firm foundation in writing fundamentals and two electives that allow students to customize their education. Every student also chooses one of six concentrations: technical and professional writing, creative writing, media writing, rhetoric and composition, public relations, or a customized concentration created by the student in consultation with their advisor. The major also includes a capstone portfolio that allows students to revise documents that they can show to potential employers or graduate programs.

- Writing, BA requires 120 credit hours.
- Two courses (6 semester hours) at the 400 level
- 36 of 120 credit hours must be taken at 300 level or higher.
- Must have a 2.0 GPA in major, minor, and overall.
- No more than 6 credit hours of HPE may count in degree requirements.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		6
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one or two		3-6
Students are required to have a sequence in either History or Literature.		
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	

EH 208	READINGS LITERATURE/CULTURE 2	
Humanities and Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
CM 113	Intro to Rhetorical Communication	
Any WLC 100 or 200 level ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3-4
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 115	PRECALCULUS ALGEBRA & TRIG	
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113/116	GEN PHYSICS W/CALC III	
History and Social and Behavioral Sciences		12
History: Choose one or two		3-6
Students are required to have a sequence in either History or Literature.		
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose three		6-9
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	

GS 200	GLOBAL SYSTEMS AND CULTURES
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI

Code	Title	Semester Hours
Core Courses		15

CM 113	Intro to Rhetorical Communication
EH 260	INTRO TO WRITING MAJOR
CM 375	RHETORICAL CRITICISM
or EH 403	LITERARY CRITICISM & THEORY
CM 408	CLASSICAL RHET THEORY
or CM 409	CONTEMPORARY RHETORICAL THEORY
EH 340	ACADEMIC WRITING
EH 463	CAPSTONE IN WRITING (Capstone)

Concentration Courses: Choose one concentration below. 18-19

Technical and Professional Writing

EH 301	TECHNICAL WRITING
EH 302	TECHNICAL EDITING
EH 303	PRAC & RSRCH IN TECH COMM
EH/CM 320	PRACTICUM IN WRITING

Technical Electives: Choose six hours.

Creative Writing

EH 211	INTRO CREATIVE WRITING
EH 410	FICTION WRITING
EH 411	POETRY WRITING
EH 414	CREATIVE NONFICTION WRITING

Literature Electives 300+: Choose six hours.

Media Writing

CM 205	INTRO TO JOURNALISM
CM 405	ADVANCED MEDIA WRITING
EH 454	NEW MEDIA WRITING & RHETORIC
or CM 454	NEW MEDIA WRITING & RHETORIC
CM 444	ADVERTISING
or CM 435	SOCIAL MEDIA
EH 414	CREATIVE NONFICTION WRITING
EH/CM 320	PRACTICUM IN WRITING

Rhetoric and Composition

CM 408	CLASSICAL RHET THEORY
or CM 409	CONTEMPORARY RHETORICAL THEORY
CM 375	RHETORICAL CRITICISM (Take course not taken in core.)
or EH 403	LITERARY CRITICISM & THEORY
EH 400	COMPOSITION STUDIES FOR TCHERS
EH 475	RHETORIC AND WRITING
EH 454	NEW MEDIA WRITING & RHETORIC

or CM 454	NEW MEDIA WRITING & RHETORIC
CM 426	BURKEIAN THEORY & CRITICISM
or CM 416	WOMEN ORATORS
or CM 418	LEGAL ARGUMENT
Public Relations	
CM 205	INTRO TO JOURNALISM
CM 220	INTRO PUBLIC RELATIONS
CM 405	ADVANCED MEDIA WRITING
CM 420	PUBLIC RELATIONS WRITING
CM 440	PUBLIC RELATIONS CAMPAIGN
CM/EH 320	PRACTICUM IN WRITING
Student/Advisor Designed	
18 hours of approved writing electives.	
Electives: Choose two not taken above.	
CM 205	INTRO TO JOURNALISM
CM 220	INTRO PUBLIC RELATIONS
CM 231	FOUNDATIONS OF HUMAN COMMUNICA
CM 260	VIDEO PRODUCTION
CM 310	PERSUASION
CM 375	RHETORICAL CRITICISM
CM 405	ADVANCED MEDIA WRITING
CM 408	CLASSICAL RHET THEORY
CM 409	CONTEMPORARY RHETORICAL THEORY
CM 418	LEGAL ARGUMENT
CM 420	PUBLIC RELATIONS WRITING
CM 430	MASS MEDIA IN AMERICA
CM 435	SOCIAL MEDIA
CM 440	PUBLIC RELATIONS CAMPAIGN
CM 444	ADVERTISING
EH 211	INTRO CREATIVE WRITING
EH 300	STRATEGIES FOR BUSINESS WRIT'G
EH 301	TECHNICAL WRITING
EH 302	TECHNICAL EDITING
EH 303	PRAC & RSRCH IN TECH COMM
EH 400	COMPOSITION STUDIES FOR TCHERS
EH 403	LITERARY CRITICISM & THEORY
EH 410	FICTION WRITING
EH 411	POETRY WRITING
EH 412	SPEC STUDIES CREATIVE WRITING
EH 414	CREATIVE NONFICTION WRITING
EHL 405	SUR GEN LINGUISTICS:APP ENG I
EHL 407	ADV EH GRAM:APP LINGUISTICS II
EH 475	RHETORIC AND WRITING
EH 454	NEW MEDIA WRITING & RHETORIC
or CM 454	NEW MEDIA WRITING & RHETORIC

Total Semester Hours

120

College of Business

Dean's Office

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256.824.6735

BAB 202

Undergraduate Advising

UnderGradBiz@uah.edu

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BAB 102

Graduate Advising

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BAB 102

The College of Business offers majors in the following disciplines:

- Accounting (p. 199)
- Economics (p. 211)
- Finance (<http://catalog.uah.edu/undergrad/colleges-departments/business/finance/#majorstext>)
- Information Systems (p. 232)
- Management (p. 241)
- Marketing (p. 265)

Mission

The UAH College of Business serves business and society through the expertise of our alumni, students, and faculty. We provide academically rigorous programs emphasizing the application of theory and skills in scientific, technological, and traditional business environments. We are committed to offering degree programs that build analytical skills, develop an entrepreneurial mindset, and provide opportunities to engage with practice through projects, practica, and internships.

Accreditation

The College of Business is accredited by *AACSB International - The Association to Advance Collegiate Schools of Business*.^{*} AACSB provides the highest standard of accreditation offered to business schools worldwide, with fewer than 25% of U.S. business schools and fewer than 5% of worldwide business schools achieving the distinction. To maintain AACSB accreditation, we must have a specific plan and sufficient resources to support high quality undergraduate and graduate programs, a highly qualified faculty who maintain credentials through continuous research or engagement with practice, and a process for assessing that our students are learning what we teach. We report to AACSB annually and undergo a comprehensive review every five years.

**AACSB International is a not-for-profit corporation comprised of member organizations and institutions devoted to the promotion and continuous improvement of higher education for business administration and management. Organized in 1916, AACSB International is the premier accrediting agency for bachelor's, master's and doctoral degree programs in business administration and accounting.*

Degrees Offered

Bachelor of Science in Business Administration (BSBA)

The Bachelor of Science in Business Administration (BSBA) degree is a comprehensive four-year program that prepares graduates to be managers, leaders, and technical specialists in business, not-for-profit, and government organizations. The degree program includes a liberal arts and science foundation (called Charger Foundations), a business core curriculum, a business major, a concentration within the major, and a choice of elective courses. During the first two years, students focus on Charger Foundations with coursework in composition, the humanities and fine arts, history, social and behavioral sciences, natural and physical sciences, and mathematics. Charger Foundation courses are designed to broaden intellectual awareness and enhance the development of cultural literacy and analytical thinking. During the remaining two years, students first study the core foundations of business, then they focus on a specific major in either accounting, finance, management, information systems, or marketing. Within each major, students have an opportunity to further concentrate their program in an area of particular interest such as cybersecurity, federal contracting, human resource management, supply chain management, and other areas.

Bachelor of Science in Economics and Computational Analysis (BSECA)

The Economics and Computational Analysis (BSECA) degree (p. 213) is a comprehensive four-year program that teaches students how to combine economic models, computational tools, and econometric methods to improve business and social decision-making. Students evaluate economic development strategies, identify entrepreneurial opportunities, and analyze public policy in a world that continues to change the way people communicate, perceive their world, make decisions, and conduct business. During the first two years, students focus on Charger Foundations with coursework in composition, the humanities and fine arts, history, social and behavioral sciences, natural and physical sciences, and mathematics. Charger Foundation courses are designed to broaden intellectual awareness and enhance the development of cultural literacy and analytical thinking.

In the junior and senior years, students move into higher level coursework in economics and complete the requirements for either a major or a minor in an area of interest. The BSECA program is designed to be coupled with a minor or double major to enrich the student's perspective about defining and modeling complex problems. Some students select a double major in a business discipline such as finance or accounting whereas others choose a different context by selecting a double major or minor in sociology, philosophy, or political science.

Accounting

Department Chair, Allen Wilhite

333 Business Administration Building

Telephone: 256.824.6590

Email: wilhitea@uah.edu

Mission

The Department of Accounting, Economics, and Finance provides academically rigorous programs in accounting, economics, and finance. We strive to teach sound principles and concepts as well as the analytical tools for applications to practical business problems. Through its scholarly activity, the departmental faculty develops and disseminates knowledge related to accounting, economics and finance theory, pedagogy, and practice.

Accounting

Accounting careers vary widely in today's complex, global economy. Graduates may find themselves tracking illegal funds for the FBI or preparing financial statements for multi-billion dollar firms. Generally, accounting career paths can be described as financial reporting, assurance, budget analysis, management accounting, tax accounting, and federal contract accounting. Accountants may work for public accounting firms, public or private corporations, governments at all levels, or for themselves in private practice.

Students considering the professional certification examinations upon graduation, such as the Certified Public Accountant (CPA), the Certified Management Accountant (CMA), or the Certified Internal Auditor (CIA), will need course work in accounting beyond the minimum requirements for the BSBA degree. Among other requirements, the Alabama State Board of Public Accountancy requires 150 semester hours of credit in order to be licensed as a CPA in Alabama. The College of Business offers a Master of Accountancy (MAcc) degree that meets or exceeds requirements for professional accounting certification.

Majors in Accounting

There are two concentrations within the accounting major:

- Accounting, BSBA - General Accounting Concentration (p. 205)
- Accounting, BSBA - Federal Contract Accounting Concentration (p. 202)

Each of the concentrations may be used as part of a CPA Prep 4 + 1 program (4 years of undergraduate study plus 1 year of graduate study) ending with the Master of Accountancy (MAcc) degree.

Certificates in Accounting

Sometimes individuals find themselves proceeding along a career path that involves work in the field of accounting even though they may have earned a bachelor's degree in a discipline other than accounting. Similarly, others may decide to pursue a career in accounting even though they have a bachelor's degree in a discipline other than accounting. Several avenues for obtaining additional knowledge in the area of accounting are open to these individuals: pursue an undergraduate degree in accounting, pursue a graduate degree in accounting, or obtain a Certificate in Accounting. Since each of these options has its own merits, the Accounting faculty recommends students consult with the department chair to discuss the pros and cons of each alternative.

The Certificate in Accounting is a non-degree option designed to give students a strong foundation in accounting. It bypasses much of the coursework required for the BSBA degree, but it does not result in a degree. The program has four options, as described below:

- Accounting - General Accounting Option (p. 209)
- Accounting - Management Accounting Option (p. 210)
- Accounting - Public Accounting Option (p. 210)
- Accounting - Federal Contract Accounting Option (p. 209)
- Certificate in Public Accounting (CPA) (p. 208)

ACC 210 - ACCOUNTING FOR BUSINESS

Semester Hours: 4

An introduction to the role accounting information plays in business. Topics include both external and internal uses of accounting information with a particular focus on the accounting cycle, the preparation and interpretation of financial statements, and the role of accounting information in management decision making.

ACC 211 - PRINC OF FINANCIAL ACCOUNTING

Semester Hours: 3

Introduction to basic concepts that underlie accounting information. Topics include the statement of financial position, the income statement, the accounting cycle, internal control, and ethical and behavioral issues in financial reporting. Emphasis is placed on proper use of financial statement information.

ACC 212 - MANAGEMENT ACCOUNTING

Semester 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, and performance evaluation. Prerequisite: ACC 211.

ACC 307 - ACCOUNTING INFORMATION SYS

Semester Hours: 3

A detailed review and analysis of procedures required to capture, classify, summarize and report financial information. Topics include elements of accounting systems, business documents, consideration 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. Prerequisite: ACC 210.

ACC 310 - INTERM FINANCIAL ACCT I

Semester Hours: 3

First in a two-course sequence to examine the measurement and reporting of income, cash flows, assets, liabilities, and owner's equity in financial statements. Topics include financial statements, current assets and liabilities, investments, revenue recognition, and error analysis. Prerequisite: ACC 210 (with a grade of B- or better).

ACC 310L - LABORATORY

Semester Hours: 0

Intermediate Accounting I Lab provides extra opportunities for students to practice and to develop their problem-solving skills.

ACC 311 - INTERM FINANCIAL ACCT II

Semester Hours: 3

Second in a two-course sequence to examine the measurement and reporting of income, cash flows, assets, liabilities, and owner's equity in financial statements. Topics include long-term assets and liabilities, leases, income taxes, pensions, and owner's equity. Prerequisite: ACC 310.

ACC 311L - LABORATORY

Semester Hours: 0

Intermediate Accounting II lab provides extra opportunities for students to practice and to develop their problem-solving skills.

ACC 313 - INDIVIDUAL/SMALL BUS INCOME TA

Semester Hours: 3

Determination of taxable income, business and non-business deductions, and selected aspects of tax accounting for individuals and sole proprietorships. Prerequisite: ACC 210.

ACC 413 - CORP/PARTNERSHIP/ESTATE TAXES

Semester Hours: 3

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

ACC 414 - COST ACCOUNTING

Semester Hours: 3

Development and use of cost data for external reporting and internal planning and control. Topics include cost modeling, job and process costing, standard costing, activity-based costing, and budgeting. Development of relevant cost information for special purposes is also considered. Prerequisite: ACC 310 (C or better).

ACC 415 - ADV FINANCIAL ACCOUNTING

Semester Hours: 3

Analysis of financial accounting issues and alternatives concerning business combinations, intercorporate investments, international business, and partnerships. Prerequisite: ACC 311.

ACC 417 - ACC ST/LOCAL GOV & NON-PROFITS

Semester 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. Prerequisite: ACC 210 or ACC 212.

ACC 420 - STATE AND LOCAL TAXATION

Semester 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

Semester Hours: 3

Conceptual foundations of auditing practice. Basic auditing concepts including professional ethics, legal ability, independence, and competence. Auditing of computer-oriented systems, audit sampling, and standards of reporting. Role of the internal and independent auditor. Prerequisite: ACC 307 & ACC 310.

ACC 432 - ADVANCED AUDITING

Semester Hours: 3

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

ACC 433 - FORENSIC ACCOUNTING

Semester Hours: 3

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

ACC 440 - BASIC GOV CONTRACT ACCTG

Semester Hours: 3

Basic coverage and principles of government contract accounting with an emphasis on the Federal Acquisition Regulation (FAR). Prerequisite: ACC 314 or ACC 414.

ACC 441 - ADVANCED GOV CONTRACT ACCTG

Semester 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. Prerequisite: ACC 440.

ACC 470 - SEMINAR/CONTEMP ACCTG ISSUES

Semester Hours: 3

Current topics in professional accounting. Prerequisite: ACC 311.

ACC 480 - PROFESSIONAL CERTIFICATION

Semester Hours: 3

Review of the four areas of the Accounting Standards and Procedures: Regulation, Business Environment and Concepts, Financial Accounting and Reporting, Auditing and Attestation. Knowledge of the concepts in each of the areas is required for professional accounting certification practice.

ACC 490 - SPECIAL PROJECTS

Semester Hours: 1-3

Independent study in an area of interest to the student in the fields of accounting. Department chair permission required.

ACC 495 - INTERNSHIP IN ACCOUNTING

Semester Hours: 1-3

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

Accounting, BSBA - Federal Contract Accounting Concentration

BSBA, Accounting (Federal Contract Accounting Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	

PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 level ECN elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		
Federal Contract Accounting Concentration		21
ACC 307	ACCOUNTING INFORMATION SYS	
ACC 310	INTERM FINANCIAL ACCT I	
ACC 310L	LABORATORY	
ACC 311	INTERM FINANCIAL ACCT II	
ACC 311L	LABORATORY	
ACC 414	COST ACCOUNTING	
ACC 431	PRINCIPLES OF AUDITING	

ACC 440	BASIC GOV CONTRACT ACCTG	
Business Elective: Choose one		
MGT 401	INTRO TO CONTRACT MANAGEMENT	
MGT 402	CONTRACT EVALUATION & AWARD	
MGT 403	CONTRACT PRICING & COST ANALYS	
BLS 406	GOVMT CONTRACT LAW	
Free Electives		6
Select 6 semester hours of free electives		
Total Semester Hours		120
Year 1		
Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
ECN 142	PRINC OF MACROECONOMICS	3
IS 146	COMPUTER APPL IN BUSINESS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
FYE 101	CHARGER SUCCESS	1
Humanities Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Social Behavioral Sciences Elective		3
Science w/Lab		4
Term Semester Hours:		16
Year 2		
Fall		
MSC 287	BUSINESS STATISTICS I	3
BLS 211	LEGAL ENVIRON/BUSINESS	3
Literature		3
Science w/Lab		4
History		3
Term Semester Hours:		16
Spring		
MSC 288	BUSINESS STATISTICS II	3
ACC 210	ACCOUNTING FOR BUSINESS	4
Fine Arts Elective		3
Literature		3
Term Semester Hours:		13
Year 3		
Fall		
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
MGT 301	MANAGING ORGANIZATIONS	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
ACC 310	INTERM FINANCIAL ACCT I	3
ACC 310L	LABORATORY	0
100-400 Level Free Elective		3
Term Semester Hours:		15
Spring		

FIN 301	PRINCIPLES OF FINANCE	3
MKT 301	PRINCIPLES OF MARKETING	3
MSC 385	OPERATIONS ANALYSIS	3
ACC 307	ACCOUNTING INFORMATION SYS	3
ACC 311	INTERM FINANCIAL ACCT II	3
ACC 311L	LABORATORY	0
Term Semester Hours:		15
Year 4		
Fall		
MGT 450	INTERNATIONAL BUSINESS	3
ACC 414	COST ACCOUNTING	3
CM 313	BUSINESS PROFESSIONAL COMM	3
300-400 Level ECN Elective		3
Upper Division Elective		3
Term Semester Hours:		15
Spring		
MGT 499	COMPETITIVE STRATEGY	3
ACC 431	PRINCIPLES OF AUDITING	3
MGT 401	INTRO TO CONTRACT MANAGEMENT	3
or MGT 402	or CONTRACT EVALUATION & AWARD	
or MGT 403	or CONTRACT PRICING & COST ANALYS	
or BLS 406	or GOVMT CONTRACT LAW	
ACC 440	BASIC GOV CONTRACT ACCTG	3
100-400 Level Free Elective		2
Term Semester Hours:		14
Total Semester Hours:		120

Accounting, BSBA - General Accounting Concentration

BSBA, Accounting (General Accounting Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	

EH 242	MYTHOLOGY	
Humanities: Choose one		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	

300-400 level ECN elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	

Code	Title	Semester Hours
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Upper Division Business Degree Requirements	24
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FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		

General Accounting Concentration	21
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ACC 307	ACCOUNTING INFORMATION SYS	
ACC 310	INTERM FINANCIAL ACCT I	
ACC 310L	LABORATORY	
ACC 311	INTERM FINANCIAL ACCT II	
ACC 311L	LABORATORY	
ACC 313	INDIVIDUAL/SMALL BUS INCOME TA	
ACC 414	COST ACCOUNTING	
ACC 431	PRINCIPLES OF AUDITING	
300-400 level ACC elective or BLS 411		

Free Electives	6
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Select 6 semester hours of free electives

Total Semester Hours	120
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Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
ECN 142	PRINC OF MACROECONOMICS	3
IS 146	COMPUTER APPL IN BUSINESS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
FYE 101	CHARGER SUCCESS	1
Humanities		3
Term Semester Hours:		16

Spring

EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Science w/Lab		4
Social Behavioral Sciences		3
Elective		
Term Semester Hours:		16

Year 2

Fall		
MSC 287	BUSINESS STATISTICS I	3

BLS 211	LEGAL ENVIRON/BUSINESS	3
Literature		3
History		3
Science w/Lab		4
Term Semester Hours:		16
Spring		
ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 288	BUSINESS STATISTICS II	3
Fine Arts Elective		3
Literature		3
Term Semester Hours:		13
Year 3		
Fall		
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
MGT 301	MANAGING ORGANIZATIONS	3
ACC 310	INTERM FINANCIAL ACCT I	3
ACC 310L	LABORATORY	0
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
100-400 Level Free Elective		3
Term Semester Hours:		15
Spring		
FIN 301	PRINCIPLES OF FINANCE	3
MKT 301	PRINCIPLES OF MARKETING	3
MSC 385	OPERATIONS ANALYSIS	3
ACC 307	ACCOUNTING INFORMATION SYS	3
ACC 311	INTERM FINANCIAL ACCT II	3
ACC 311L	LABORATORY	0
Term Semester Hours:		15
Year 4		
Fall		
MGT 450	INTERNATIONAL BUSINESS	3
ACC 313	INDIVIDUAL/SMALL BUS INCOME TA	3
ACC 414	COST ACCOUNTING	3
CM 313	BUSINESS PROFESSIONAL COMM	3
Upper Division Business Elective		3
Term Semester Hours:		15
Spring		
MGT 499	COMPETITIVE STRATEGY	3
ACC 431	PRINCIPLES OF AUDITING	3
Accounting Elective		3
300-400 Level ECN Elective		3
100-400 Level Free Elective		2
Term Semester Hours:		14
Total Semester Hours:		120

Certificate in Public Accounting (CPA)

The Alabama State Board of Public Accountancy requires a minimum of both semester hours and course content in order to sit for the CPA examination. The current (2012) requirements are 150 semester hours and content coverage of financial accounting, auditing, taxation, management accounting, governmental and not-for-profit accounting, business law, and accounting electives. Therefore, students considering CPA certification will need course

work in accounting beyond the minimum requirements for the BSBA degree. For complete details and requirements see the web page of the Alabama State Board of Public Accountancy: <https://www.asbpa.alabama.gov/>.

The College's CPA Prep 4 + 1 Program provides an efficient way for students to complete their BSBA in accounting, complete the requirements to sit for the CPA exam, and obtain a Master of Accountancy degree, all in 5 years. The program includes 4 years of undergraduate study (leading to the BSBA with a major in Accounting) plus 1 year of full-time graduate study (culminating in the Master of Accountancy degree). Students who complete the CPA Prep 4 + 1 Program and pass the CPA exam have assembled an impressive set of credentials.

Please refer to the UAH Graduate Catalog for more information on the graduate portion of the program.

Accounting Certificate - Federal Contract Accounting Option

In areas of the country with a high concentration of federal government contractors, accountants are frequently required to understand and comply with the Federal Acquisition Regulations. This knowledge is covered in the Federal Contract Accounting Option. This option is oriented toward individuals who wish to work in areas of the country with a heavy concentration of federal government contractors.

Code	Title	Semester Hours
Business Curriculum		16
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
ECN 143	PRINC OF MICROECONOMICS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
Accounting Curriculum		18
ACC 307	ACCOUNTING INFORMATION SYS	
ACC 310	INTERM FINANCIAL ACCT I	
ACC 311	INTERM FINANCIAL ACCT II	
ACC 313	INDIVIDUAL/SMALL BUS INCOME TA	
ACC 414	COST ACCOUNTING	
ACC 431	PRINCIPLES OF AUDITING	
Federal Contract Accounting Option		12
ACC 440	BASIC GOV CONTRACT ACCTG	
Select Three Federal Contracting Electives ¹		
Total Semester Hours		46

¹ Select from MGT 401, MGT 402, MGT 403, and BLS 406.

Accounting Certificate - General Accounting Option

Code	Title	Semester Hours
Business Curriculum		16
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
ECN 143	PRINC OF MICROECONOMICS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
Accounting Curriculum		18
ACC 307	ACCOUNTING INFORMATION SYS	
ACC 310	INTERM FINANCIAL ACCT I	
ACC 311	INTERM FINANCIAL ACCT II	
ACC 313	INDIVIDUAL/SMALL BUS INCOME TA	
ACC 414	COST ACCOUNTING	

ACC 431	PRINCIPLES OF AUDITING
Total Semester Hours	34

Accounting Certificate - Management Accounting Option

Code	Title	Semester Hours
Business Curriculum		16
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
ECN 143	PRINC OF MICROECONOMICS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
Accounting Curriculum		18
ACC 307	ACCOUNTING INFORMATION SYS	
ACC 310	INTERM FINANCIAL ACCT I	
ACC 311	INTERM FINANCIAL ACCT II	
ACC 313	INDIVIDUAL/SMALL BUS INCOME TA	
ACC 414	COST ACCOUNTING	
ACC 431	PRINCIPLES OF AUDITING	
Management Accounting Option		12
FIN 301	PRINCIPLES OF FINANCE	
MGT 301	MANAGING ORGANIZATIONS	
Select Two 300-400 Level Business Electives		6
Total Semester Hours		52

Completion of the Management Accounting Option, with a careful selection of electives, provides the basic educational background necessary to sit for the CMA examination. See the web page of the Institute of Management Accountants: <http://www.imanet.org/>. However, prior to taking the CMA examination, additional coursework or a rigorous preparatory course may be necessary in order to improve one's ability to pass the examination.

Accounting Certificate - Public Accounting Option

Code	Title	Semester Hours
Business Curriculum		16
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
ECN 143	PRINC OF MICROECONOMICS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
Accounting Curriculum		18
ACC 307	ACCOUNTING INFORMATION SYS	
ACC 310	INTERM FINANCIAL ACCT I	
ACC 311	INTERM FINANCIAL ACCT II	
ACC 313	INDIVIDUAL/SMALL BUS INCOME TA	
ACC 414	COST ACCOUNTING	
ACC 431	PRINCIPLES OF AUDITING	
Public Accounting Option		33
FIN 301	PRINCIPLES OF FINANCE	
MGT 301	MANAGING ORGANIZATIONS	
ACC 413	CORP/PARTNERSHIP/ESTATE TAXES	
ACC 415	ADV FINANCIAL ACCOUNTING	
ACC 417	ACC ST/LOCAL GOV & NON-PROFITS	

ACC 432	ADVANCED AUDITING
300-400 Level ACC Elective	
BLS 411	BUS LAW FOR ACCOUNTANTS
Select Three 300-400 Level Business Electives	
Total Semester Hours	
67	

For additional information regarding CPA exam requirements in the State of Alabama, visit the Alabama State Board of Public Accountancy (<http://www.asbpa.alabama.gov>).

A student interested in obtaining the requirements to sit for the CPA exam in Alabama should contact the College's Director of Graduate Programs at gradbiz@uah.edu.

Economics

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Mission

The Department of Accounting, Economics, and Finance provides academically rigorous programs in accounting, economics, and finance. We strive to teach sound principles and concepts as well as the analytical tools for applications to practical business problems. Through its scholarly activity, the departmental faculty develops and disseminates knowledge related to accounting, economics and finance theory, pedagogy, and practice.

Economics

Economics is a way of thinking about the world. By studying economics you learn how to take complex issues and boil them down to their essence—to see through the messy details to the core of a situation. You'll become a better thinker and a better decision maker. The Economics and Computational Analysis degree program teaches you how to combine economic models, computational tools, and econometric methods to improve business and social decision-making, evaluate economic development strategies, identify entrepreneurial opportunities, and analyze public policy in a world that continues to change the way people communicate, perceive their world, make decisions, and conduct business.

We teach two fundamental skills in our economics program:

1. how to think about complex problems and
2. how to identify and analyze the data you need to solve those problems

These skills are needed desperately in almost all fields. Economists work in many career fields, including banking, international trade, entrepreneurship, finance, national security, consulting, and government. Economics also serves as an excellent foundation for graduate study in law, economics, public policy, business analytics, and other business fields.

We encourage our students to pursue a minor or double major in another discipline because economics blends so smoothly with other programs across the campus. To facilitate this combination of disciplines, our economics degree requirements are very flexible, and many students can double major and still graduate in four years.

Major in Economics

The BS in Economics & Computational Analysis is designed to be coupled with a minor or a double major in another discipline such as finance, sociology, psychology, political science or many others. The degree requirements are very flexible, and many students can double major and still graduate in four years.

- Economics and Computational Analysis, BS (p. 213)

Minor in Economics

The minor in Economics is available to students from any college, including students pursuing a degree in Business Administration.

- Economics (p. 216)

ECN 142 - PRINC OF MACROECONOMICS

Semester Hours: 3

How does our economy function? Why do we have periods of unemployment and inflation and what can we do about it? Economics is a way of thinking about the world, how to identify and focus on fundamental issues so we can understand our economy and how monetary and fiscal policy affects our lives. Prerequisite: any 100 level or 200 level MA course.

ECN 143 - PRINC OF MICROECONOMICS

Semester Hours: 3

How do markets coordinate our unlimited wants with our limited capacity to produce? We study producer and consumer choice in a variety of market structures, the social welfare implications inherent in market systems and policies designed to correct those market failures. Prerequisite: Any 100 level or 200 level MA course.

ECN 340 - MACRO ECONOMIC ANALYSIS

Semester Hours: 3

A comprehensive study of the nation's economic system. How interdependent market systems determine income, consumption, saving, investment, interest, employment, and the aggregate price level. Determinants of economic growth and the effects of monetary and fiscal policy are central issues. Prerequisites: ECN 142 and ECN 143.

ECN 345 - MICRO ECONOMIC ANALYSIS

Semester Hours: 3

This course provides an informed perspective of, and ability to use, microeconomic theory. We develop the analytical tools needed solve problems and focus on the logical foundations of these tools. Core topics include consumer behavior, production, exchange, markets, and game theory. Prerequisites: ECN 142 and ECN 143.

ECN 352 - MONEY AND BANKING

Semester 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

Semester Hours: 3

The course uses economic tools to study market outcomes in sports: the market for talent, labor relations, and the role of government. Specific topics include the demand for sports, sports franchises, and the theory of the firm, compensation of player talent, economics of stadiums, and sports media. Prerequisite: ECN 143.

ECN 411 - ECONOMICS INFORMATION TECH

Semester Hours: 3

Explores economic theories of consumer and firm behavior and strategy in the information technology industry with emphasis on applying formal tools of analysis in real-world contexts. Core topics include cost structures, non-competitive markets, network effects, and game theory. Prerequisites: ECN 143 and MA 120.

ECN 445 - GAMES AND NETWORKS

Semester Hours: 3

An introduction to game theory and economic and social network analysis. Student will explore the use of simple games to understand serious games strategic interactions -- especially in social network settings. Prerequisite: ECN 143.

ECN 450 - INTERNATIONAL BUSINESS

Semester Hours: 3

Cross-discipline course combining theoretical and practical aspects of doing business in the global market. Three modules consisting of international management, marketing and economic/finance cover topics including the legal, socio-political environment, negotiations/diplomacy, import/export mechanics, international distribution, balance of payments, hedging, trade agreements (GATT), and international business strategy.

ECN 454 - INTERNATIONAL ECONOMICS

Semester 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. Prerequisite: FIN 301.

ECN 470 - SEMINAR IN ECONOMICS

Semester 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.

ECN 475 - LABOR ECONOMICS

Semester Hours: 3

Economic analysis of labor markets; labor demand and labor supply at the market and individual level. Topics include individual decisions to supply labor, compensating wage differentials, human capital investment, discrimination in labor markets, pay and productivity, and the role of labor unions. Prerequisite: ECN 143.

ECN 480 - INTRO ECONOMETRICS

Semester Hours: 3

An introduction to the quantitative measurement and analysis of actual economic and business phenomena. Prerequisite: MSC 288.

ECN 481 - RESEARCH PRACTICUM

Semester Hours: 3

The economics research practicum is designed to give students research experience. With the approval of one of the economics' professors, a student teams up with a professor who mentors them through a research project. Prerequisites: ECN 340 and ECN 345.

ECN 490 - SPECIAL PROJECTS

Semester Hours: 3

Faculty guided Independent Study in an area of interest to the student and faculty member. Approval of department chair is required.

ECN 499 - AGENT-BASED COMPUTA ECON

Semester 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.

Economics and Computational Analysis, BS

BS, Economics and Computational Analysis:

- BS degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	

Humanities: Choose one		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	

Code	Title	Semester Hours
Additional Lower Division Economics Degree Requirements		19
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 244	INTRO TO LINEAR ALGEBRA	

MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
100-400 level free elective		
Upper Division Economics Degree Requirements		24
ECN 340	MACRO ECONOMIC ANALYSIS	
ECN 345	MICRO ECONOMIC ANALYSIS	
ECN 411	ECONOMICS INFORMATION TECH	
ECN 445	GAMES AND NETWORKS	
ECN 499	AGENT-BASED COMPUTA ECON	
Select 9 semester hours from the following:		
ECN 406	SPORTS ECONOMICS	
ECN 475	LABOR ECONOMICS	
ECN 470	SEMINAR IN ECONOMICS	
ECN 480	INTRO ECONOMETRICS	
ECN 490	SPECIAL PROJECTS	
Upper Division Electives		15
Minor/Second Major		21
Total Semester Hours		120
Year 1		
Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
ECN 142	PRINC OF MACROECONOMICS	3
Fine Arts Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
ECN 143	PRINC OF MICROECONOMICS	3
Humanities Elective		3
Term Semester Hours:		16
Year 2		
Fall		
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
MSC 287	BUSINESS STATISTICS I	3
Science w/Lab		4
Minor Elective		6
Term Semester Hours:		16
Spring		
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
MSC 288	BUSINESS STATISTICS II	3
ECN 340	MACRO ECONOMIC ANALYSIS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
Minor Elective		3
Term Semester Hours:		15

Year 3**Fall**

ECN 345	MICRO ECONOMIC ANALYSIS	3
300-400 Level ECN Elective		3
Social Behavioral Sciences Elective		3
Minor Elective		6
Term Semester Hours:		15

Spring

ECN 411	ECONOMICS INFORMATION TECH	3
ECN 445	GAMES AND NETWORKS	3
Upper Division Elective		3
100-400 Level Free Elective		3
Minor Elective		3
Term Semester Hours:		15

Year 4**Fall**

Upper Division Elective		6
300-400 Level ECN Elective		3
300-400 Level ECN Elective		3
100-400 Level Free Elective		3
Term Semester Hours:		15

Spring

ECN 499	AGENT-BASED COMPUTA ECON	3
Upper Division Elective		6
Minor Elective		3
Term Semester Hours:		12
Total Semester Hours:		120

Economics Minor

Students can minor in economics by taking 18 semester hours of economics courses. Twelve specific semester hours are required, and the remaining six are electives. A total of twelve semester hours must be at the 300 level or above. ECN 142 and ECN 143 may be counted in both the Charger Foundations and in the economics minor.

For students pursuing a BSBA degree, the 300-400 level ECN elective may be counted in the economics minor. However, any ECN course that is taken as part of the required 21 semester hours for the business major may not be used in the economics minor.

The 18 semester hour minor includes the following courses:

Code	Title	Semester Hours
Required Economics Courses		12
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
ECN 340	MACRO ECONOMIC ANALYSIS	
ECN 345	MICRO ECONOMIC ANALYSIS	
Select 6 semester hours from the following:		6
ECN 352	MONEY AND BANKING	
ECN 406	SPORTS ECONOMICS	
ECN 411	ECONOMICS INFORMATION TECH	
ECN 445	GAMES AND NETWORKS	
ECN 454	INTERNATIONAL ECONOMICS	
ECN 470	SEMINAR IN ECONOMICS	
ECN 475	LABOR ECONOMICS	

ECN 480	INTRO ECONOMETRICS
ECN 499	AGENT-BASED COMPUTA ECON
Total Semester Hours	

18

Finance

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Mission

The Department of Accounting, Economics, and Finance provides academically rigorous programs in accounting, economics, and finance. We strive to teach sound principles and concepts as well as the analytical tools for applications to practical business problems. Through its scholarly activity, the departmental faculty develops and disseminates knowledge related to accounting, economics and finance theory, pedagogy, and practice.

Finance

Finance careers vary widely in today's complex, global economy. Finance graduates may have careers in banking, investments, corporate finance, and federal contract management. Graduates may find themselves helping investment clients develop and monitor investment portfolios for retirement, managing a bank office, making multi-million dollar loans to corporations, taking a private firm public so its stock can be traded on stock exchanges, or managing the budget of a multi-billion dollar federal project.

Majors in Finance

Students who major in Finance may choose from four different concentrations. The details about each of the four options are described at the links below.

- Finance, BSBA - General Finance Concentration (p. 225)
- Finance, BSBA - Corporate Finance Concentration (p. 218)
- Finance, BSBA - Investments and Financial Institutions Concentration (p. 228)
- Finance, BSBA - Federal Government Finance and Contracts Concentration (p. 222)

FIN 100 - PERSONAL FINANCIAL PLANNING

Semester Hours: 3

An introduction to the study of personal money management. Topics include budgeting, home ownership, insurance, investing, and retirement planning. Cannot be used by finance majors as an elective in the major.

FIN 301 - PRINCIPLES OF FINANCE

Semester Hours: 3

A study of the basic principles of modern finance: financial statement analysis, time value of money, security valuation, risk and return, capital investment, cost of capital, and international finance. Prerequisites: ECN 143, MSC 287, and either ACC 210 or ACC 212.

FIN 352 - MONEY & BANKING

Semester 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

Semester 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

Semester Hours: 3

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

FIN 378 - INTERMEDIATE CORPORATE FINANCE

Semester 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

Semester Hours: 4

Small number of students work closely with finance faculty in the UAH 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 or permission of instructor.

FIN 431 - ADVANCED CORPORATE FINANCE

Semester Hours: 3

Financial principles applied to financial management problems such as cash management; payables and receivables management; cost of short-term credit; and forecasting and financial planning. Prerequisites: FIN 378.

FIN 454 - INTERNATIONAL FINANCE

Semester 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

Semester Hours: 3

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

FIN 461 - PORTFOLIO MANAGEMENT

Semester Hours: 3

A continuation of FIN 460 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

Semester Hours: 3

Independent study in an area of interest to the student in the field of finance. Approval of department chair is required.

FIN 495 - INTERNSHIP IN FINANCE

Semester Hours: 1-3

Active involvement 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. Subject to College's guidelines on internships.

Finance, BSBA - Corporate Finance Concentration

BSBA, Finance (Corporate Finance Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	

ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
PHL 103	INTRODUCTION TO LOGIC	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	

History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 Level ECN Elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		
Corporate Finance Concentration		21
FIN 375	FINANCIAL INSTITUTIONS	
FIN 378	INTERMEDIATE CORPORATE FINANCE	
FIN 431	ADVANCED CORPORATE FINANCE	
FIN 454	INTERNATIONAL FINANCE	
FIN 460	INVESTMENTS	
ACC 310	INTERM FINANCIAL ACCT I	
ACC 414	COST ACCOUNTING	
Free Electives		6
Select 6 semester hours of free electives		
Total Semester Hours		120
Year 1		
Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
ECN 142	PRINC OF MACROECONOMICS	3
IS 146	COMPUTER APPL IN BUSINESS	3
MA 107 or MA 112	ALGEBRA WITH APPLICATIONS or PRECALCULUS ALGEBRA	3
FYE 101	CHARGER SUCCESS	1
Humanities Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3

Social Behavioral Sciences		3
Elective		
Science w/Lab		4
Term Semester Hours:		16
Year 2		
Fall		
MSC 287	BUSINESS STATISTICS I	3
ACC 210	ACCOUNTING FOR BUSINESS	4
Literature		3
Fine Arts Elective		3
History		3
Term Semester Hours:		16
Spring		
MSC 288	BUSINESS STATISTICS II	3
BLS 211	LEGAL ENVIRON/BUSINESS	3
FIN 301	PRINCIPLES OF FINANCE	3
Literature		3
Science w/Lab		4
Term Semester Hours:		16
Year 3		
Fall		
MGT 301	MANAGING ORGANIZATIONS	3
MKT 301	PRINCIPLES OF MARKETING	3
FIN 375	FINANCIAL INSTITUTIONS	3
FIN 378	INTERMEDIATE CORPORATE FINANCE	3
100-400 Level Free Elective		2
Term Semester Hours:		14
Spring		
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
MSC 385	OPERATIONS ANALYSIS	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
FIN 431	ADVANCED CORPORATE FINANCE	3
FIN 454	INTERNATIONAL FINANCE	3
Term Semester Hours:		15
Year 4		
Fall		
MGT 450	INTERNATIONAL BUSINESS	3
FIN 460	INVESTMENTS	3
CM 313	BUSINESS PROFESSIONAL COMM	3
ACC 310	INTERM FINANCIAL ACCT I	3
ACC 310L	LABORATORY	0
100-400 Level Free Elective		3
Term Semester Hours:		15
Spring		
MGT 499	COMPETITIVE STRATEGY	3
ACC 414	COST ACCOUNTING	3
300-400 Level ECN Elective		3
Upper Level Business Elective		3
Term Semester Hours:		12
Total Semester Hours:		120

Finance, BSBA - Federal Government Finance and Contracts Concentration

BSBA, Finance (Federal Government Finance and Contracts Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
PHL 103	INTRODUCTION TO LOGIC	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	

PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 Level ECN Elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Upper division business elective (recommended: ACC 310/310L)		
Federal Government Finance and Contracts Concentration		21
FIN 375	FINANCIAL INSTITUTIONS	
FIN 378	INTERMEDIATE CORPORATE FINANCE	
FIN 431	ADVANCED CORPORATE FINANCE	
FIN 454	INTERNATIONAL FINANCE	
ACC 414	COST ACCOUNTING	
ACC 440	BASIC GOV CONTRACT ACCTG	
Major Elective: Choose one		

MGT 401	INTRO TO CONTRACT MANAGEMENT	
MGT 402	CONTRACT EVALUATION & AWARD	
MGT 403	CONTRACT PRICING & COST ANALYS	
BLS 406	GOVMT CONTRACT LAW	
Free Electives		6
Select 6 semester hours of free electives		
Total Semester Hours		120
Year 1		
Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
ECN 142	PRINC OF MACROECONOMICS	3
IS 146	COMPUTER APPL IN BUSINESS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
FYE 101	CHARGER SUCCESS	1
Humanities Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Social Behavioral Sciences Elective		3
Science w/Lab		4
Term Semester Hours:		16
Year 2		
Fall		
ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 287	BUSINESS STATISTICS I	3
Literature		3
History		3
Fine Arts Elective		3
Term Semester Hours:		16
Spring		
MSC 288	BUSINESS STATISTICS II	3
FIN 301	PRINCIPLES OF FINANCE	3
BLS 211	LEGAL ENVIRON/BUSINESS	3
Literature		3
Science w/Lab		4
Term Semester Hours:		16
Year 3		
Fall		
MGT 301	MANAGING ORGANIZATIONS	3
MKT 301	PRINCIPLES OF MARKETING	3
FIN 375	FINANCIAL INSTITUTIONS	3
FIN 378	INTERMEDIATE CORPORATE FINANCE	3
100-400 Level Free Elective		3
Term Semester Hours:		15
Spring		
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
MSC 385	OPERATIONS ANALYSIS	3

IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
FIN 431	ADVANCED CORPORATE FINANCE	3
ACC 310	INTERM FINANCIAL ACCT I	3
ACC 310L	LABORATORY	0
Term Semester Hours:		15
Year 4		
Fall		
MGT 450	INTERNATIONAL BUSINESS	3
ACC 414	COST ACCOUNTING	3
CM 313	BUSINESS PROFESSIONAL COMM	3
300-400 Level ECN Elective		3
100-400 Level Free Elective		2
Term Semester Hours:		14
Spring		
MGT 499	COMPETITIVE STRATEGY	3
ACC 440	BASIC GOV CONTRACT ACCTG	3
MGT 401	INTRO TO CONTRACT MANAGEMENT	3
or MGT 402	or CONTRACT EVALUATION & AWARD	
or MGT 403	or CONTRACT PRICING & COST ANALYS	
or BLS 406	or GOVMT CONTRACT LAW	
FIN 454	INTERNATIONAL FINANCE	3
Term Semester Hours:		12
Total Semester Hours:		120

Finance, BSBA - General Finance Concentration

BSBA, Finance (General Finance Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		

PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
PHL 103	INTRODUCTION TO LOGIC	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 Level ECN Elective ¹		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	

MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		
General Finance Concentration		21
FIN 375	FINANCIAL INSTITUTIONS	
FIN 378	INTERMEDIATE CORPORATE FINANCE	
FIN 431	ADVANCED CORPORATE FINANCE	
FIN 454	INTERNATIONAL FINANCE	
FIN 460	INVESTMENTS	
FIN 461	PORTFOLIO MANAGEMENT	
Major Elective: Choose one		
ACC 310	INTERM FINANCIAL ACCT I	
ACC 313	INDIVIDUAL/SMALL BUS INCOME TA	
ACC 414	COST ACCOUNTING	
ECN 340	MACRO ECONOMIC ANALYSIS	
ECN 345	MICRO ECONOMIC ANALYSIS	
ECN 352	MONEY AND BANKING	
ECN 475	LABOR ECONOMICS	
MGT 401	INTRO TO CONTRACT MANAGEMENT	
MGT 403	CONTRACT PRICING & COST ANALYS	
BLS 406	GOVMT CONTRACT LAW	
Free Electives		6
Select 6 semester hours of free electives		
Total Semester Hours		120

¹ For the Upper Division Economics requirement, a student may not choose an economics course taken in their major.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
ECN 142	PRINC OF MACROECONOMICS	3
IS 146	COMPUTER APPL IN BUSINESS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
FYE 101	CHARGER SUCCESS	1
Humanities Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Social Behavioral Sciences Elective		3

Science w/Lab		4
Term Semester Hours:		16
Year 2		
Fall		
MSC 287	BUSINESS STATISTICS I	3
ACC 210	ACCOUNTING FOR BUSINESS	4
Literature		3
History		3
Fine Arts Elective		3
Term Semester Hours:		16
Spring		
MSC 288	BUSINESS STATISTICS II	3
BLS 211	LEGAL ENVIRON/BUSINESS	3
FIN 301	PRINCIPLES OF FINANCE	3
Literature		3
Science w/Lab		4
Term Semester Hours:		16
Year 3		
Fall		
MGT 301	MANAGING ORGANIZATIONS	3
MKT 301	PRINCIPLES OF MARKETING	3
FIN 375	FINANCIAL INSTITUTIONS	3
FIN 378	INTERMEDIATE CORPORATE FINANCE	3
Upper Level Business Elective		3
Term Semester Hours:		15
Spring		
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
MSC 385	OPERATIONS ANALYSIS	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
FIN 431	ADVANCED CORPORATE FINANCE	3
FIN 454	INTERNATIONAL FINANCE	3
Term Semester Hours:		15
Year 4		
Fall		
MGT 450	INTERNATIONAL BUSINESS	3
FIN 460	INVESTMENTS	3
CM 313	BUSINESS PROFESSIONAL COMM	3
300-400 Level ECN Elective		3
100-400 Level Free Elective		2
Term Semester Hours:		14
Spring		
MGT 499	COMPETITIVE STRATEGY	3
FIN 461	PORTFOLIO MANAGEMENT	3
100-400 Level Free Elective		3
Major Elective		3
Term Semester Hours:		12
Total Semester Hours:		120

Finance, BSBA - Investments and Financial Institutions Concentration

BSBA, Finance (Investments and Financial Institutions Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
PHL 103	INTRODUCTION TO LOGIC	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	

PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 Level ECN Elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Upper Level Business Elective		
Investments and Financial Institutions Concentration		21
FIN 375	FINANCIAL INSTITUTIONS	
FIN 378	INTERMEDIATE CORPORATE FINANCE	
FIN 431	ADVANCED CORPORATE FINANCE	
FIN 454	INTERNATIONAL FINANCE	
FIN 460	INVESTMENTS	
FIN 461	PORTFOLIO MANAGEMENT	
Major Elective: Choose one		
MKT 315	SALES MGT/PROF SELLING	
MKT 420	SERVICES MARKETING	
MKT 332	BUYER BEHAVIOR	
ACC 414	COST ACCOUNTING	

Free Electives		6
Select 6 semester hours of free electives		
Total Semester Hours		120
Year 1		
Fall	Semester Hours	
EH 101	COLLEGE WRITING I	3
ECN 142	PRINC OF MACROECONOMICS	3
IS 146	COMPUTER APPL IN BUSINESS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
FYE 101	CHARGER SUCCESS	1
Humanities Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Social Behavioral Sciences Elective		3
Science w/Lab		4
Term Semester Hours:		16
Year 2		
Fall		
ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 287	BUSINESS STATISTICS I	3
Literature		3
History		3
Fine Arts Elective		3
Term Semester Hours:		16
Spring		
MSC 288	BUSINESS STATISTICS II	3
BLS 211	LEGAL ENVIRON/BUSINESS	3
FIN 301	PRINCIPLES OF FINANCE	3
Literature		3
Science w/Lab		4
Term Semester Hours:		16
Year 3		
Fall		
MGT 301	MANAGING ORGANIZATIONS	3
MKT 301	PRINCIPLES OF MARKETING	3
FIN 375	FINANCIAL INSTITUTIONS	3
FIN 378	INTERMEDIATE CORPORATE FINANCE	3
Upper Level Business Elective		3
Term Semester Hours:		15
Spring		
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
MSC 385	OPERATIONS ANALYSIS	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
FIN 431	ADVANCED CORPORATE FINANCE	3
FIN 454	INTERNATIONAL FINANCE	3
Term Semester Hours:		15

Year 4**Fall**

MGT 450	INTERNATIONAL BUSINESS	3
FIN 460	INVESTMENTS	3
CM 313	BUSINESS PROFESSIONAL COMM	3
300-400 Level ECN Elective		3
100-400 Level Free Elective		2
Term Semester Hours:		14

Spring

FIN 461	PORTFOLIO MANAGEMENT	3
MGT 499	COMPETITIVE STRATEGY	3
MKT 315	SALES MGT/PROF SELLING	3
or MKT 332	or BUYER BEHAVIOR	
or MKT 420	or SERVICES MARKETING	
or ACC 414	or COST ACCOUNTING	
100-400 Level Free Elective		3
Term Semester Hours:		12
Total Semester Hours:		120

Information Systems

Department Chair, Fan Tseng

355 Business Administration Building

Telephone: 256.824.6680

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Mission

The Department of Management, Marketing and Information Systems provides academically rigorous instruction on the use of analytical tools and theoretical concepts in information systems, management, management science, and marketing to help students understand and apply them to practical business problems in scientific, technological and traditional business environments, non-profits, and government agencies. The departmental faculty also develops and disseminates knowledge on diverse topics related to the information systems and assurance, management, management science, and marketing.

Information Systems

The major in information systems (IS) is designed for students who want to become administrators or designers of information systems that utilize computers in business or administrative environments. IS subject matter includes computer hardware, computer software, database design, data communication, electronic commerce, systems analysis and design methodologies, information assurance, and behavioral issues and business or administrative context within which computer systems are applied.

We encourage Information Systems majors to use one of the electives in their degree program to take IS 495, Internship in Information Systems.

Majors in Information Systems

Students who major in Information Systems may focus their programs toward analytics or cybersecurity. The specifics about these two options are provided at the links below.

- Information Systems, BSBA - Business Analytics and Supply Chains Concentration (p. 234)
- Information Systems, BSBA - Cybersecurity and Information Assurance Concentration (p. 237)

IS 146 - COMPUTER APPL IN BUSINESS

Semester Hours: 3

Study of computer solutions to business problems. Overview of hardware/software systems and of data and information processing in organizations. Extensive use of Microsoft Office and other software for word processing, spreadsheet, presentation, and database applications related to business.

IS 210 - INTRO COMP PROG IN BUS

Semester Hours: 3

Fundamentals of business programming using languages such as Python, PHP, JavaScript, JQuery and HTML5. Prerequisite: IS 146.

IS 301 - INFO SYSTEMS IN ORGANIZATIONS

Semester Hours: 3

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

IS 310 - ADV COMP PROGRAMMING IN BUS

Semester Hours: 3

Advanced business language features, control language and file handling, object oriented programming, software quality and maintenance. Workflow programming is also covered. Prerequisite: IS 210.

IS 340 - DATA BASES FOR MANAGEMENT

Semester Hours: 3

The management of data resources to effectively support the information systems of organizations. The course focuses on relational database model and Oracle SQL. It provides students with extensive experiences in formulating and executing SQL queries to retrieve and manipulate information from a relational database management system. Prerequisite: IS 310.

IS 351 - ENTERPRISE SYSTEMS

Semester Hours: 3

This course examines the concepts and uses of enterprise systems to integrate all aspects of an organization into one information system. Specific attention is given to how ERP systems facilitate the flow of information supporting core business processes and the organization's supply chain. The course will emphasize the adaptation of ERP systems to support the organizational structures and business processes of the particular company to efficiently and effectively manage a firm's business. Prerequisites: IS 301.

IS 401 - SURV OF INFORMATION ASSURANCE

Semester Hours: 3

Provides a managerial and technical overview of cybersecurity and introduces students to the complexity of the security issues facing organizations. Presents practices and standards for assessing security risks and managerial and technical approaches to minimize such risks. Prerequisite: IS 301.

IS 412 - MODERN SYSTEM ANALYSIS & DESGN

Semester Hours: 3

Identifying, analyzing, developing and acquiring information systems are central to the information systems discipline. The course covers identifying, conceptualizing and analyzing business opportunities where information systems applications can add value followed by design, development, and implementation of such applications. Planning for and management of this core IS activity is a critical organizational competence. Prerequisites: IS 301, IS 310, and IS 340.

IS 422 - SUPPLY CHAIN MANAGEMENT SYSTEM

Semester 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. Prerequisite: IS 301.

IS 450 - CYBERSECURITY MANAGEMENT

Semester Hours: 3

Examines management issues associated with cybersecurity system planning, implementation, control and assurance. Specific emphasis is on security system controls and their evaluation, compliance, governance, security policies, ethical and legal issues, and risk management. Recent developments in IT, such as client-server systems, cloud computing and the Internet, and their impact on policies, laws are also considered. Prerequisite: IS 301.

IS 460 - TELECOMMUNICATIONS & NETWORK'G

Semester Hours: 3

An overview of the IT infrastructure in modern organizations. The course starts from basic telecommunications networking concepts to digital platforms and ecosystems in the market. Prerequisite: IS 301.

IS 463 - COMPUTER FORENSICS

Semester 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. This course is lab intensive and students are expected to gain hands-on experience through learning to use various forensic software. Several information security topics nonspecific to forensics will also be covered. Prerequisite: IS 301.

IS 471 - BUSINESS INTELLIGENCE & ANALYT

Semester Hours: 3

Fosters data-analytical thinking. Uses real-world examples and cases to explore the use of big data for business decision-making and how Business Intelligence and Analytics (BIA) enhances business competitiveness. Provides hands-on experience mining data using many BIA tools. Prerequisite: IS 301.

IS 477 - NETWORK DEFENSE/OPERATING SYS

Semester Hours: 3

Introduction to network security issues and practical applications. Addresses 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 301 and IS 460.

IS 480 - CURRENT TOPICS IN MGT INFO SYS

Semester Hours: 3

Prerequisite: IS 301.

IS 490 - SPECIAL PROJECTS

Semester Hours: 3

IS 491 - IS MANAGEMENT & STRATEGY

Semester Hours: 3

This course emphasizes the integration of various principles, theories, and techniques for implementing, deploying and managing enterprise information systems in organizations to gain strategic and operational advantages. Includes lectures, tours, readings, cases, and the completion of a major project. Normally taken during a student's last semester of studies. Prerequisites: IS 340 and either IS 351 or 460. Prerequisite with concurrency: IS 412.

IS 495 - INTERN IN INFO SYSTEMS

Semester Hours: 1-3

Information Systems, BSBA - Business Analytics and Supply Chains Concentration

BSBA, Information Systems (Business Analytics and Supply Chains Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	

Humanities:	3
CM 113	Intro to Rhetorical Communication
Any WLC Course 100 or 200 level	
PHL 101	INTRODUCTION TO PHILOSOPHY
PHL 102	INTRO TO ETHICS
PHL 103	INTRODUCTION TO LOGIC
PHL 150	TECH, SCIENCE & HUMAN VALUES
WGS 200	INTRO WOMEN'S & GENDER STUDIES
Mathematics and Natural Sciences	11
Mathematics: Choose one	3
MA 107	ALGEBRA WITH APPLICATIONS
MA 110	FINITE MATHEMATICS
MA 112	PRECALCULUS ALGEBRA
Natural Sciences: Choose two	8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III
History or Social and Behavioral Sciences	12
History: Choose one	3
HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877
Social and Behavioral Sciences: Choose one	3
PY 101	GENERAL PSYCHOLOGY I
SOC 100	INTRO TO SOCIOLOGY
SOC 105	INTRO CULTURAL ANTHROPOLOGY
PSC 101	INTRO TO AMERICAN GOVERNMENT
History or Social and Behavioral Science	6
ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
Pre-professional Courses	28
MA 120	MATH PROFESSIONAL APPLICATIONS
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING
CM 313	BUSINESS & PROFESSIONAL COMM
300-400 level ECN elective	

ACC 210	ACCOUNTING FOR BUSINESS
BLS 211	LEGAL ENVIRON/BUSINESS
IS 146	COMPUTER APPL IN BUSINESS
MSC 287	BUSINESS STATISTICS I
MSC 288	BUSINESS STATISTICS II

Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		
Business Analytics and Supply Chains Degree Requirements		21
IS 412	MODERN SYSTEM ANALYSIS & DESGN	
IS 310	ADV COMP PROGRAMMING IN BUS	
IS 340	DATA BASES FOR MANAGEMENT	
IS 351	ENTERPRISE SYSTEMS	
IS 471	BUSINESS INTELLIGENCE & ANALYT	
IS 422	SUPPLY CHAIN MANAGEMENT SYSTEM	
IS 491	IS MANANGEMENT & STRATEGY	
Free Electives		6
Select 6 semester hours of free electives (IS 210 recommended)		6
Total Semester Hours		120

Year 1

Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
IS 146	COMPUTER APPL IN BUSINESS	3
ECN 142	PRINC OF MACROECONOMICS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
Social Behavioral Sciences Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Humanities Elective		3
Science w/Lab		4
Term Semester Hours:		16

Year 2

Fall		
MSC 287	BUSINESS STATISTICS I	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
IS 210	INTRO COMP PROG IN BUS	3

IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
Science w/Lab		4
Term Semester Hours:		16
Spring		
ACC 210	ACCOUNTING FOR BUSINESS	4
BLS 211	LEGAL ENVIRON/BUSINESS	3
MSC 288	BUSINESS STATISTICS II	3
IS 310	ADV COMP PROGRAMMING IN BUS	3
MGT 301	MANAGING ORGANIZATIONS	3
Term Semester Hours:		16
Year 3		
Fall		
CM 313	BUSINESS PROFESSIONAL COMM	3
MSC 385	OPERATIONS ANALYSIS	3
FIN 301	PRINCIPLES OF FINANCE	3
IS 340	DATA BASES FOR MANAGEMENT	3
IS 351	ENTERPRISE SYSTEMS	3
Term Semester Hours:		15
Spring		
IS 412	MODERN SYSTEM ANALYSIS DESGN	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
MKT 301	PRINCIPLES OF MARKETING	3
300-400 Level ECN Elective		3
Term Semester Hours:		15
Year 4		
Fall		
MGT 450	INTERNATIONAL BUSINESS	3
IS 471	BUSINESS INTELLIGENCE ANALYT	3
Upper Level Business Elective		3
History		3
100-400 Level Free Elective		2
Term Semester Hours:		14
Spring		
MGT 499	COMPETITIVE STRATEGY	3
IS 491	IS MANANGEMENT STRATEGY	3
IS 422	SUPPLY CHAIN MANAGEMENT SYSTEM	3
Fine Arts Elective		3
Term Semester Hours:		12
Total Semester Hours:		120

Information Systems, BSBA - Cybersecurity and Information Assurance Concentration

BSBA, Information Systems (Cybersecurity and Information Assurance Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.

- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities:		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	

History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	
or EH 301	TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 level ECN elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
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MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		
Cybersecurity and Information Assurance		21
IS 310	ADV COMP PROGRAMMING IN BUS	
IS 340	DATA BASES FOR MANAGEMENT	
IS 412	MODERN SYSTEM ANALYSIS & DESGN	
IS 460	TELECOMMUNICATIONS & NETWORK'G	
IS 463	COMPUTER FORENSICS	
IS 477	NETWORK DEFENSE/OPERATING SYS	
IS 491	IS MANANGEMENT & STRATEGY	
Free Electives		6
Select 6 semester hours of free electives (IS 210 Recommended)		6
Total Semester Hours		120

Year 1

Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3

IS 146	COMPUTER APPL IN BUSINESS	3
ECN 142	PRINC OF MACROECONOMICS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
Social Behavioral Sciences		3
Elective		
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Science w/Lab		4
Humanities Elective		3
Term Semester Hours:		16
Year 2		
Fall		
MSC 287	BUSINESS STATISTICS I	3
IS 210	INTRO COMP PROG IN BUS	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
Science w/Lab		4
Term Semester Hours:		16
Spring		
ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 288	BUSINESS STATISTICS II	3
BLS 211	LEGAL ENVIRON/BUSINESS	3
IS 310	ADV COMP PROGRAMMING IN BUS	3
MGT 301	MANAGING ORGANIZATIONS	3
Term Semester Hours:		16
Year 3		
Fall		
CM 313	BUSINESS PROFESSIONAL COMM	3
MSC 385	OPERATIONS ANALYSIS	3
FIN 301	PRINCIPLES OF FINANCE	3
IS 460	TELECOMMUNICATIONS NETWORK'G	3
IS 340	DATA BASES FOR MANAGEMENT	3
Term Semester Hours:		15
Spring		
EH 208	READINGS LITERATURE/CULTURE 2	3
or EH 207	or READINGS LITERATURE/CULTURE I	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
MKT 301	PRINCIPLES OF MARKETING	3
IS 412	MODERN SYSTEM ANALYSIS DESGN	3
300-400 Level ECN Elective		3
Term Semester Hours:		15
Year 4		
Fall		
MGT 450	INTERNATIONAL BUSINESS	3
IS 463	COMPUTER FORENSICS	3
Upper Level Business		3
Elective		

History		3
100-400 Level Free Elective		2
Term Semester Hours:		14
Spring		
MGT 499	COMPETITIVE STRATEGY	3
IS 491	IS MANAGEMENT STRATEGY	3
IS 477	NETWORK DEFENSE/OPERATING SYS	3
Fine Arts Elective		3
Term Semester Hours:		12
Total Semester Hours:		120

Management

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Mission

The Department of Management, Marketing and Information Systems provides academically rigorous instruction on the use of analytical tools and theoretical concepts in information systems, management, management science, and marketing to help students understand and apply them to practical business problems in scientific, technological and traditional business environments, non-profits, and government agencies. The departmental faculty also develops and disseminates knowledge on diverse topics related to the information systems and assurance, management, management science, and marketing.

Management

A major in management prepares students for a wide range of professional managerial occupations. The management major is structured to provide the broad education students will need for flexibility and mobility as future managers in business, non-profit, or governmental organizations. Students may elect one of four concentrations.

The Human Resource Management (p. 253) concentration focuses on managing human behavior in organizations and the organizational functions of human resource management. This concentration is appropriate for students planning to work in positions with responsibilities for compensation management, employee relations, recruiting, staffing, human resource planning, training and development, and union-management relations.

The Acquisition Management (p. 246) concentration focuses on the management of government contracts. It includes pre and post-award contract administration, cost and price analysis, contract negotiation, and government contract law. This concentration is designed to prepare students for entry-level professional positions in acquisition management with the federal government or in similar positions with government contractors.

The Supply Chain Management (p. 256) concentration focuses on transportation, logistics, inventory management, distribution operations, and information systems as applied to supply chain integration, and on strategic decision making in the management of a firm's supply chain. The concentration is designed to prepare students for careers in military logistics with the Department of Defense and for managing supply chains in private sector firms.

The General Management (p. 249) concentration is offered for students whose career goals require a broad knowledge of the functional areas of management rather than a specialization in a particular field. This concentration allows students maximum flexibility in customizing their major field coursework to fit their particular career ambitions. For example, students considering careers in international business may wish to plan their program of study to accommodate such career goals.

Major in Management

Students who major in Management may focus their program on human resource management, acquisitions management (sometimes called federal procurement), supply chain management, or general management. These concentrations provide different perspectives and offer different entry-level career options. Details about each of the management major concentration options are provided at the links below.

- Management, BSBA - Human Resource Management Concentration (p. 253)
- Management, BSBA - Acquisition Management Concentration (p. 246)
- Management, BSBA - Supply Chain Management Concentration (p. 256)
- Management, BSBA - General Management Concentration (p. 249)

Minors in Management

The College of Business Administration offers several minors in business and management topics for students from across campus. Students in the College of Arts, Humanities, and Social Sciences and in the College of Science often couple one of the business minors with their undergraduate degree program. For students in the Colleges of Science and Engineering, the 4+1 progression described below provides graduates with a Pre-MBA minor that fulfills many of the foundation requirements of the UAH MBA.

*Available to students enrolled in the B.S. Business Administration degree program.

** Available to students enrolled in the B.S. Business Administration degree program, except Management majors.

- Entrepreneurship* (p. 260)
- Human Resource Management* (p. 260)
- International Business* (p. 261)
- Management and Leadership** (p. 262)
- Business (p. 260)
- Pre-Law Business (p. 262)
- Pre-MBA (p. 263)
- 4 + 1 Recommended Progression for Science & Engineering Students to Achieve a Pre-MBA Minor and One-Year MBA (p. 263)

Certificate in Management

- Human Resource Management (p. 263)

MGT 100 - INTRO TO BUSINESS

Semester Hours: 1-3

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

MGT 101 - INTRO ENTREPRENEURSHIP

Semester 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

Semester Hours: 3

Introduces management theories, roles, functions, and processes that facilitate the successful operation of organizations. Provides 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

Semester Hours: 3

Concepts drawn from theories on career development, human capital, social networks, labor markets, and strategic management will provide a theoretical foundation for students to formulate short- and long- term career goals and a strategic plan for achieving those goals.

MGT 361 - ORGANIZATIONAL BEHAVIOR

Semester 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. Prerequisite: MGT 301.

MGT 363 - HUMAN RESOURCE & LABOR REL MGT

Semester Hours: 3

Theories and practices related to human resource management functions, including strategic planning, internal and external staffing, training and development, compensation management, employee and labor relations, and international human resource management. Prerequisite with concurrency: MGT 301.

MGT 401 - INTRO TO CONTRACT MANAGEMENT

Semester 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 & AWARD

Semester Hours: 3

Study of the evaluation, award, and post-award aspects of the contracting process, focusing on federal government contracting. Covers acquisition and past performance evaluation; the proposal receipt process; and post-award contract administration, closeout, modifications, and dispute resolution.

Prerequisite: MGT 401.

MGT 403 - CONTRACT PRICING & COST ANALYSIS

Semester Hours: 3

Study of methods of price analysis and cost estimation and analysis. Covers data sources, legal requirements, rates, definitions, projection methods, factors affecting profits/fees, the weighted guidelines technique, statistical analysis methods, and learning curve theory.

MGT 405 - NEW VENTURE STRATEGIES

Semester Hours: 3

Theory and application of strategies for start-up, operation, and control of new ventures. Roles of entrepreneurship in the economy. Case studies of corporate and independent new ventures. Prerequisite: MGT 301 and MKT 301.

MGT 408 - TEAMWORK & TEAM PROCESSES

Semester 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. The types of research designs that are typically used in team research are addressed. Junior standing required.

MGT 410 - LEADERSHIP, PERSONAL DEV & ORG

Semester 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.

Prerequisite: MGT 301.

MGT 411 - SUPPLY CHAIN MANAGEMENT

Semester 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. Prerequisite: MSC 287.

MGT 450 - INTERNATIONAL BUSINESS

Semester Hours: 3

Explores the economic, social, political, cultural, and legal environment of global business operations and considers how environmental effects on business programs and strategies. Relies on a variety of conceptual, methodological and application perspectives. Prerequisite: MGT 301, MKT 301, and FIN 301.

MGT 460 - EMPLOYEE STAFFING & DEVELOPMENT

Semester Hours: 3

The study of employee staffing and development concepts, issues and tools. 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.

Prerequisite: MGT 301 and MGT 363, and either IS 301, MKT 301, or FIN 301.

MGT 461 - STRATEGIC COMPENSATION MGMT

Semester Hours: 3

Introduction to management of employees' compensation. Overview of compensation practices, behavioral and economic theories of compensation, and research on compensation programs. Prerequisites: MSC 287 and MGT 363.

MGT 462 - EMPLOYMENT LAW FOR MANAGERS

Semester Hours: 3

The study of government regulation of the management of human resources. Examines employer responsibilities and employee rights under federal state law pertaining to separations, discrimination, compensation and other terms of employment, worker safety and health, privacy, and unions.

MGT 470 - SPEC TOPICS SEMINAR IN MGMT

Semester Hours: 3

In-depth study of a selected topic relevant to contemporary management. Different sections of this course may address different topics.

MGT 490 - SPECIAL PROJECTS

Semester Hours: 1-3

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. Approval of department chair is required.

MGT 494 - PRACTICUM IN MANAGEMENT

Semester Hours: 3

Student teams will apply management concepts and skills in a semester-long business simulation or management project conducted for a client firm or non-profit. The teams will be closely supervised by a faculty member with expertise related to the simulation or project. Prerequisite: MGT 301, MSC 287, and MSC 288.

MGT 495 - INTERNSHIP IN MANAGEMENT

Semester Hours: 1-3

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. Subject to College's guidelines on internships.

MGT 499 - COMPETITIVE STRATEGY

Semester Hours: 3

Addresses formulation & implementation of business/corporate level strategies: defining the mission, setting goals and objectives, analyzing current operating conditions and the organization's environment, and setting a unified strategic direction. Recommended taking during final semester of degree. Upper division standing required. Student must obtain a grade of C or higher. Prerequisite: MGT 301, MKT 301, FIN 301, EH 300, IS 301, and MSC 385.

MSC 287 - BUSINESS STATISTICS I

Semester Hours: 3

Introduction to probability & business statistics. Covers: tabular, graphical, and numerical methods for descriptive statistics; measures of central tendency, dispersion, & association; probability distributions; sampling & sampling distributions; and confidence intervals. Uses spreadsheets to solve problems. Prerequisite: Any 100 level MA course.

MSC 288 - BUSINESS STATISTICS II

Semester Hours: 3

Inferential statistics for business decisions. Topics include: review of sampling distributions and estimation; inferences about means, proportions, and variances with one and two populations; good of fit tests; analysis of variance and experimental design; simple linear regression; multiple linear regression; non parametric methods. Prerequisite: MSC 287.

MSC 385 - OPERATIONS ANALYSIS

Semester Hours: 3

Survey of the firm's production function and quantitative tools for solving production problems, quality management, learning curves, assembly and waiting lines, linear programming, inventory, and other selected topics (e.g., scheduling, location, supply chain management). Uses the SAP software. Prerequisite: MSC 288.

MSC 410 - TRANSPORTATION & LOGISTICS

Semester 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. Prerequisite: MKT 301.

MSC 412 - ARMY SENIOR LOGISTICIAN-ADV

Semester Hours: 3

The Senior Logistician Advanced Course (SLAC) is part of the U.S. Army's new Master Logistician Certificate Program for logistics management specialists within the 0346 occupational series. SLAC is an 80-hour academic learning experience designed to improve senior logistician competencies at the strategic level. The program is organized around the logistics management specialist's 12 competencies, and the coursework is specially designed to better develop and further enrich the thinking and skills of the Army's Senior Logisticians. Special approval and enrollment in CPCS U.S. Army Senior Logistician Advanced Course required.

MSC 470 - SPECIAL TOPICS IN MGMT SCI

Semester Hours: 3

In depth study of a selected topic relevant to contemporary management science. Different sections of this course may address different topics.

MSC 490 - SPECIAL PROJECTS

Semester Hours: 3

Independent study in an area of interest to the student in the field of management science. Approval of department chair is required.

MSC 494 - PRACTICUM IN MANAGEMENT SCIENC

Semester Hours: 3

Student teams will apply management science concepts and skills in a semester-long simulation or management science project conducted for a client firm or non-profit. The teams will be closely supervised by a faculty member with expertise related to the simulation or project. Prerequisite: MSC 287, MSC 288 and MSC 385.

MSC 495 - INTERN IN MGMT SCIENCE

Semester Hours: 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. Subject to College's guidelines on internships.

MSC 500 - DEC SUPPORT SYS/EXPT SYS

Semester Hours: 3

Analysis of information support systems which aid the manager in the decision making process.

MSC 510 - TRANSPORTATION & LOGISTICS

Semester Hours: 3

An analysis of transportation and logistical services to include customer service, distribution operations, purchasing, order processing, facility design and operations, carrier selection, vehicle routing, and transportation costs. Understanding of business statistics is required. Prerequisite: MGT 600.

MSC 512 - ARMY SENIOR LOGISTICIAN-ADV

Semester Hours: 3

The Senior Logistician Advanced Course (SLAC) is part of the U.S. Army's new Master Logistician Certificate Program for logistics management specialists within the 0346 occupational series. SLAC is an 80-hour academic learning experience designed to improve senior logistician competencies at the strategic level. The program is organized around the logistics management specialist's 12 competencies, and the coursework is specially designed to better develop and further enrich the thinking and skills of the Army's Senior Logisticians. Special approval and enrollment in CPCS U.S. Army Senior Logistician Advanced Course required.

MSC 570 - SPECIAL TOPICS IN MGMT SCI

Semester Hours: 3

In depth study of a selected topic relevant to contemporary management science. Different sections of this course may address different topics.

MSC 595 - INTERNSHIP IN MANAGEMENT SCIEN

Semester Hours: 1-3

Active involvement in a project in a business enterprise, professional organization or government agency that has particular interest and relevance to the student.

MSC 600 - QUANTITATIVE METHODS

Semester Hours: 3

An introduction to and application of several fundamental quantitative methods and business analytics tools in business. Topics include probability distributions, sampling distributions, confidence interval estimation, hypothesis testing, ANOVA, linear regression, linear optimization, and simulation. Basic proficiency in Excel is required. Prerequisite: MSC 600.

MSC 605 - OPERATIONS MANAGEMENT

Semester Hours: 3

This course discusses the management of the operations function for the creation of goods and services and its relationship with other business functions in service, manufacturing, and government organizations. Topics include operations strategy and infrastructure decisions, merging process technologies, planning and scheduling, inventory management, just-in-time systems, quality management, six sigma and lean operations. Concepts are illustrated using the SAP software. Prerequisite: MSC 600.

MSC 615 - DECISION MODELING

Semester Hours: 3

This course focuses on tools and methods for modeling, analyzing and solving problems involving business decision making. Spreadsheet analysis, optimization, and simulation techniques will be covered. Topics include linear and nonlinear optimization, network models, decision analysis and simulation of complex models in a spreadsheet environment as well as using other commercial software packages. Proficiency in Excel is required. Prerequisite: MSC 600.

MSC 641 - ADVANCED ANALYTICS

Semester Hours: 3

This course focuses on concepts and methods in business analytics. Topics include data quality and cleaning, predictive modeling, design of experiments, segmentation, forecasting, usage and limitations of models, and interpretation and presentation of results. This course provides a hands-on environment using real data to prepare students to apply these techniques in business environments. Proficiency in Excel is required. Prerequisite: MSC 600.

MSC 650 - SELECTED RESEARCH TOPICS

Semester Hours: 3

Research in a particular topic relevant to management science by one student or a group of students. Each student's research paper must be an original contribution showing a research design and results that meet the highest standard of management science research.

MSC 690 - MANAGING TECH DEVELOPMENT

Semester Hours: 3

MSC 692 - BUSINESS ANALYTICS PRACTICUM

Semester Hours: 3

A capstone course emphasizing rigorously interpreting the results of analytic models and intuitively communicating the derived business insights to business clients and corporate executives. The majority of this course is devoted to a major practical project in which students apply skills learned from previous analytics courses to a real world business problem, preferably in cooperation with a local organization. Prerequisite: Completion (or concurrent enrollment in) all other required courses. Normally taken during the student's last semester of studies.

MSC 699 - MASTER'S THESIS

Semester Hours: 1-3

Required each semester a student is working and receiving direction on a masters thesis. A minimum of two terms is required, but no more than six hours credit is allowed for the thesis.

Management, BSBA - Acquisition Management Concentration

BSBA, Management (Acquisition Management Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities:		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		

PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 level ECN elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	

MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		
Acquisition Management Concentration		21
MGT 361	ORGANIZATIONAL BEHAVIOR	
MGT 363	HUMAN RESOURCE & LABOR REL MGT	
MGT 401	INTRO TO CONTRACT MANAGEMENT	
MGT 402	CONTRACT EVALUATION & AWARD	
MGT 403	CONTRACT PRICING & COST ANALYS	
BLS 406	GOVMT CONTRACT LAW	
300-400 level business elective		
Free Electives		6
Select 6 semester hours of free electives		
Total Semester Hours		120
Year 1		
Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
IS 146	COMPUTER APPL IN BUSINESS	3
ECN 142	PRINC OF MACROECONOMICS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
Social Behavioral Sciences Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Science w/Lab		4
Humanities Elective		3
Term Semester Hours:		16
Year 2		
Fall		
ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 287	BUSINESS STATISTICS I	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
MGT 301	MANAGING ORGANIZATIONS	3
Fine Arts Elective		3
Term Semester Hours:		16

Spring

BLS 211	LEGAL ENVIRON/BUSINESS	3
MSC 288	BUSINESS STATISTICS II	3
MKT 301	PRINCIPLES OF MARKETING	3
MGT 363	HUMAN RESOURCE LABOR REL MGT	3
Science w/Lab		4

Term Semester Hours: 16

Year 3**Fall**

MSC 385	OPERATIONS ANALYSIS	3
FIN 301	PRINCIPLES OF FINANCE	3
MGT 361	ORGANIZATIONAL BEHAVIOR	3
CM 313	BUSINESS PROFESSIONAL COMM	3
MGT 401	INTRO TO CONTRACT MANAGEMENT	3

Term Semester Hours: 15

Spring

EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
MGT 402	CONTRACT EVALUATION AWARD	3
300-400 Level ECN Elective		3

Term Semester Hours: 15

Year 4**Fall**

MGT 403	CONTRACT PRICING COST ANALYS	3
MGT 450	INTERNATIONAL BUSINESS	3
History		3
100-400 Level Free Elective		5

Term Semester Hours: 14

Spring

MGT 499	COMPETITIVE STRATEGY	3
BLS 406	GOVMT CONTRACT LAW	3
300-400 Level Business Elective		3
Upper Division Business Elective		3

Term Semester Hours: 12

Total Semester Hours: 120

Management, BSBA - General Management Concentration

BSBA, Management (General Management Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	

EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities:		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3

PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	
or EH 301	TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 level ECN elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		
General Management Concentration		21
MGT 361	ORGANIZATIONAL BEHAVIOR	
MGT 363	HUMAN RESOURCE & LABOR REL MGT	
MKT 332	BUYER BEHAVIOR	
or MKT 343	MARKET RESEARCH DESIGN	
MGT 320	CAREER DEVELOPMENT	
Select two 300-400 level MGT or MSC electives		
300-400 level business elective		
Free Electives		6
Select 6 semester hours of free electives		
Total Semester Hours		120
Year 1		
Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
IS 146	COMPUTER APPL IN BUSINESS	3
ECN 142	PRINC OF MACROECONOMICS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
Social Behavioral Sciences Elective		3
Term Semester Hours:		16

Spring

EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Humanities Elective		3
Science w/Lab		4

Term Semester Hours: 16

Year 2**Fall**

ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 287	BUSINESS STATISTICS I	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
MGT 301	MANAGING ORGANIZATIONS	3
Fine Arts Elective		3

Term Semester Hours: 16

Spring

BLS 211	LEGAL ENVIRON/BUSINESS	3
MSC 288	BUSINESS STATISTICS II	3
MKT 301	PRINCIPLES OF MARKETING	3
MGT 363	HUMAN RESOURCE LABOR REL MGT	3
Science w/Lab		4

Term Semester Hours: 16

Year 3**Fall**

MSC 385	OPERATIONS ANALYSIS	3
FIN 301	PRINCIPLES OF FINANCE	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
MGT 361	ORGANIZATIONAL BEHAVIOR	3
CM 313	BUSINESS PROFESSIONAL COMM	3

Term Semester Hours: 15

Spring

EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
MKT 332	BUYER BEHAVIOR	3
or MKT 343	or MARKET RESEARCH DESIGN	
MGT 320	CAREER DEVELOPMENT	3
300-400 Level MGT or MSC Elective		3

Term Semester Hours: 15

Year 4**Fall**

MGT 450	INTERNATIONAL BUSINESS	3
Upper Division Business Elective		3
300-400 Level MGT or MSC Elective		3
100-400 Level Free Elective		5

Term Semester Hours: 14

Spring

MGT 499	COMPETITIVE STRATEGY	3
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300-400 Level Business Elective	3
300-400 Level ECN Elective History	3
Term Semester Hours:	12
Total Semester Hours:	120

Management, BSBA - Human Resource Management Concentration

BSBA, Management (Human Resource Management Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities:		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	

CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 level ECN elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		
Human Resource Management Concentration		21
MGT 361	ORGANIZATIONAL BEHAVIOR	
MGT 363	HUMAN RESOURCE & LABOR REL MGT	

MGT 460	EMPLOYEE STAFFING & DEVELOP	
MGT 462	EMPLOYMENT LAW FOR MANAGERS	
MKT 332	BUYER BEHAVIOR	
or MKT 343	MARKET RESEARCH DESIGN	
Experiential Requirement: Choose one		
MGT 495	INTERNSHIP IN MANAGEMENT	
MSC 495	INTERN IN MGMT SCIENCE	
MGT 494	PRACTICUM IN MANAGEMENT	
MGT 490	SPECIAL PROJECTS	
MSC 490	SPECIAL PROJECTS	
MGT 470	SPEC TOPICS SEMINAR IN MGMT	
MKT 465	NEW VENTURES CHALLENGE	
College approved study abroad		
Concentration Elective: Choose one		
CM 451	ORGANIZATIONAL TRNG & DEVELOP	
MGT 461	STRATEGIC COMPENSATION MGMT	
ECN 475	LABOR ECONOMICS	
MGT 320	CAREER DEVELOPMENT	
MGT 408	TEAMWORK & TEAM PROCESSES	
MGT 470	SPEC TOPICS SEMINAR IN MGMT	
MGT 490	SPECIAL PROJECTS	
MGT 494	PRACTICUM IN MANAGEMENT	
College approved study abroad		
Free Electives		6
Select 6 semester hours of free electives		
Total Semester Hours		120

Year 1

Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
IS 146	COMPUTER APPL IN BUSINESS	3
ECN 142	PRINC OF MACROECONOMICS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
Social Behavioral Sciences Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Science w/Lab		4
Humanities Elective		3
Term Semester Hours:		16

Year 2

Fall		
ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 287	BUSINESS STATISTICS I	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
MGT 301	MANAGING ORGANIZATIONS	3

Fine Arts Elective		3
	Term Semester Hours:	16
Spring		
BLS 211	LEGAL ENVIRON/BUSINESS	3
MSC 288	BUSINESS STATISTICS II	3
MKT 301	PRINCIPLES OF MARKETING	3
MGT 363	HUMAN RESOURCE LABOR REL MGT	3
Science w/Lab		4
	Term Semester Hours:	16
Year 3		
Fall		
MSC 385	OPERATIONS ANALYSIS	3
FIN 301	PRINCIPLES OF FINANCE	3
MGT 361	ORGANIZATIONAL BEHAVIOR	3
CM 313	BUSINESS PROFESSIONAL COMM	3
MGT 462	EMPLOYMENT LAW FOR MANAGERS	3
	Term Semester Hours:	15
Spring		
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
MKT 332	BUYER BEHAVIOR ()	3
or MKT 343	or MARKET RESEARCH DESIGN	
MGT 460	EMPLOYEE STAFFING DEVELOP	3
	Term Semester Hours:	15
Year 4		
Fall		
MGT 450	INTERNATIONAL BUSINESS	3
Concentration Elective		3
Experiential Elective		3
History		3
100-400 Level Free Elective		2
	Term Semester Hours:	14
Spring		
MGT 499	COMPETITIVE STRATEGY	3
Upper Division Business Elective		3
100-400 Level Free Elective		3
300-400 Level ECN Elective		3
	Term Semester Hours:	12
	Total Semester Hours:	120

Management, BSBA - Supply Chain Management Concentration

BSBA, Management Supply Chain Management Concentration Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities:		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	

HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 level ECN elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		
Supply Chain Management Concentration		21
MGT 361	ORGANIZATIONAL BEHAVIOR	
MGT 363	HUMAN RESOURCE & LABOR REL MGT	
MSC 410	TRANSPORTATION & LOGISTICS	
MGT 411	SUPPLY CHAIN MANAGEMENT	
IS 422	SUPPLY CHAIN MANAGEMENT SYSTEM	
Select two 300-400 level business electives		
Free Electives		6
Select 6 semester hours of free electives		
Total Semester Hours		120

Year 1

Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
IS 146	COMPUTER APPL IN BUSINESS	3
ECN 142	PRINC OF MACROECONOMICS	3
MA 107 or MA 112	ALGEBRA WITH APPLICATIONS or PRECALCULUS ALGEBRA	3

Social Behavioral Sciences Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Science w/Lab		4
Humanities Elective		3
Term Semester Hours:		16
Year 2		
Fall		
ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 287	BUSINESS STATISTICS I	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
MGT 301	MANAGING ORGANIZATIONS	3
Fine Arts Elective		3
Term Semester Hours:		16
Spring		
BLS 211	LEGAL ENVIRON/BUSINESS	3
MSC 288	BUSINESS STATISTICS II	3
MKT 301	PRINCIPLES OF MARKETING	3
MGT 363	HUMAN RESOURCE LABOR REL MGT	3
Science w/Lab		4
Term Semester Hours:		16
Year 3		
Fall		
MSC 385	OPERATIONS ANALYSIS	3
FIN 301	PRINCIPLES OF FINANCE	3
MGT 361	ORGANIZATIONAL BEHAVIOR	3
MSC 410	TRANSPORTATION LOGISTICS	3
CM 313	BUSINESS PROFESSIONAL COMM	3
Term Semester Hours:		15
Spring		
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
IS 422	SUPPLY CHAIN MANAGEMENT SYSTEM	3
MGT 411	SUPPLY CHAIN MANAGEMENT	3
Term Semester Hours:		15
Year 4		
Fall		
MGT 450	INTERNATIONAL BUSINESS	3
Upper Division Business Elective		3
300-400 Level Business Elective		3
100-400 Level Free Elective		5
Term Semester Hours:		14
Spring		

MGT 499	COMPETITIVE STRATEGY	3
300-400 Level Business Elective		3
300-400 Level ECN Elective		3
History Elective		3
Term Semester Hours:		12
Total Semester Hours:		120

Business Minor

Students may minor in business to facilitate career goals that require a broad knowledge of the functional areas of business. A minor in business includes the following courses:

Code	Title	Semester Hours
Required Courses		21
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
ACC 210	ACCOUNTING FOR BUSINESS	
MSC 287	BUSINESS STATISTICS I ¹	
FIN 375	FINANCIAL INSTITUTIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
Total Semester Hours		21

¹ Students taking SOC 303, PY 300, MA 385, ISE 390 or equivalent introductory statistics can substitute for MSC 287.

Entrepreneurship Minor

Students who have an interest in becoming entrepreneurs or participating in the launch of a new product or service can minor in entrepreneurship by taking 18 semester hours of courses from the management, marketing, and finance departments. This minor helps students develop the following:

- research skills to identify entrepreneurial opportunities for small business startups
- the ability to integrate knowledge from the various business disciplines as they apply to small business management
- an understanding of financial decision making as it applies to entrepreneurship ventures
- the ability to critically analyze competitive strategy

The entrepreneurship minor includes the following courses:

Code	Title	Semester Hours
Required Courses		18
FIN 301	PRINCIPLES OF FINANCE	
MGT 301	MANAGING ORGANIZATIONS	
MGT 405	NEW VENTURE STRATEGIES	
MKT 301	PRINCIPLES OF MARKETING	
MKT 350	MARKETING EMERGING TECHNOLOGY	
MKT 465	NEW VENTURES CHALLENGE	
Total Semester Hours		18

Human Resource Management Minor

A minor in Human Resource Management (HRM) prepares students for careers in HRM. Human resource managers have responsibilities related to recruiting and selecting employees, designing and managing pay and benefits, and employee performance management. An HRM minor is helpful to students who plan to work in a small business where owners/managers have broad managerial responsibilities, including management of employees. An HRM minor is also helpful for students in Science, Engineering and Nursing who manage teams of employees.

The 18 semester hour minor includes the following courses:

Code	Title	Semester Hours
Required Courses		12
MGT 301	MANAGING ORGANIZATIONS	
MGT 361	ORGANIZATIONAL BEHAVIOR	
MGT 363	HUMAN RESOURCE & LABOR REL MGT	
MGT 462	EMPLOYMENT LAW FOR MANAGERS	
Select 6 semester hours from the following:		6
CM 451	ORGANIZATIONAL TRNG & DEVELOP	
ECN 475	LABOR ECONOMICS ¹	
MGT 320	CAREER DEVELOPMENT	
MGT 410	LEADERSHIP, PERSONAL DEV & ORG	
MGT 460	EMPLOYEE STAFFING & DEVELOP ²	
MGT 461	STRATEGIC COMPENSATION MGMT	
MGT 494	PRACTICUM IN MANAGEMENT	
MGT 495	INTERNSHIP IN MANAGEMENT	
Total Semester Hours		18

¹ Students taking ECN 475 will also have to take its prerequisite, ECN 143. We encourage HRM minors to take this class as part of their social science general education requirements.

² For students in the HRM Minor, we will allow the following requisites to substitute for the prerequisites specified in the catalog description of the MGT 460 class: Prerequisites - MGT 301 with a minimum grade of B- or higher. Prerequisite with concurrency - MGT 363.

International Business Minor

Students may minor in international business to facilitate careers in international trade that involve business firms, international organizations, or the U.S. government. For the international business minor, students may fulfill the foreign language requirements by taking 12 semester hours in one or more foreign languages.

A minor in international business includes the following courses:

Code	Title	Semester Hours
Required Courses		31
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
ACC 210	ACCOUNTING FOR BUSINESS	
MSC 287	BUSINESS STATISTICS I	
FIN 375	FINANCIAL INSTITUTIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MGT 450	INTERNATIONAL BUSINESS	
ECN 454	INTERNATIONAL ECONOMICS	
FIN 454	INTERNATIONAL FINANCE	
Select a minimum of 12 semester hours of a foreign language		12
Total Semester Hours		43

Students interested in specializing in international trade should also consider the B.A. in Foreign Languages and International Trade (FLIT) which includes a composite major offered by the College of Arts, Humanities, and Social Sciences in the Department of World Languages and Cultures in cooperation with the College of Business.

Management and Leadership Minor

Students planning for careers that require management and leadership skills may consider a minor in Management and Leadership. The Management and Leadership minor is a campus-wide undergraduate minor. The minor includes required courses from the field of management, and potential elective courses from communications, psychology, sociology, nursing, and political science.

The 18 semester hour minor includes the following courses:

Code	Title	Semester Hours
Required Courses		12
MGT 301	MANAGING ORGANIZATIONS	
MGT 361	ORGANIZATIONAL BEHAVIOR	
MGT 363	HUMAN RESOURCE & LABOR REL MGT	
MGT 462	EMPLOYMENT LAW FOR MANAGERS	
Select 6 semester hours from the following:		6
MGT 410	LEADERSHIP, PERSONAL DEV & ORG	
CM 313	BUSINESS & PROFESSIONAL COMM	
MGT 450	INTERNATIONAL BUSINESS	
MGT 460	EMPLOYEE STAFFING & DEVELOP	
MGT 461	STRATEGIC COMPENSATION MGMT	
MGT 470	SPEC TOPICS SEMINAR IN MGMT	
NUR 406	LEADERSHIP & MGMT IN NURSING	
PSC 304	AMERICAN PRESIDENCY	
PY 375	SOCIAL PSYCHOLOGY	
SOC 375	SOCIAL PSYCHOLOGY	
PY 402	INDUSTRIAL & ORGANIZA PSY	
ISE 402	INDUSTRIAL & ORGANIZA PSY	
SOC 455	SOC OF WORK & OCCUPATION	
SOC 439	COMPLEX ORG INDUSTRIAL SOCIETY	
Total Semester Hours		18

Pre-Law Business Minor

The work of successful lawyers is increasingly associated with the rendering of opinions and counsel on business matters such as banking, insurance, real estate titles, and business contracts.

Each law school determines its own requirements, such as admission criteria, and the number and type of semester hours required. Students planning to enter law school should communicate with the institution before entering this program to ensure requirements are met.

The pre-law business minor includes the following courses:

Code	Title	Semester Hours
Required Courses		25
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
BLS 411	BUS LAW FOR ACCOUNTANTS	
MSC 287	BUSINESS STATISTICS I	
FIN 301	PRINCIPLES OF FINANCE	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
Total Semester Hours		25

Pre-MBA Minor

Students who do not major in business but plan to enter the MBA program should contact the Director of Graduate Programs. A student will be able to shorten the required MBA coursework by 18 graduate semester hours.

The pre-MBA minor consists of the following courses:

Code	Title	Semester Hours
Required Courses		31
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
FIN 301	PRINCIPLES OF FINANCE	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
Total Semester Hours		31

Human Resource Management Certificate

The Certificate in Human Resource Management is designed to serve the needs of individuals who desire to pursue a career in human resource management or who are currently working in the field of human resource management after having earned a bachelor's degree.

Code	Title	Semester Hours
Required Courses		15
MGT 301	MANAGING ORGANIZATIONS	
MGT 363	HUMAN RESOURCE & LABOR REL MGT	
MGT 460	EMPLOYEE STAFFING & DEVELOP	
MGT 461	STRATEGIC COMPENSATION MGMT	
MGT 462	EMPLOYMENT LAW FOR MANAGERS	
Select 9 semester hours of business electives		9
Total Semester Hours		24

4 + 1 Recommended Progression for Science & Engineering students to achieve a Pre-MBA Minor and one-year MBA

Students in UAH's Colleges of Science and Engineering who have an interest in business are encouraged to consider completing a minor in business at the undergraduate level. By following the outline of courses below, students can complete a Pre-MBA minor as part of their BS degree, and then earn their MBA in just one year instead of two.

Code	Title	Semester Hours
Charger Foundation Course Requirements in Business		
Economics		6
Taken as part of Area IV "History, Social and Behavioral Sciences" requirements		
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Calculus		3
Taken as part of Area V "Science or Engineering Course Outside the Major" if not taken in Area III or in the major or minor		
Microcomputer Skills		3

Pre-MBA students must be proficient in the use of operating systems, word processing, spreadsheets, and presentation software. Deficiency in computer skills can be remedied by taking the following:

IS 146	COMPUTER APPL IN BUSINESS	
Or through some other method		
Statistics		6
Taken as part of Area V "Electives" requirement		
Select one of the following:		
MSC 287	BUSINESS STATISTICS I	
MA 385	INTRO TO PROBABILITY & STATIST	
ISE 390	PROB & ENGR STATISTICS I	
And one of the following:		
MSC 288	BUSINESS STATISTICS II	
MA 487	INTRO TO MATH STATISTICS	
ISE 391	PROB/ENGR STAT II	
Total Semester Hours		18

Pre-MBA Minor for Science and Engineering Undergraduate Students

Code	Title	Semester Hours
Required Courses		16
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
Total Semester Hours		16

Marketing

Department Chair, Fan Tseng

355 Business Administration Building

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Email: tsengf@uah.edu

Mission

The Department of Management, Marketing and Information Systems provides academically rigorous instruction on the use of analytical tools and theoretical concepts in information systems, management, management science, and marketing to help students understand and apply them to practical business problems in scientific, technological and traditional business environments, non-profits, and government agencies. The departmental faculty also develops and disseminates knowledge on diverse topics related to the information systems and assurance, management, management science, and marketing.

Marketing

A major in marketing allows those students with interests in developing and marketing products and services to gain the knowledge and skills needed to pursue careers in corporate digital marketing, supply chain in marketing, and general marketing. Since marketing is such a diverse area, the curriculum has been divided into three concentrations.

The Digital Marketing (<https://catalog.uah.edu/undergrad/colleges-departments/business/marketing/marketing-bsba-corporate-marketing-concentration>) concentration focuses on marketing and analytical skills needed by industry and governments to develop effective, profitable social marketing strategies to interact with customers and partners. This concentration covers web analytics, marketing research, web and mobile applications, and online promotion mix. This concentration is designed for students interested in careers such as social media marketing manager, social media strategist, SEO strategist, and online community manager.

The Supply Chain in Marketing (p. 277) concentration involves all areas of the supply chain, from planning to distribution. The supply chain concentration prepares marketing students who are interested in business-to-business marketing to manage inter-organizational relationships that are necessary to integrate the transportation, logistics, purchasing, information technology, and operations across the network of firms. This concentration

is designed to prepare students for careers in supply chain management with industrial firms and public sector organizations such as the Department of Defense and NASA.

The General Marketing (p. 274) concentration is designed for students in Marketing who are interested in business-to-consumer marketing. This concentration helps students develop research skills to identify market opportunities and prepares students with the managerial acumen to be successful in consumer product marketing or in retail management. This concentration gives students the flexibility to customize their major field coursework to fit their particular career ambitions.

Majors in Marketing

Students who major in Marketing may choose to concentrate their programs in digital marketing, supply chain in marketing, or general marketing. The details about each of these concentration options is described at the link below.

- Marketing, BSBA - Digital Marketing Concentration (p. 270)
- Marketing, BSBA - Supply Chain in Marketing Concentration (p. 277)
- Marketing, BSBA - General Marketing Concentration (p. 274)

Minor in Marketing

The Marketing minor is available for all students including those pursuing the B.S. in Business Administration. The minor in Marketing is beneficial for students majoring in disciplines such as communications, sociology, or psychology, and can also be useful for students in science and engineering.

- Marketing (p. 280)

MKT 301 - PRINCIPLES OF MARKETING

Semester Hours: 3

Integration of professional selling techniques and concepts with sales management problems. Addresses objectives and policies for managing a sales force; market analysis methods used for sales forecasts and budgeting; and problems faced by sales management in competition, pricing, and promotions.

MKT 315 - SALES MGT/PROF SELLING

Semester 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 promotion. Prerequisite: MKT 301.

MKT 316 - RETAILING POLICY/MGT

Semester 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.

MKT 332 - BUYER BEHAVIOR

Semester 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 sociocultural actions and reactions as they relate to better understanding of consumption. Prerequisite: MKT 301.

MKT 342 - PROMOTIONAL STRATEGY

Semester 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. Prerequisite: MKT 301.

MKT 343 - MARKET RESEARCH DESIGN

Semester 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. Prerequisite: MKT 301 and either MSC 287&288 or CM 370 or PY 300 or SOC 303.

MKT 344 - MKT RESEARCH APPLICATION

Semester 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.

MKT 345 - MKT CHANNEL STRUCT & STRATEGY

Semester Hours: 3

Marketing channels as a functional are and the alternative choices available to marketing management in developing overall marketing strategy. Institutional structures and dynamic interrelationships in distribution logistics.

MKT 350 - MARKETING EMERGING TECHNOLOGY

Semester 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. Prerequisite: MKT 301.

MKT 405 - NEW VENTURE STRATEGIES

Semester 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. Prerequisite: MKT 301 and MGT 301.

MKT 414 - MARKETING EMERGING TECH

Semester 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. Prerequisite: MKT 301.

MKT 415 - INTERNATIONAL MARKETING

Semester 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. Prerequisite: MKT 301.

MKT 420 - SERVICES MARKETING

Semester Hours: 3

Addresses the challenge of delivering quality service to customers. Focuses on organizations whose core products are services (e.g., banks, hospitals, non-profit organizations) or which depend on service excellence for competitive advantage. Prerequisite: MKT 301.

MKT 465 - NEW VENTURES CHALLENGE

Semester Hours: 3

Students will develop a plan for starting a new business. Relevant business concepts from finance, accounting, marketing, and management useful for business start-ups will be covered in a manner accessible to both non-business and business majors. Prerequisite: MKT 414, MGT 405, and FIN 301.

MKT 470 - SOCIAL MEDIA MARKETING

Semester Hours: 3

The course focuses on how to meet the challenge of brand building in a digital age. It aims to foster the students' acquisition of social media marketing skills, equipping them with relevant knowledge of how to incorporate social media into marketing strategy this way enhancing value to both companies and customers. As future marketers, students will learn how to adopt a customer centric approach to their future marketing tasks, and be guided through a number of hands-on assignments that are immediately applicable to marketing practices. Prerequisite: MKT 301.

MKT 475 - ADVANCED MARKETING SEMINAR

Semester 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. Prerequisite: MKT 301.

MKT 480 - MARKETING MANAGEMENT

Semester Hours: 3

Study of management of marketing function. Addresses setting objectives, organization and control of marketing resources in coordination with other functional areas, identification and selection of market opportunities, competitive strategies, and development of marketing policies and programs. Prerequisite: MKT 301, MKT 332 (with concurrency).

MKT 490 - SPECIAL PROJECTS

Semester Hours: 1-3

Independent study in an area of interest to the student in the field of marketing. Approval of Dept. Chair required.

MKT 494 - PRACTICUM IN MARKETING

Semester Hours: 3

MKT 495 - INTERN IN MARKETING

Semester Hours: 1-3

Active involvement in an 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. Subject to College's guidelines on internships.

Marketing, BSBA - Acquisition Management Concentration

BSBA, Marketing (Acquisition Management Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities:		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11-12
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	

BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
ECN 300 or 400 level		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	

Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
MGT 301	MANAGING ORGANIZATIONS	3
MKT 301	PRINCIPLES OF MARKETING	3
MSC 385	OPERATIONS ANALYSIS	3
MGT 450	INTERNATIONAL BUSINESS	3
MGT 499	COMPETITIVE STRATEGY	3

Select one upper division business elective (300-400 level)	3
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Acquisition Management Concentration	21
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MKT 332	BUYER BEHAVIOR	3
MKT 343	MARKET RESEARCH DESIGN	3
MKT 414	MARKETING EMERGING TECH	3
MKT 480	MARKETING MANAGEMENT	3
MGT 401	INTRO TO CONTRACT MANAGEMENT	3
MGT 403	CONTRACT PRICING & COST ANALYS	3
BLS 406	GOVMT CONTRACT LAW	3

Free Electives	6
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Select 6 semester hours of free electives	6
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Total Semester Hours	120
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Year 1

Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
IS 146	COMPUTER APPL IN BUSINESS	3
ECN 142	PRINC OF MACROECONOMICS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
Social Behavioral Sciences Elective		3

Term Semester Hours:	16
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Spring

EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Humanities		3
Science w/Lab		4

Term Semester Hours:	16
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Year 2

Fall		
ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 287	BUSINESS STATISTICS I	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
MKT 301	PRINCIPLES OF MARKETING	3
Fine Arts Elective		3

Term Semester Hours:	16
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Spring

BLS 211	LEGAL ENVIRON/BUSINESS	3
MSC 288	BUSINESS STATISTICS II	3
MGT 301	MANAGING ORGANIZATIONS	3
MKT 332	BUYER BEHAVIOR	3
Science w/Lab		4

Term Semester Hours:	16
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Year 3

Fall		
MSC 385	OPERATIONS ANALYSIS	3
FIN 301	PRINCIPLES OF FINANCE	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
MKT 343	MARKET RESEARCH DESIGN	3

CM 313	BUSINESS PROFESSIONAL COMM	3
Term Semester Hours:		15
Spring		
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
MGT 401	INTRO TO CONTRACT MANAGEMENT	3
MKT 414	MARKETING EMERGING TECH	3
ECN 300 or 400 level		3
Term Semester Hours:		15
Year 4		
Fall		
MGT 403	CONTRACT PRICING COST ANALYS	3
MGT 450	INTERNATIONAL BUSINESS	3
MKT 480	MARKETING MANAGEMENT	3
History		3
Electives		2
Term Semester Hours:		14
Spring		
BLS 406	GOVMT CONTRACT LAW	3
MGT 499	COMPETITIVE STRATEGY	3
Upper Level Business Elective		3
Electives		3
Term Semester Hours:		12
Total Semester Hours:		120

Marketing, BSBA - Digital Marketing Concentration

BSBA, Marketing (Digital Marketing Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	

Humanities:	3
CM 113	Intro to Rhetorical Communication
Any WLC Course 100 or 200 level	
PHL 101	INTRODUCTION TO PHILOSOPHY
PHL 102	INTRO TO ETHICS
PHL 103	INTRODUCTION TO LOGIC
PHL 150	TECH, SCIENCE & HUMAN VALUES
WGS 200	INTRO WOMEN'S & GENDER STUDIES
Mathematics and Natural Sciences	11
Mathematics: Choose one	3
MA 107	ALGEBRA WITH APPLICATIONS
MA 110	FINITE MATHEMATICS
MA 112	PRECALCULUS ALGEBRA
Natural Sciences: Choose two	8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III
History or Social and Behavioral Sciences	12
History: Choose one	3
HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877
Social and Behavioral Sciences: Choose one	3
PY 101	GENERAL PSYCHOLOGY I
SOC 100	INTRO TO SOCIOLOGY
SOC 105	INTRO CULTURAL ANTHROPOLOGY
PSC 101	INTRO TO AMERICAN GOVERNMENT
History or Social and Behavioral Science	6
ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
Pre-professional Courses	28
MA 120	MATH PROFESSIONAL APPLICATIONS
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING
CM 313	BUSINESS & PROFESSIONAL COMM
300-400 level ECN elective	

ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		
Digital Marketing Concentration		21
MKT 332	BUYER BEHAVIOR	
MKT 343	MARKET RESEARCH DESIGN	
MKT 350	MARKETING EMERGING TECHNOLOGY	
MKT 470	SOCIAL MEDIA MARKETING	
MKT 480	MARKETING MANAGEMENT	
Marketing Elective: Choose one		
MKT 315	SALES MGT/PROF SELLING	
MKT 316	RETAILING POLICY/MGT	
MKT 465	NEW VENTURES CHALLENGE	
Experiential Requirement: Choose one		
MKT 495	INTERN IN MARKETING	
MKT 494	PRACTICUM IN MARKETING	
MKT 490	SPECIAL PROJECTS	
MKT 465	NEW VENTURES CHALLENGE	
College approved study abroad		
Free Electives		6
Select 6 semester hours of free electives		
Total Semester Hours		120

Year 1

Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
IS 146	COMPUTER APPL IN BUSINESS	3
ECN 142	PRINC OF MACROECONOMICS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
Social Behavioral Sciences Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Humanities Elective		3

Science w/Lab		4
Term Semester Hours:		16
Year 2		
Fall		
ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 287	BUSINESS STATISTICS I	3
EH 207	READINGS LITERATURE/ CULTURE I	3
or EH 208	or READINGS LITERATURE/ CULTURE 2	
MKT 301	PRINCIPLES OF MARKETING	3
Fine Arts Elective		3
Term Semester Hours:		16
Spring		
BLS 211	LEGAL ENVIRON/BUSINESS	3
MSC 288	BUSINESS STATISTICS II	3
MGT 301	MANAGING ORGANIZATIONS	3
MKT 332	BUYER BEHAVIOR	3
Science w/Lab		4
Term Semester Hours:		16
Year 3		
Fall		
MSC 385	OPERATIONS ANALYSIS	3
FIN 301	PRINCIPLES OF FINANCE	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
MKT 343	MARKET RESEARCH DESIGN	3
CM 313	BUSINESS PROFESSIONAL COMM	3
Term Semester Hours:		15
Spring		
MKT 350	MARKETING EMERGING TECHNOLOGY	3
EH 207	READINGS LITERATURE/ CULTURE I	3
or EH 208	or READINGS LITERATURE/ CULTURE 2	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
Marketing Elective (MKT 315, MKT 316, MKT 465)		3
300-400 Level ECN Elective		3
Term Semester Hours:		15
Year 4		
Fall		
MGT 450	INTERNATIONAL BUSINESS	3
MKT 470	SOCIAL MEDIA MARKETING	3
Upper Division Business Elective		3
History		3
100-400 Level Free Elective		2
Term Semester Hours:		14
Spring		
MGT 499	COMPETITIVE STRATEGY	3
MKT 480	MARKETING MANAGEMENT	3

Experiential Requirement (MKT 464, MKT 490, MKT 494, MKT 495, or College approved study abroad)	3
100-400 Level Free Elective	3
Term Semester Hours:	12
Total Semester Hours:	120

Marketing, BSBA - General Marketing Concentration

BSBA, Marketing (General Marketing Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities:		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	

CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 level ECN elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	
MSC 287	BUSINESS STATISTICS I	
MSC 288	BUSINESS STATISTICS II	
Code	Title	Semester Hours
Upper Division Business Degree Requirements		24
FIN 301	PRINCIPLES OF FINANCE	
IS 301	INFO SYSTEMS IN ORGANIZATIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
MSC 385	OPERATIONS ANALYSIS	
MGT 450	INTERNATIONAL BUSINESS	
MGT 499	COMPETITIVE STRATEGY	
Select one upper division business elective (300-400 level)		
General Marketing Concentration		21
MKT 332	BUYER BEHAVIOR	
MKT 343	MARKET RESEARCH DESIGN	

MKT 350	MARKETING EMERGING TECHNOLOGY	
MKT 480	MARKETING MANAGEMENT	
Marketing Electives: Select 9 semester hours from the following:		
300-400 level MKT elective		
College approved study abroad		
Free Electives		6
Select 6 semester hours of free electives		
Total Semester Hours		120
Year 1		
Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
IS 146	COMPUTER APPL IN BUSINESS	3
ECN 142	PRINC OF MACROECONOMICS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
Social Behavioral Sciences Elective		3
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Science w/Lab		4
Humanities Elective		3
Term Semester Hours:		16
Year 2		
Fall		
ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 287	BUSINESS STATISTICS I	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
MKT 301	PRINCIPLES OF MARKETING	3
Fine Arts Elective		3
Term Semester Hours:		16
Spring		
BLS 211	LEGAL ENVIRON/BUSINESS	3
MSC 288	BUSINESS STATISTICS II	3
MGT 301	MANAGING ORGANIZATIONS	3
MKT 332	BUYER BEHAVIOR	3
Science w/Lab		4
Term Semester Hours:		16
Year 3		
Fall		
MKT 343	MARKET RESEARCH DESIGN	3
MSC 385	OPERATIONS ANALYSIS	3
FIN 301	PRINCIPLES OF FINANCE	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
CM 313	BUSINESS PROFESSIONAL COMM	3
Term Semester Hours:		15
Spring		

EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
300-400 Level MKT Elective		6
300-400 Level ECN Elective		3
Term Semester Hours:		15
Year 4		
Fall		
MGT 450	INTERNATIONAL BUSINESS	3
MKT 350	MARKETING EMERGING TECHNOLOGY	3
300-400 Level MKT Elective		3
History		3
100-400 Level Free Elective		2
Term Semester Hours:		14
Spring		
MKT 480	MARKETING MANAGEMENT	3
MGT 499	COMPETITIVE STRATEGY	3
Upper Division Business Elective		3
100-400 Level Free Elective		3
Term Semester Hours:		12
Total Semester Hours:		120

Marketing, BSBA - Supply Chain in Marketing Concentration

BSBA, Marketing (Supply Chain in Marketing Concentration) Requirements:

- BSBA degree requires 120 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 60 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose two		6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities:		3
CM 113	Intro to Rhetorical Communication	
Any WLC Course 100 or 200 level		
PHL 101	INTRODUCTION TO PHILOSOPHY	

PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
Natural Sciences: Choose two		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
History or Social and Behavioral Science		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
Pre-professional Courses		28
MA 120	MATH PROFESSIONAL APPLICATIONS	
EH 300 or EH 301	STRATEGIES FOR BUSINESS WRIT'G TECHNICAL WRITING	
CM 313	BUSINESS & PROFESSIONAL COMM	
300-400 level ECN elective		
ACC 210	ACCOUNTING FOR BUSINESS	
BLS 211	LEGAL ENVIRON/BUSINESS	
IS 146	COMPUTER APPL IN BUSINESS	

MSC 287	BUSINESS STATISTICS I
MSC 288	BUSINESS STATISTICS II

Code	Title	Semester Hours
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Upper Division Business Degree Requirements 24

FIN 301	PRINCIPLES OF FINANCE
IS 301	INFO SYSTEMS IN ORGANIZATIONS
MGT 301	MANAGING ORGANIZATIONS
MKT 301	PRINCIPLES OF MARKETING
MSC 385	OPERATIONS ANALYSIS
MGT 450	INTERNATIONAL BUSINESS
MGT 499	COMPETITIVE STRATEGY

Select one upper division business elective (300-400 level)

Supply Chain in Marketing Concentration 21

MKT 332	BUYER BEHAVIOR
MKT 343	MARKET RESEARCH DESIGN
MKT 350	MARKETING EMERGING TECHNOLOGY
MKT 480	MARKETING MANAGEMENT
MSC 410	TRANSPORTATION & LOGISTICS
MGT 411	SUPPLY CHAIN MANAGEMENT
IS 422	SUPPLY CHAIN MANAGEMENT SYSTEM

Free Electives 6

Select 6 semester hours of free electives

Total Semester Hours 120

Year 1

Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
IS 146	COMPUTER APPL IN BUSINESS	3
ECN 142	PRINC OF MACROECONOMICS	3
MA 107	ALGEBRA WITH APPLICATIONS	3
or MA 112	or PRECALCULUS ALGEBRA	
Social Behavioral Sciences Elective		3
Term Semester Hours:		16

Spring

EH 102	COLLEGE WRITING II	3
ECN 143	PRINC OF MICROECONOMICS	3
MA 120	MATH PROFESSIONAL APPLICATIONS	3
Science w/Lab		4
Humanities Elective		3
Term Semester Hours:		16

Year 2

Fall		Semester Hours
ACC 210	ACCOUNTING FOR BUSINESS	4
MSC 287	BUSINESS STATISTICS I	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
MKT 301	PRINCIPLES OF MARKETING	3
Fine Arts Elective		3
Term Semester Hours:		16

Spring

BLS 211	LEGAL ENVIRON/BUSINESS	3
MSC 288	BUSINESS STATISTICS II	3
MGT 301	MANAGING ORGANIZATIONS	3
MKT 332	BUYER BEHAVIOR	3
Science w/Lab		4
Term Semester Hours:		16

Year 3**Fall**

MSC 385	OPERATIONS ANALYSIS	3
FIN 301	PRINCIPLES OF FINANCE	3
IS 301	INFO SYSTEMS IN ORGANIZATIONS	3
MKT 343	MARKET RESEARCH DESIGN	3
CM 313	BUSINESS PROFESSIONAL COMM	3
Term Semester Hours:		15

Spring

EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
EH 300	STRATEGIES FOR BUSINESS WRIT'G	3
MKT 350	MARKETING EMERGING TECHNOLOGY	3
MGT 411	SUPPLY CHAIN MANAGEMENT	3
300-400 Level ECN Elective		3
Term Semester Hours:		15

Year 4**Fall**

MGT 450	INTERNATIONAL BUSINESS	3
MKT 480	MARKETING MANAGEMENT	3
MSC 410	TRANSPORTATION LOGISTICS	3
History		3
100-400 Level Free Elective		2
Term Semester Hours:		14

Spring

IS 422	SUPPLY CHAIN MANAGEMENT SYSTEM	3
MGT 499	COMPETITIVE STRATEGY	3
Upper Division Business Elective		3
100-400 Level Free Elective		3
Term Semester Hours:		12
Total Semester Hours:		120

Marketing Minor

Many students with majors from the College of Arts, Humanities, and Social Sciences choose to minor in marketing to prepare themselves for careers in advertising, public relations, marketing management, international marketing, marketing on the internet, and supply chain management. Science and Engineering students with an interest in new product development, marketing high technology products, international marketing, and supply chain management also minor in marketing. A minor in marketing is also a good option for non-business majors who plan to start their own business or work in the family business.

The marketing minor includes the following courses:

Code	Title	Semester Hours
Required Courses		12
MKT 301	PRINCIPLES OF MARKETING ¹	

MKT 332	BUYER BEHAVIOR
MKT 343	MARKET RESEARCH DESIGN ²
MKT 480	MARKETING MANAGEMENT
Select 6 semester hours from the following:	
MKT 316	RETAILING POLICY/MGT
MKT 350	MARKETING EMERGING TECHNOLOGY
MKT 470	SOCIAL MEDIA MARKETING
MSC 410	TRANSPORTATION & LOGISTICS
Total Semester Hours	

6

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NOTE: Students are encouraged to take ECN 142 and ECN 143 as part of their social science general education requirements.

¹ This class is a prerequisite for most other classes in the minor. It should be taken as early as possible in the student's program.

² For students in the Marketing minor, we will accept either (PY 300 and PY 300L), SOC 303 or CM 370 as substitutes for the (MSC 287 and MSC 288) prerequisites for MKT 343.

College of Education

323 Roberts Hall

Telephone: 256.824.6180

Email: education@uah.edu

Dean: Beth N. Quick, Ed.D.

Mission

The mission of the College of Education is to prepare knowledgeable, caring, and reflective educators and professionals who are committed as leaders to serving the needs of all learners and clients. As a faculty we accomplish our mission through outstanding teaching, cutting-edge research, and meaningful service.

The mission of the College of Education is communicated through our shared vision and articulated in our theme, *Through Teaching, We Lead*. The establishment of this theme codifies the major purpose of our department: to graduate professionals who are exceptionally well-prepared in disciplinary, pedagogical, and professional knowledge, who understand and are prepared to address the needs of all learners and clients, and who are committed to serving as leaders in their professional community to ensure a high-quality public or private education or delivery of services.

Accreditation

Teacher education programs at UAH are accredited by the National Council for Accreditation of Teacher Education (NCATE) and 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.

Degrees and Programs Offered

Under the State of Alabama plan, there are five levels of teacher certification programs, namely, P-3, K-6, 4-8, 6-12, and P-12. The College of Education offers all options. In conjunction with the College of Arts, Humanities, and Social Sciences and the College of Science, the department offers both undergraduate and graduate certification programs. Candidates who complete the following undergraduate certification programs meet the requirements for the Highly Qualified Teacher in Alabama.

The College of Education offers degree programs in the following departments:

Curriculum and Instruction:

- Early Childhood Education/Early Childhood Special Education (PreK-3/birth to age 8)
- Elementary Education (K-6)
- Secondary/High School Education (6-12) with majors in biology, chemistry, English language arts, foreign language (German, French, Spanish), general science, history, mathematics, physics, social science.
- Collaborative Teacher –Special Education K-6 or 6-12
- Middle School Endorsement (4-8) with teaching fields biology, chemistry, English language arts, foreign language (German, French, Spanish), general science, history, mathematics, physics, and social science
- Music Education (P-12)
- A minor is not available in education.

Kinesiology:

- Kinesiology - Exercise Science
- Kinesiology - Physical Education Teacher Education (P-12)

Curriculum and Instruction

323 Roberts Hall

Telephone: 256.824.6180

Email: education@uah.edu

Department Chair: Derrick Smith

Degrees and Programs Offered

The State of Alabama offers five levels of teacher certification programs, namely, P-3, K-6, 4-8, 6-12, and P-12. The College of Education offers options in each of the five levels of teacher certification.

- Early Childhood Education/Early Childhood Special Education (PreK-3/birth to age 8)*
- Elementary Education (K-6)
- Secondary/High School Education (6-12) with majors in biology, chemistry, English language arts, foreign language (German, French, Spanish), general science, history, mathematics, physics, social science.
- Collaborative Teacher – Special Education K-6 or 6-12
- Middle School Endorsement (4-8) with teaching fields biology, chemistry, English language arts, foreign language (German, French, Spanish), general science, history, mathematics, physics, and social science
- Music Education: Instrumental or Choral (P-12)
- Art Education (P-12)
- Physical Education (P-12) (through the Department of Kinesiology)
- A minor is not available in education.

*awaiting approval from the Alabama State Department of Education

Accreditation

Teacher education programs at UAH are accredited by the National Council for Accreditation of Teacher Education (NCATE) and 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.

Preadmission Requirements

File an *Intent to Apply to the Teacher Education Program (TEP)* with the Teacher Certification Officer as soon as a decision is made to seek teacher certification but no later than the end of the sophomore year. In addition, students must meet the following requirements:

1. No more than 2 courses of the General Education Requirements remain to be taken without Departmental approval.
2. Minimum GPA of 2.75 and grades of C or higher in EH 101 & EH 102 (or EH 105), CM 113, MA 230, MA 231 and PY 201.
3. Elementary education candidates must earn a 2.75 GPA in each of the following areas: English, Mathematics, Science, and Social Sciences
4. Secondary education candidates must earn a 2.75 in their major.
5. Submit a finger print card to the Alabama State Department of Education with the appropriate fee in the form of a money order or cashier's check made payable to the Alabama Department of Education and successfully pass a background review conducted by the Alabama Bureau of Investigation and the Federal Bureau of Investigation. Anyone convicted of a felony and/or misdemeanor other than a minor traffic violation may be denied certification or have certification revoked by the State Superintendent of Education.

Admission to the Teacher Education Program

Admission to the university does not qualify a student for admission to the Teacher Education Program. Students must submit an Application for Admission to the Teacher Education Program during the Block I semester of the education courses. They must also meet the following requirements:

1. Minimum 2.75 GPA in Block I ED courses with no grade lower than a C.
2. Minimum 2.75 GPA in teaching field or second area of study courses, with no grade lower than C.
3. For elementary students, a 2.75 GPA for 12 hours in each of the four areas of English, Social Sciences, Mathematics, and Science.
4. Satisfactory completion of specified assignments in Block I, including writing and field experiences.

5. Satisfactory ratings on Admission Interview, Dispositions Ratings, and Application Essay.
6. Passing score on all required subtests of the **Praxis Core Academic Skills for Educators test (Core)**.

Admission by Reciprocity

Students who have been admitted to a teacher education program at an accredited university or college in Alabama may apply for reciprocal admission to the *Teacher Education Program (TEP)* with the Certification Officer or the Department Chair.

Continuation in the Teacher Education Program

Requirements include:

1. Minimum 2.75 GPA in Education courses, with no grade lower than C.
2. Minimum 2.75 GPA in teaching field or second area of study, with no grade lower than C.
3. Satisfactory completion of Blocks 2 and 3 Field Experience hours and grade of C or higher on required field experience papers. Before the internship, students must complete 200 field experience hours.
4. Satisfactory completion of two Professional Development Activities per semester (unless amended with Department Chair approval).
5. Satisfactory Dispositions Ratings by Education faculty and field experience mentor teachers.
6. Registration for **Praxis II** Test in Block 2-3; must pass **Praxis II** before admission for Internship.

If any of the above requirements are not met, a Professional Development Plan (PDP) will be initiated. Candidates who do not meet the conditions of the PDP may be dismissed from the Teacher Education Program.

Field Experiences

The Alabama State Department of Education requires that all teacher candidates complete robust clinical field experiences in diverse settings prior to the internship. To meet this requirement, candidates will systematically be placed in area schools for a minimum of 70 hours of experience each semester to complete 200 hours total.

Internship Placement Requirements

In addition to satisfactory completion of required coursework and satisfactory completion of 200 hours of field experiences, candidates must meet the following requirements:

1. Minimum 2.75 GPA in Education courses, with no grade lower than C.
2. Minimum 2.75 GPA in second area of study or teaching field, with no grade lower than C.
3. Satisfactory Dispositions Ratings and field experience evaluations.
4. Satisfactory completing of six (6) Professional Development Activities.
5. Satisfactory external faculty recommendations - *secondary and P-12 candidates only*.
6. Applications for Internship and graduation on file.
7. Passing Score on all required Praxis II exams.

Application Dates

Internships must be completed in the final semester before graduation. All internship placements are coordinated by the Coordinator of Field and Clinical Experiences. At UAH, the internship is a full-time, full semester assignment of 15 weeks. Candidates should not expect to enroll in other courses during the internship semester. During the internship, students must complete and pass the edTPA assessment for certification as required by the Alabama State Department of Education.

1. Elementary Education students must complete a primary and intermediate assignment.
2. Secondary Education students will complete a middle and high school assignment.
3. P-12 music education students must complete an early childhood/elementary and a middle/high school assignment.
4. Candidates adding the Collaborative Teacher certification will complete part of the internship in a special education setting.

Certification Requirements

Alabama teaching certificates are the legal responsibility of the Alabama State Department of Education. Colleges and universities cannot issue professional certificates. In order to be recommended for a professional teacher's certificate, candidates must complete a state approved program. Approved undergraduate programs offered by the UAH College of Education are designed to prepare candidates for professional Class B certification with a bachelor's degree.

Initial Certification

It is the candidate's responsibility to initiate the application for the initial certificate. To be recommended for an initial certificate, candidates must:

1. Meet all UAH Education program requirements including satisfactory completion of the internship with evaluations by university supervisors and cooperating teachers of 2.0 or higher.
2. Satisfactory completion of the UAH Exit Portfolio Review.
3. Candidates who expect to teach in states other than Alabama are responsible for knowledge of licensure requirements of those states. Such candidates should inform the certification officer of their intentions.

Ensuring the Competence of Graduates

For a period of two years of the valid date of the Professional Educator certificate, the University of Alabama in Huntsville, through the College of Education, shall warranty and provide remediation at no cost to students who are evaluated to be unsatisfactory or deficient in any area of preparation. Remediation in professional education and/or teaching field departments will be based upon recommendations from the performance evaluations conducted by public school administrators who use the Educate Alabama which is recognized and approved by the State Board of Education. This policy is consistent with the Alabama State Code of Education.

Teacher Education Programs at UAH

B.A. and/or B.S. programs are available for the following certification programs: art, biology, chemistry, collaborative teacher, early childhood/early childhood special education, elementary education, English-language arts, French, general science, German, history, mathematics, music, physical education, physics, social science, and Spanish. (General Education Requirements for teacher candidates may differ from those required of other students. Individuals interested in pursuing teacher education should consult the Department of Curriculum and Instruction about General Education Requirements for their program of study.)

Bachelor of Arts in Elementary Education (K-6) (p. 290)

Bachelor of Arts in Elementary Education (K-6) with Collaborative Education (K-6) (p. 293)

Bachelor of Arts in Elementary Education (K-6) with Language and Culture option (p. 295)

Bachelor of Science in Secondary Education (6-12) in the following fields of study:

- Biology (p. 297)
- Biology and General Sciences (p. 299)
- Chemistry (p. 302)
- English Language Arts (p. 304)
- Foreign Language (Spanish, French, or German) (p. 306)
- History (p. 308)
- History and Social Sciences (p. 310)
- Mathematics (p. 313)
- Physics (p. 314)
- Additional Collaborative Certification (6-12) (p. 289)

UAH also offers teacher certification in Music Education (Choral or Instrumental) (p. 129) and Art Education (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/art-art-history/art-education>).

ED 115 - EFFECTIVE RDG & STUDY SKILLS

Semester 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 - INTRO TO EDUCATION PRACTICUM

Semester Hour: 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. Prerequisites: ED 305 & ED 308 (taken concurrently). This experience is a prerequisite for admission to the Teacher Education Program.

ED 305 - FOUNDATIONS OF EDUCATION

Semester 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. Prerequisites with concurrency: ED 301 and ED 308.

ED 307 - MULTICULTURAL FND EDUCATION

Semester 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.

ED 308 - EDUCATIONAL PSYCHOLOGY

Semester Hours: 3

Psychological principles basic to an understanding of the learner, the learning process, and the learning situation. Intensive field experience required. Prerequisites with concurrency: ED 301 and 305.

ED 309 - CLASSROOM & BEHAVIOR MGMT

Semester 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. Intensive field experience in an assigned public school required. Prerequisites: Admission to the Teacher Education Program.

ED 310 - TCHG ART IN ELEM SCHOOL

Semester Hours: 3

ED 315 - EDUC EVALUATION & MEASUREMENT

Semester 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. Admission to the Teacher Education Program or permission of the chair.

ED 350 - TECHNOLOGY IN CLASSROOM

Semester 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 entering Education Program.

ED 360 - EARLY CHILDHOOD EDUC PRACTICUM

Semester Hours: 3

A three-hour credit course in a state-approved or NAEYC-accredited pre-kindergarten or kindergarten placement. It includes a weekly one-hour seminar with a faculty member. Admission to Teacher Education required.

ED 371 - TCHG ELEM LANGUAGE ARTS

Semester 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. Prerequisites: Admission to the Teacher Education Program.

ED 372 - TCHG ELEM SOCIAL STUDIES

Semester 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. Prerequisites: Admission to the Teacher Education Program.

ED 373 - TCHG NATURL/HLTH SCIENCE

Semester 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. Prerequisites: Admission to the Teacher Education Program.

ED 374 - TCHG ELEM MATHEMATICS

Semester 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. Prerequisites: Admission to the Teacher Education Program.

ED 375 - TCHG READING IN PRIMARY GRADES

Semester Hours: 3

An introduction to the basic principles of literacy instruction in culturally and linguistically diverse primary grade classrooms, including theoretical bases for instruction, methods of instruction and organization, developmentally appropriate strategies and materials, and assessment of children's literacy needs. Class activities will include mini-lessons, discussions, group activities, and presentations. An intensive school-based practicum in grades pre K -2 is required.

ED 400 - SPECIAL TOPICS-INTERNSHIP

Semester Hours: 3

Innovative internship focused on working with students with disabilities. Observations, participation, and direct instruction and teaching in a middle or high school setting for a prescribed time.

ED 401 - FNDS OF REFLECTIVE TEACHING

Semester Hours: 3

This diversity elective is designed to develop reflective practitioners, who study teaching and student learning in an effort to improve teaching practices and also meet certification requirements. The course will use various lenses of professional teacher noticing to select and discuss evidence of effective teaching. Course topics include edTPA rubrics, lesson planning, video teaching episode analysis, student assessments and feedback, academic language for describing teaching, and professional writing about teaching.

ED 402 - SPECIAL TOPICS IN EDUCATION

Semester Hours: 3

Introduces students to current issues and trends within educational practice, policy and theory through a specific lens. Provides opportunities for students to investigate issues of teaching and learning within the broader social/cultural vantage basic exploration of current research and debate within education. Topic may vary with each offering.

ED 405 - RDG STRATEGIES INTERMED GRADES

Semester 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.

ED 408 - TCHG READING/CONTENT AREA

Semester 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 the Teacher Education Program.

ED 410 - FOUNDATIONS EDUC EVALUAT

Semester 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.

ED 413 - CHILDREN'S & ADOLESCENT LIT

Semester 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. Same as EH 413. Prerequisites: Admission to the Teacher Education Program.

ED 421 - TEACH ENGL MID & SEC SCHOOL

Semester 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 remaining 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. Prerequisite: Admission to the Teacher Education Program.

ED 422 - TEACH MATH MID & SEC SCHOOLS

Semester 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 intensive school-based experiences in area schools. Prerequisite: Admission to the Teacher Education Program.

ED 423 - TCHG SC MID & SEC SCHOOLS

Semester Hours: 3

This 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. Must be admitted to Teacher Education Program.

ED 424 - TCHG SOC ST MID & SEC SCHOOLS

Semester 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 foundations 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. Must be admitted to Teacher Education Program.

ED 425 - METHODS TCHNG FGN LNG MID & HS

Semester 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 experience in area schools.

ED 493 - ELEMENTARY SCHOOL INTERNSHIP

Semester 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.

ED 497 - HIGH SCHOOL INTERNSHIP

Semester 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.

ED 499 - P-12 INTERNSHIP

Semester Hours: 12

Observation, participation and teaching in elementary and middle/high school (full time, 15 week semester). Students will also attend campus-based seminars designed to meet specific needs of the interns.

EDC 301 - TCHG THE EXCEPTIONAL CHILD

Semester 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 301, ED 307, ED 308 and EDC 311. Prerequisites: Completion of all general education classes.

EDC 302 - INTRO LOW INCIDENCE POPULATION

Semester Hours: 3

Students will 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.

EDC 311 - INSTR STRATEGIES INCLUSIVE CLR

Semester 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.

EDC 321 - COLLAB CONSU(PARENT-TCHR-TEAM)

Semester Hours: 3

This class focuses on the description and rationale 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.

EDC 331 - CRITICAL ISSUES IN SPEC EDUC

Semester 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.

EDC 341 - ASSESS/PLN TRANSITION K-12 STU

Semester Hours: 3

Teacher candidates will develop the skills necessary for transitional planning, including administering cognitive, social, and functional assessments. Results of assessments will be interpreted and utilized to plan transitions from one placement to another, to inform instruction in regular, inclusive and self-contained classrooms, and to develop Individualized Education Plans (IEPs) for eligible students. Field work is required. Prerequisites: Admission to the Teacher Education Program.

EDC 351 - BEHAVIOR ANAL & INTERVENTION

Semester 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 work required. Prerequisites: Admission to the Teacher Education Program.

ECH 306 - PRINCPLS OF EARLY CHILDHOOD ED

Semester Hours: 3

This introductory course will provide preservice early childhood educators with basic knowledge of the core principles and foundations of early childhood education. The course introduces students to the historical and sociocultural forces that have impacted the field along with contemporary early childhood programs and models, recent trends and issues, and theories of play. Admission to teacher education program required.

ECH 320 - DIFF INSTR FOR EARLY LEARNERS

Semester Hours: 3

An early childhood education curriculum course designed to provide practical knowledge for blending content areas to maximize children's learning and prepare teacher candidates to meet the needs of children across the curriculum. Focus is on the implementation of a curriculum designed to promote learning and development in the social, emotional, physical, language and cognitive domains. Additionally, the course will emphasize developmentally, culturally, and linguistically appropriate and effective teaching approaches to enhance each child's learning and development. Admission to teach education program required.

ECH 330 - ASSESSMENT OF YOUNG LEARNERS

Semester Hours: 3

This course provides candidates with an understanding of the forms, functions, methods, and roles of assessment for planning and implementing effective early childhood programs for young children, ages birth to five, from diverse cultures and with varied learning needs. Candidates will explore both quantitative and qualitative approaches to evaluation and assessment. They will learn about technological adaptations to enhance the assessment process. Students will gain an understanding of appropriate strategies for conducting, reporting, and decision making related to specific functions of assessment. They will learn about assessment strategies necessary for second language learners and about adaptations for children with disabilities. They will use selected assessment strategies with young children in their field placements and are expected to become competent in the use of authentic assessment strategies to describe a child's learning strengths and instructional needs. Admission to teacher education program required.

ECH 340 - LANGUAGE & SPEECH DEVELOPMENT

Semester Hours: 3

This course provides an introductory examination of the development of language and speech in young learners. Pragmatic, syntactic, and phonological analyses of children's language and speech development are required. Admission to teacher education program required.

ECH 490 - EARLY CHILDHOOD INTERNSHIP

Semester Hours: 3

Observation, participation and teaching in at least two early childhood settings with children ranging from infancy to grade 3 (full time, 15 week semesters). Students will also attend campus-based seminars designed to meet specific needs of the interns. Admission to the teacher education program required.

Additional Collaborative Certification (6-12)

Code	Title	Semester Hours
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
EDC 302	INTRO LOW INCIDENCE POPULATION	3
EDC 331	CRITICAL ISSUES IN SPEC EDUC	3
EDC 341	ASSESS/PLN TRANSITION K-12 STU	3
EDC 351	BEHAVIOR ANAL & INTERVENTION	3
ED 400	SPECIAL TOPICS-INTERNSHIP	3
Total Semester Hours		21

Students complete a split internship between General Education (High School) and Collaborative Education (Middle School).

Early Childhood Education/Early Childhood Special Education, BS

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
PY 101	GENERAL PSYCHOLOGY I	3
Math		3
Humanities and Fine Arts		3
History		3
Term Semester Hours:		15
Spring		
EH 102	COLLEGE WRITING II	3
CM 113	Intro to Rhetorical Communication	3
PY 201	LIFE-SPAN DEVELOPMENT	3
Science w/Lab		4
Math		3
Term Semester Hours:		16

Year 2**Fall**

History		3
Science w/Lab		4
Math		3
Literature		3
Term Semester Hours:		13
Spring		
Science w/Lab		4
Math		3
Literature		3
ED 307	MULTICULTURAL FND EDUCATION	3
ED 350	TECHNOLOGY IN CLASSROOM	3
Term Semester Hours:		16
Year 3		
Fall		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 306		3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 340		3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
Term Semester Hours:		13
Spring		
ED 371	TCHG ELEM LANGUAGE ARTS	3
ED 375	TCHG READING IN PRIMARY GRADES	3
ED 360	EARLY CHILDHOOD EDUC PRACTICUM	3
ED 320		3
EDC 351	BEHAVIOR ANAL INTERVENTION	3
Term Semester Hours:		15
Summer		
EDC 302	INTRO LOW INCIDENCE POPULATION	3
EDC 341	ASSESS/PLN TRANSITION K-12 STU	3
Term Semester Hours:		6
Year 4		
Fall		
ED 330		3
ED 374	TCHG ELEM MATHEMATICS	3
EDC 321	COLLAB CONSU(PARENT-TCHR-TEAM)	3
EDC 316		3
EDC 361		3
Term Semester Hours:		15
Spring		
ED 490 Internship		12
Term Semester Hours:		12
Total Semester Hours:		121

Elementary Education (K-6), BA

Code	Title	Semester Hours
Freshman Composition		
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12

Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
Humanities:		3
CM 113	Intro to Rhetorical Communication ¹	
Mathematics and Natural Sciences		11-12
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
Natural Sciences: Choose one sequence		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences		6
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History or Social and Behavioral Science: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	

PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
Pre-professional Courses		
Mathematics		9
Science w/Lab		4
Elective Credit		1-3
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
ED 350	TECHNOLOGY IN CLASSROOM	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
Internship		
ED 493	ELEMENTARY SCHOOL INTERNSHIP	12
Teaching Field		
ED 315	EDUC EVALUATION & MEASUREMENT	3
ED 371	TCHG ELEM LANGUAGE ARTS	3
ED 372	TCHG ELEM SOCIAL STUDIES	3
ED 373	TCHG NATURL/HLTH SCIENCE	3
ED 374	TCHG ELEM MATHEMATICS	3
ED 375	TCHG READING IN PRIMARY GRADES	3
ED 405	RDG STRATEGIES INTERMED GRADES	3
ED 413	CHILDREN'S & ADOLESCENT LIT	3
Diversity Electives: Choose 3		9
ED 310	TCHG ART IN ELEM SCHOOL	
EDC 302	INTRO LOW INCIDENCE POPULATION	
EDC 321	COLLAB CONSU(PARENT-TCHR-TEAM)	
EDC 331	CRITICAL ISSUES IN SPEC EDUC	
EDC 341	ASSESS/PLN TRANSITION K-12 STU	
EDC 351	BEHAVIOR ANAL & INTERVENTION	
EHL 405	SUR GEN LINGUISTICS:APP ENG I	
EHL 406	CRITICAL ISSUES	
EHL 407	ADV EH GRAM:APP LINGUISTICS II	
EHL 409	SPEC STUDIES: APPL LINGUISTICS	
Total Semester Hours		123-127

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Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence (EH 207 (<http://catalog.uah.edu/search/?P=EH%20207>) + EH 208 (<http://catalog.uah.edu/search/?P=EH%20208>), EH 209 (<http://catalog.uah.edu/search/?P=EH%20209>) + EH 210 (<http://catalog.uah.edu/search/?P=EH%20210>), HY 103 (<http://catalog.uah.edu/search/?P=HY%20103>) + HY 104 (<http://catalog.uah.edu/search/?P=HY%20104>), or HY 221 (<http://catalog.uah.edu/search/?P=HY%20221>) + HY 222 (<http://catalog.uah.edu/search/?P=HY%20222>))

Elementary Education (K-6), BA - Collaborative Education (K-6)

Code	Title	Semester Hours
Freshman Composition		
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
Humanities:		3
CM 113	Intro to Rhetorical Communication ¹	
Mathematics and Natural Sciences		11-12
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
Natural Sciences: Choose one sequence		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences		6

PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History or Social and Behavioral Science: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
Pre-professional Courses		
Mathematics		9
Science w/Lab		4
Elective Credit		1-3
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
ED 350	TECHNOLOGY IN CLASSROOM	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
Internship		
ED 493	ELEMENTARY SCHOOL INTERNSHIP	12
Teaching Field		
ED 315	EDUC EVALUATION & MEASUREMENT	3
ED 371	TCHG ELEM LANGUAGE ARTS	3
ED 372	TCHG ELEM SOCIAL STUDIES	3
ED 373	TCHG NATURL/HLTH SCIENCE	3
ED 374	TCHG ELEM MATHEMATICS	3
ED 375	TCHG READING IN PRIMARY GRADES	3
ED 405	RDG STRATEGIES INTERMED GRADES	3
ED 413	CHILDREN'S & ADOLESCENT LIT	3
EDC 302	INTRO LOW INCIDENCE POPULATION	3
EDC 321	COLLAB CONSU(PARENT-TCHR-TEAM)	3
EDC 331	CRITICAL ISSUES IN SPEC EDUC	3
EDC 341	ASSESS/PLN TRANSITION K-12 STU	3
EDC 351	BEHAVIOR ANAL & INTERVENTION	3
Total Semester Hours		123-133

¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence (EH 207 (<http://catalog.uah.edu/search/?P=EH%20207>) + EH 208 (<http://catalog.uah.edu/search/?P=EH%20208>), EH 209 (<http://catalog.uah.edu/search/?P=EH%20209>) + EH 210 (<http://catalog.uah.edu/search/?P=EH%20210>), HY 103 (<http://catalog.uah.edu/search/?P=HY%20103>) + HY 104 (<http://catalog.uah.edu/search/?P=HY%20104>), or HY 221 (<http://catalog.uah.edu/search/?P=HY%20221>) + HY 222 (<http://catalog.uah.edu/search/?P=HY%20222>))

Elementary Education (K-6), BA - Language and Culture Option

Code	Title	Semester Hours
Freshman Composition		
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
Humanities:		3
CM 113	Intro to Rhetorical Communication ¹	
Mathematics and Natural Sciences		11-12
Mathematics: Choose one		3
MA 107	ALGEBRA WITH APPLICATIONS	
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
Natural Sciences: Choose one sequence		8
AST 106 & 106	EXPLORING THE COSMOS I and EXPLORING THE COSMOS I	
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103 & ESS 111	ENVIRONMENTAL EARTH SCIENCE and WEATHER, CLIMATE & GLOBAL CHNG	
PH 100 & PH 101	CONCEPTUAL PHYSICS and GENERAL PHYSICS I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History or Social and Behavioral Sciences		12
History: Choose one or two ¹		3-6

HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences		6
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History or Social and Behavioral Science: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
Pre-professional Courses		
Mathematics		9
Science w/Lab		4
Elective Credit		1-3
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
ED 350	TECHNOLOGY IN CLASSROOM	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
Internship		
ED 493	ELEMENTARY SCHOOL INTERNSHIP	12
Teaching Field		
ED 315	EDUC EVALUATION & MEASUREMENT	3
ED 371	TCHG ELEM LANGUAGE ARTS	3
ED 372	TCHG ELEM SOCIAL STUDIES	3
ED 373	TCHG NATURL/HLTH SCIENCE	3
ED 374	TCHG ELEM MATHEMATICS	3
ED 375	TCHG READING IN PRIMARY GRADES	3
ED 405	RDG STRATEGIES INTERMED GRADES	3
ED 413	CHILDREN'S & ADOLESCENT LIT	3
EHL 405	SUR GEN LINGUISTICS:APP ENG I	3
EHL 406	CRITICAL ISSUES	3
EHL 407	ADV EH GRAM:APP LINGUISTICS II	3
EHL 409	SPEC STUDIES: APPL LINGUISTICS	3
Total Semester Hours		123-127

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence (EH 207 (<http://catalog.uah.edu/search/?P=EH%20207>) + EH 208 (<http://catalog.uah.edu/search/?P=EH%20208>), EH 209 (<http://catalog.uah.edu/search/?P=EH%20209>) + EH 210 (<http://catalog.uah.edu/search/?P=EH%20210>), HY 103 (<http://catalog.uah.edu/search/?P=HY%20103>) + HY 104 (<http://catalog.uah.edu/search/?P=HY%20104>), or HY 221 (<http://catalog.uah.edu/search/?P=HY%20221>) + HY 222 (<http://catalog.uah.edu/search/?P=HY%20222>))

Secondary Education, BS - Biology

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one ¹		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities: Choose one		3
WLC 204	INTERNATIONAL CINEMA	
Any 100 or 200 Foreign Language. ²		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11-12
Mathematics		3-4
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 171	CALCULUS A	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
History and Social and Behavioral Sciences		12
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	

HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Professional Studies		
CH 201	ELEM ORGANIC CHEMISTRY	3
CH 205	ELEM ORGANIC CHEMISTRY LAB	1
CH 301	ELEMENTARY BIOCHEMISTRY	3
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	4
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 423	TCHG SC MID & SEC SCHOOLS	3
Internship		
ED 497	HIGH SCHOOL INTERNSHIP	12
Teaching Field		
BYS 119	PRINCIPLES OF BIOLOGY	4
BYS 120	ORGANISMAL BIOLOGY	4
BYS 219	GENETICS AND EVOLUTION	4
BYS 300	CELL & DEVELOPMENTAL BIOLOGY	4
BYS 312	PRINCIPLES OF ECOLOGY	4
BYS 321	GENERAL MICROBIOLOGY I	4
BYS 490	SENIOR CAPSTONE	2
BYS 300+ Electives		6
Total Semester Hours		124

¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence (EH 207 (<http://catalog.uah.edu/search/?P=EH%20207>) + EH 208 (<http://catalog.uah.edu/search/?P=EH%20208>), EH 209 (<http://catalog.uah.edu/search/?P=EH%20209>) + EH 210 (<http://catalog.uah.edu/search/?P=EH%20210>), HY 103 (<http://catalog.uah.edu/search/?P=HY%20103>) + HY 104 (<http://catalog.uah.edu/search/?P=HY%20104>), or HY 221 (<http://catalog.uah.edu/search/?P=HY%20221>) + HY 222 (<http://catalog.uah.edu/search/?P=HY%20222>))

² For choices see the World Languages and Culture (p. 177) department.

Secondary Education, BS - Biology and General Sciences

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one ¹		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities: Choose one		3
WLC 204	INTERNATIONAL CINEMA	
Any 100 or 200 Foreign Language. ²		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11-12
Mathematics: Choose one		3-4
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	

PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History and Social and Behavioral Sciences		12
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Professional Studies		10
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
CS 121	COMPUTER SCIENCE I	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Science w/Lab		4
Choose one from the above list of approved Science courses.		
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 423	TCHG SC MID & SEC SCHOOLS	3
Internship		
ED 497	HIGH SCHOOL INTERNSHIP	12
Teaching Field		
BYS 119	PRINCIPLES OF BIOLOGY	4
BYS 120	ORGANISMAL BIOLOGY	4

BYS 219	GENETICS AND EVOLUTION	4
BYS 300	CELL & DEVELOPMENTAL BIOLOGY	4
BYS 312	PRINCIPLES OF ECOLOGY	4
BYS 321	GENERAL MICROBIOLOGY I	4
BYS 490	SENIOR CAPSTONE	2
BYS 300+ Electives		10
General Science Courses		
Chemistry: Choose one option		
Option 1:		10
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 201	ELEM ORGANIC CHEMISTRY	
CH 301	ELEMENTARY BIOCHEMISTRY	
Option 2:		24
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	
CH 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	
Physics: Choose one option		
Option 1:		8
PH 101 & PH 102	GENERAL PHYSICS I and GENERAL PHYSICS II	
Option 2:		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
Astronomy		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
Earth Science		4
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
Total Semester Hours		157-171

¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence (EH 207 (<http://catalog.uah.edu/search/?P=EH%20207>) + EH 208 (<http://catalog.uah.edu/search/?P=EH%20208>), EH 209 (<http://catalog.uah.edu/search/?P=EH%20209>) + EH 210 (<http://catalog.uah.edu/search/?P=EH%20210>), HY 103 (<http://catalog.uah.edu/search/?P=HY%20103>) + HY 104 (<http://catalog.uah.edu/search/?P=HY%20104>), or HY 221 (<http://catalog.uah.edu/search/?P=HY%20221>) + HY 222 (<http://catalog.uah.edu/search/?P=HY%20222>))

² For choices see the World Languages and Culture (p. 177) department.

Secondary Education, BS - Chemistry

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one ¹		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities: Choose one		3
WLC 204	INTERNATIONAL CINEMA	
Any 100 or 200 Foreign Language. ²		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A	
Natural Sciences		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	

PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Professional Studies		12
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
MA 172	CALCULUS B	
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 423	TCHG SC MID & SEC SCHOOLS	3
Internship		
ED 497	HIGH SCHOOL INTERNSHIP	12
Teaching Field		
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
CH 315	CHEMISTRY TEACHING METHODS	3
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
CH 347	BIOPHYSICAL CHEMISTRY I	3
CH 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
CH 401	INORGANIC CHEMISTRY	3
Total Semester Hours		127

¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence (EH 207 (<http://catalog.uah.edu/search/?P=EH%20207>) + EH 208 (<http://catalog.uah.edu/search/?P=EH%20208>), EH 209 (<http://catalog.uah.edu/search/?P=EH%20209>) + EH 210 (<http://catalog.uah.edu/search/?P=EH%20210>), HY 103 (<http://catalog.uah.edu/search/?P=HY%20103>) + HY 104 (<http://catalog.uah.edu/search/?P=HY%20104>), or HY 221 (<http://catalog.uah.edu/search/?P=HY%20221>) + HY 222 (<http://catalog.uah.edu/search/?P=HY%20222>))

² For choices see the World Languages and Culture (p. 177) department.

Secondary Education, BS - English Language Arts

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		15-18
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities: Choose one		3
WLC 204	INTERNATIONAL CINEMA	
Any 100 or 200 WLC course. ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics: Choose one		4
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 106	EXPLORING THE COSMOS I	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	

PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History and Social and Behavioral Sciences		12
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 221	UNITED STATES TO 1877	
Social and Behavioral Sciences: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Pre Professional Studies		6
Choose two courses from Arts, Humanities, and Social Sciences		
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 421	TEACH ENGL MID & SEC SCHOOL	3
Internship		
ED 497	HIGH SCHOOL INTERNSHIP	12
Teaching Field		
EH 305	INTRO TO ENGLISH MAJOR & MINOR	3
EH 400	COMPOSITION STUDIES FOR TCHERS	3
EHL 405	SUR GEN LINGUISTICS:APP ENG I	3
EH 335	SURVEY BRITISH LITERATURE	3
EH 336	SURVEY AMERICAN LITERATURE	3
ED 413	CHILDREN'S & ADOLESCENT LIT	3
CM 231	FOUNDATIONS OF HUMAN COMMUNICA	3
CM 205	INTRO TO JOURNALISM	3

CM 430	MASS MEDIA IN AMERICA	3
Total Semester Hours		120-126

¹ For choices see the World Languages and Culture (p. 177) department.

Secondary Education, BS - Foreign Language

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		15-18
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities: Choose one		3
WLC 204	INTERNATIONAL CINEMA	
Any 100 or 200 Foreign Language. ¹		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics: Choose one		4
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 106	EXPLORING THE COSMOS I	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	

PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History and Social and Behavioral Sciences		12
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 221	UNITED STATES TO 1877	
Social and Behavioral Sciences: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Pre Professional Studies		6
Choose two courses from Arts, Humanities, and Social Sciences		
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 425	METHODS TCHNG FGN LNG MID & HS	3
Internship		
ED 497	HIGH SCHOOL INTERNSHIP	12
Teaching Field		36
Certification available in Spanish, French and German.		
WLC 101F or WLC 101G or WLC 101S	INTRO FOREIGN LANG I:FRENCH INTRO FOREIGN LANG I:GERMAN INTRO FOREIGN LANG I: SPANISH	3
WLC 102F or WLC 102G	INTRO FOREIGN LANG II:FRENCH INTRO FOREIGN LANG II:GERMAN	3

or WLC 102S	INTRO FOREIGN LANG II:SPANISH	
WLC 201F	INTERM FOREIGN LANG:FRENCH	3
or WLC 201G	INTERM FOREIGN LANG:GERMAN	
or WLC 201S	INTERM FOREIGN LANG:SPANISH	
WLC 202F	INTERM FOREIGN LANG II:FRENCH	3
or WLC 202G	INTERM FOREIGN LANG II:GERMAN	
or WLC 202S	INTERM FOREIGN LANG II:SPANISH	
WLC 204	INTERNATIONAL CINEMA	3
WLC 301F	CONVERSATION:FRENCH	3
or WLC 301G	CONVERSATION:GERMAN	
or WLC 301S	CONVERSATION:SPANISH	
WLC 302F	COMPOSITION:FRENCH	3
or WLC 302G	COMPOSITION:GERMAN	
or WLC 302S	COMPOSITION:SPANISH	
WLC 303F	FOREIGN LANG LIFE & PROF:FRENC	3
or WLC 303G	FOREIGN LANG LIFE & PROF:GERMA	
or WLC 303S	FOREIGN LANG LIFE & PROF:SPANI	
WLC 304F	CULTURE:FRENCH	3
or WLC 304G	CULTURE:GERMAN	
or WLC 304S	CULTURE:SPANISH	
WLC 305F	INTRO TO LITERATURE:FRENCH	3
or WLC 305G	INTRO TO LITERATURE:GERMAN	
or WLC 305S	INTRO TO LITERATURE:SPANISH	
WLC 404F	TEXTS & CONTEXTS:SEM LIT:FRENC	3
or WLC 404G	TEXTS & CONTEXTS:SEM LIT/GERMA	
or WLC 404S	TEXTS & CONTEXTS:SEM LIT:SPANI	
WLC 410	INT'L INTERN:COMP LANG/CULT	3-6
Total Semester Hours		120-126

¹ For choices see the World Languages and Culture (p. 177) department.

Secondary Education, BS - History

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		15-18
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Speech		3
CM 113	Intro to Rhetorical Communication	

Humanities: Choose one		3
Any 100 or 200 Foreign Language. ¹		
WLC 204	INTERNATIONAL CINEMA	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics: Choose one		4
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 106	EXPLORING THE COSMOS I	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History and Social and Behavioral Sciences		12
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History		3
HY 103	WORLD HISTORY TO 1500	
Social and Behavioral Sciences: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	

WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Pre Professional Studies		3
Choose one courses from Arts, Humanities, and Social Sciences		
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 424	TCHG SOC ST MID & SEC SCHOOLS	3
Internship		
ED 497	HIGH SCHOOL INTERNSHIP	12
Teaching Field		
HY 104	WORLD HISTORY SINCE 1500	3
HY 221	UNITED STATES TO 1877	3
HY 222	UNITED STATES SINCE 1877	3
HY 290	CRAFT OF HISTORY	3
HY 325	HISTORY OF ALABAMA	3
HY 490	RESEARCH SEMINAR IN HY	3
American History 300+		6
Non-American History 300+		6
History Electives 300+		6
Total Semester Hours		120-126

¹ For choices see the World Languages and Culture (p. 177) department.

Secondary Education, BS - History and Social Sciences

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one ¹		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities: Choose one		3

WLC 204	INTERNATIONAL CINEMA	
Any 100 or 200 Foreign Language. ²		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		11-12
Mathematics: Choose one		3-4
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 171	CALCULUS A	
Natural Sciences: Choose two		8
AST 106	EXPLORING THE COSMOS I	
AST 107	EXPLORING THE COSMOS II	
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
PH 100	CONCEPTUAL PHYSICS	
PH 101	GENERAL PHYSICS I	
PH 102	GENERAL PHYSICS II	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
History and Social and Behavioral Sciences		12
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History		3
HY 103	WORLD HISTORY TO 1500	
Social and Behavioral Sciences: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	

Pre Professional Studies		10
Choose three:		
GY 105	WORLD REGIONAL GEOGRAPHY	3
ECN 142	PRINC OF MACROECONOMICS	3
ECN 143	PRINC OF MICROECONOMICS	3
PSC 101	INTRO TO AMERICAN GOVERNMENT	3
PSC 102	INTRO TO COMPARATIVE POLITICS	3
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	3
SOC 100	INTRO TO SOCIOLOGY	3
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 424	TCHG SOC ST MID & SEC SCHOOLS	3
Internship		
ED 497	HIGH SCHOOL INTERNSHIP	12
Teaching Field		
History:		
HY 103	WORLD HISTORY TO 1500	3
HY 104	WORLD HISTORY SINCE 1500	3
HY 221	UNITED STATES TO 1877	3
HY 222	UNITED STATES SINCE 1877	3
HY 290	CRAFT OF HISTORY	3
HY 325	HISTORY OF ALABAMA	3
HY 490	RESEARCH SEMINAR IN HY	3
American History 300+		6
Non-American History 300+		6
History Elective3 300+		3
Social Science Courses:		
PSC 101	INTRO TO AMERICAN GOVERNMENT	3
PSC 102	INTRO TO COMPARATIVE POLITICS	3
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	3
GY 105	WORLD REGIONAL GEOGRAPHY	3
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	3
ECN 142	PRINC OF MACROECONOMICS	3
ECN 143	PRINC OF MICROECONOMICS	3
PY 101	GENERAL PSYCHOLOGY I	3
SOC 100	INTRO TO SOCIOLOGY	3
Total Semester Hours		150-156

¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence (EH 207 (<http://catalog.uah.edu/search/?P=EH%20207>) + EH 208 (<http://catalog.uah.edu/search/?P=EH%20208>), EH 209 (<http://catalog.uah.edu/search/?P=EH%20209>) + EH 210 (<http://catalog.uah.edu/search/?P=EH%20210>), HY 103 (<http://catalog.uah.edu/search/?P=HY%20103>) + HY 104 (<http://catalog.uah.edu/search/?P=HY%20104>), or HY 221 (<http://catalog.uah.edu/search/?P=HY%20221>) + HY 222 (<http://catalog.uah.edu/search/?P=HY%20222>))

² For choices see the World Languages and Culture (p. 177) department.

Secondary Education, BS - Mathematics

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one ¹		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities: Choose one		3
WLC 204	INTERNATIONAL CINEMA	
Any 100 or 200 Foreign Language. ²		
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A	
Natural Sciences		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	

PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Pre Professional Studies		3
CS 102	INTRO TO C PROGRAMMING	3
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 422	TEACH MATH MID & SEC SCHOOLS	3
Internship		
ED 497	HIGH SCHOOL INTERNSHIP	12
Teaching Field		
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
MA 330	FOUNDATIONS OF MATH	3
MA 385	INTRO TO PROBABILITY & STATIST	3
MA 433	INTRODUCTION TO GEOMETRY	3
MA 442	ALGEBRAIC STRUCTURES W/APPLIC	3
MA 452	INTRO TO REAL ANALYSIS	3
MA/ST 487	INTRO TO MATH STATISTICS	3
Math Electives 300+		6
Total Semester Hours		123

¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence (EH 207 (<http://catalog.uah.edu/search/?P=EH%20207>) + EH 208 (<http://catalog.uah.edu/search/?P=EH%20208>), EH 209 (<http://catalog.uah.edu/search/?P=EH%20209>) + EH 210 (<http://catalog.uah.edu/search/?P=EH%20210>), HY 103 (<http://catalog.uah.edu/search/?P=HY%20103>) + HY 104 (<http://catalog.uah.edu/search/?P=HY%20104>), or HY 221 (<http://catalog.uah.edu/search/?P=HY%20221>) + HY 222 (<http://catalog.uah.edu/search/?P=HY%20222>))

² For choices see the World Languages and Culture (p. 177) department.

Secondary Education, BS - Physics

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	3
EH 102	COLLEGE WRITING II	3
Humanities and Fine Arts		12

Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	3
ARH 101	ARH SURV:RENAISSANCE-MODERN	3
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	3
ARS 160	DRAWING: FOUNDATIONS	3
TH 122	THEATRE APPRECIATION	3
MU 100	INTRO TO MUSIC LITERATURE	3
Literature: Choose one ¹		3
EH 207	READINGS LITERATURE/CULTURE I	3
EH 208	READINGS LITERATURE/CULTURE 2	3
EH 242	MYTHOLOGY	3
Speech		3
CM 113	Intro to Rhetorical Communication	3
Humanities: Choose one		3
WLC 204	INTERNATIONAL CINEMA	3
Any 100 or 200 Foreign Language. ²		
PHL 101	INTRODUCTION TO PHILOSOPHY	3
PHL 102	INTRO TO ETHICS	3
PHL 103	INTRODUCTION TO LOGIC	3
PHL 150	TECH, SCIENCE & HUMAN VALUES	3
WGS 200	INTRO WOMEN'S & GENDER STUDIES	3
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A	4
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
History and Social and Behavioral Sciences		12
PY 101	GENERAL PSYCHOLOGY I	3
PY 201	LIFE-SPAN DEVELOPMENT	3
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	3
HY 104	WORLD HISTORY SINCE 1500	3
HY 221	UNITED STATES TO 1877	3
HY 222	UNITED STATES SINCE 1877	3
Social and Behavioral Sciences: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	3
ECN 143	PRINC OF MICROECONOMICS	3
GS 200	GLOBAL SYSTEMS AND CULTURES	3
GY 105	WORLD REGIONAL GEOGRAPHY	3
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	3
PSC 101	INTRO TO AMERICAN GOVERNMENT	3
PSC 102	INTRO TO COMPARATIVE POLITICS	3
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	3
SOC 100	INTRO TO SOCIOLOGY	3
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	3
SOC 105	INTRO CULTURAL ANTHROPOLOGY	3
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	3
WGS 200	INTRO WOMEN'S & GENDER STUDIES	3
Professional Studies		14

MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
or MA 244	INTRO TO LINEAR ALGEBRA	
CS 102	INTRO TO C PROGRAMMING	3
or CS 121	COMPUTER SCIENCE I	
Professional Studies		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 309	CLASSROOM & BEHAVIOR MGMT	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 423	TCHG SC MID & SEC SCHOOLS	3
Internship		
ED 497	HIGH SCHOOL INTERNSHIP	12
Teaching Field		
PH 110	FRONTIERS IN SCIENCE	3
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
PH 251	SPECIAL RELATIVITY	1
PH 301	INTERMEDIATE MECHANICS	3
PH 305	MATH METHODS IN PHYSICS	3
PH 351	INTRODUCTION TO MODERN PHYSICS	3
PH 499	PHYSICS PRACTICUM	3
Electives: Choose two		7
AST 300+		
PH 300+		
OPT 300+		
Total Semester Hours		131

¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence (EH 207 (<http://catalog.uah.edu/search/?P=EH%20207>) + EH 208 (<http://catalog.uah.edu/search/?P=EH%20208>), EH 209 (<http://catalog.uah.edu/search/?P=EH%20209>) + EH 210 (<http://catalog.uah.edu/search/?P=EH%20210>), HY 103 (<http://catalog.uah.edu/search/?P=HY%20103>) + HY 104 (<http://catalog.uah.edu/search/?P=HY%20104>), or HY 221 (<http://catalog.uah.edu/search/?P=HY%20221>) + HY 222 (<http://catalog.uah.edu/search/?P=HY%20222>))

² For choices see the World Languages and Culture (p. 177) department.

Health and Physical Education

Activity Courses

Our activity courses provide fun ways for students to improve overall health. Check out the variety of courses available!

Group Fitness

Aerobics

Butts and Guts Workout

Weight Training

Yoga

Sports and Recreation

Racquetball
Rock Climbing
Speed and Plyometrics
Swimming
Tai Chi
Tennis
Volleyball
Basketball
Ballroom Dance
Walk/Jog/Run
Judo/Jujitsu
Karate
Kung Fu
Ladies' Self-Defense

HPE 100 - AEROBICS
Semester 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.

HPE 109 - SPEED & PLYOMETRIC TRAINING
Semester Hours: 2

HPE 110 - WALK/JOG/RUN
Semester Hour: 1

A beginner and 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 to provide a viable option for a lifetime fitness activity.

HPE 111 - BUTTS & GUTS WORKOUT
Semester Hours: 2

HPE 117 - WEIGHT TRAINING
Semester Hours: 2

Learn to safely and efficiently use strength training techniques to reach your fitness goals. Develop the skills needed to create a personalized weight training program.

HPE 120 - SWIMMING
Semester Hour: 1

Learn the basic or progress in your swimming by learning the common swim strokes and techniques. Introduction to conditioning and training and work toward improving skills and endurance bringing higher efficiency in the water.

HPE 127 - LADIES SELF-DEFENSE
Semester Hour: 1

Explore the concepts, strategies, and methods of self defense. Topics and skills include wrist escapes, falling skills, various strikes and kicks, groundwork, weaponry, and escape tactics. Further, an emphasis will be placed on developing and improving situational awareness.

HPE 129 - KUNG FU
Semester Hours: 2

Kung Fu has become one of the most popular forms of martial arts. Students will be introduced to Sil Lum Tao, the first in the three forms of Wing Chun Kung Fu. The name means "little imagination" and refers to the need of the student to use their imagination in the practice and application of techniques.

HPE 130 - KARATE
Semester Hours: 2

Learn karate techniques and acquire skills required to perform these techniques. The objective of Karate is to teach the student defensive skills through various stances and self-defense techniques.

HPE 133 - AIKIDO
Semester Hour: 1

HPE 134 - T'AI CHI

Semester 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.

HPE 135 - INTERMEDIATE T'AI CHI

Semester Hours: 2

HPE 136 - YOGA

Semester Hour: 1

HPE 137 - JUDO/JUJITSU

Semester Hours: 2

Judo/Jujitsu provides students with an introduction to the Japanese martial arts of Judo and 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.

HPE 140 - BALLROOM DANCE

Semester 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.

HPE 142 - SWING DANCE

Semester Hours: 2

HPE 144 - COUNTRY WESTERN DANCE

Semester Hour: 1

HPE 150 - RACQUETBALL

Semester Hours: 2

Learn the basic of racquetball, including rules, equipment and skills. Singles (2 players), Cut throat (3 players) and Doubles (4 players) versions of racquetball will be taught. Double games during class times will be played when both safety and skill level of the players are acceptable to the instructor.

HPE 153 - TENNIS

Semester Hour: 1

Students will learn the fundamentals of tennis including forehand, backhand, serve, volley, footwork, and ground strokes. There will be both singles and doubles play and a class tournament. Highlights include understanding the rules, regulations and strategies of the game.

HPE 156 - GOLF

Semester Hour: 1

Students will understand and learn the basic skills of golf, including rules, proper stance, grip and swing for all clubs. Clubs are available if needed.

HPE 167 - ROCK CLIMBING

Semester Hours: 2

\$100 fee to be paid directly to Rock Climbing facility.

HPE 169 - BASKETBALL

Semester Hour: 1

HPE 170 - VOLLEYBALL

Semester Hour: 1

Learn the fundamentals 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 advantage as a lifetime sport, with a focus on skill development.

HPE 174 - BILLIARDS

Semester Hour: 1

HPE 199 - SP TOP:HLTH & PHYS ED

Semester Hours: 1-3

HPE 221 - ADVANCED SCUBA

Semester Hour: 1

Presents skills and knowledge for deep diving (80 + feet). Limited visibility diving, and advanced navigation techniques. Earn YMCA advanced open water certification. Students must provide mask, fins, and snorkel. Cost of open water dives not included in lab fee.

HPE 223 - LIFEGUARD TRAINING

Semester Hours: 2

Certification as a Red Cross approved lifeguard upon successful completion of classroom and in-water instruction and testing.

HPE 224 - WATER SAFETY INSTRUCTOR

Semester Hours: 3

Techniques for teaching infant and pre-school aquatics. The American Red Cross Learn to Swim Program, and Basic Water and Emergency Water Safety courses. Includes pre-test and instructor candidate training course.

HPE 231 - INSTR AIRPLANE(IFR)RATING GR S

Semester Hours: 3

Provides student with knowledge needed for instrument flight instruction air training. Prepares student for FAA Instrument Flying Examination.

HPE 400 - SPECIAL TOPICS - INTERNSHIP

Semester Hours: 3

Innovative internship focused on working with students with disabilities. Observations, participation, and direct instruction and teaching in a middle or high school setting for a prescribed time.

Kinesiology

329 Wilson Hall

Telephone: 256.824.6007

Email: kin@uah.edu

Programs Offered

The Bachelor of Science in Kinesiology offers the following two concentration areas:

- Exercise Science (p. 324)
- Physical Education Teacher Education (P-12) (p. 328)

The **Exercise Science** concentration prepares students for fields of study in the health sciences, such as physical therapy, occupational therapy, and cardiovascular rehabilitation. Students will also be prepared for graduate studies in exercise physiology, biomechanics, and exercise science. With a Bachelor of Science degree in exercise science, students are prepared for fitness and wellness professions, such as fitness training and instruction, corporate wellness, sports and strength coaching, and fitness and wellness center management. Program outcomes align with the standards of key professional associations such as the American College of Sports Medicine (ACSM) and the National Strength and Conditioning Association (NSCA).

The **Physical Education Teacher Education (P-12)** concentration prepares students to obtain the license required to teach physical education in Alabama. Students meet all Alabama Quality Teaching Standards and specific physical education standards established by the Alabama State Department of Education (ALSDE). These standards are aligned with the Society of Health and Physical Educators (SHAPE) teacher education standards and the Alabama Course of Study for Physical Education. Students who choose the Physical Education concentration must satisfy the requirements for admission to the UAH Teacher Education Program as outlined in the Unit Assessment System of the Institutional Report submitted by the Department of Education to CAEP.

Academic Advising

Students who are interested in the kinesiology degree program should contact the Department of Kinesiology at (256) 824-6007 to consult our advisor about program admission, curricular, and degree requirements.

Please contact Liz Redding at liz.redding@uah.edu.

- Kinesiology, Bachelor of Science - Exercise Science Concentration (p. 324)
- Kinesiology, Bachelor of Science - Physical Education Teacher Education Concentration (p. 328)

Coaching (p. 331)

KIN 109 - SPEED & PLYOMETRIC TRAINING

Semester Hours: 2

KIN 117 - WEIGHT TRAINING I

Semester Hours: 2

KIN 118 - WEIGHT TRAINING II

Semester Hours: 2

KIN 119 - WEIGHT TRAINING III

Semester Hours: 2

KIN 200 - CONTEMPORARY NUTRITION

Semester Hours: 2

Introduction to the principles of nutrition as they relate to the growth, development, and maintenance of the human body throughout the lifespan. Emphasis is placed on the classes of nutrients, weight management, and nutritional planning.

KIN 205 - FIRST AID & CPR

Semester Hour: 1

Students will focus on recognizing emergency situations. First Aid and CPR also provides skills and knowledge necessary in caring for injuries or sudden illness.

KIN 210 - ATHLC INJURY PREVENTION & CARE

Semester Hours: 3

Presents the knowledge and techniques necessary to prevent and/or care for common athletic injuries. For coaches, athletes, and those working in recreation, physical education, or athletics.

KIN 215 - FIRST RESPONDER/PROFESSIONAL CPR

Semester 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.

KIN 240 - HEALTH & WELLNESS CONCEPTS

Semester Hours: 3

This course provides students with an overview of individual and societal health and wellness and the impact of lifestyle choices. Laboratory experiences provide opportunity for assessment of individual health and fitness behaviors. Topics covered include: wellness, physical fitness, behavior modification, weight management, stress management, disease prevention, addictive behavior and sexual health.

KIN 250 - ESSENTIALS OF PERSONAL TRAINING

Semester Hours: 2

This course is designed to provide 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.

KIN 260 - FOUNDATIONS OF KINESIOLOGY

Semester Hours: 3

An introductory course for students in the Kinesiology major. The course will provide an overview of the Kinesiology field, including all subdisciplines and an in-depth discussion of teacher v non-teacher career choices. The history and development of physical education, exercise science, and sport studies will be covered, as well as issues and trends in physical education, exercise science, and sport studies.

KIN 265 - INTRO TO SPORT MGMT

Semester Hours: 3

This 3 hour 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, fundraising, legal issues, event scheduling, and decision making.

KIN 290 - EXERCISE TECHNIQUES & LEADERSHIP

Semester Hours: 3

This course provides a practical guide in leadership for group and individual exercise settings. Critical evaluation of a safe fitness environment, adult physical activity programs to promote health, and exercise techniques according to the American College of Sports Medicine and National Strength and Conditioning Association are included.

KIN 300 - NUTRITION FOR FITNESS & SPORT

Semester Hours: 3

Explores the theoretical and applied nutritional sciences as they relate to fitness and sport. Students will develop practical skills applicable to solving nutritional problems in exercising populations. Nutritional requirements and practices related to general fitness, athletic performance, and special needs individuals will also be covered.

KIN 315 - STRENGTH TRNG & CONDITION

Semester Hours: 3

This course provides a comprehensive overview of strength and athletic conditioning. Emphasis is placed on the exercise sciences (including anatomy, exercise physiology, and biomechanics) and 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 215 and BYS 216.

KIN 327 - INTRO TO EXERCISE PHYSIOLOGY

Semester Hours: 3

An introduction to the response and adaptations of the body systems to exercise and physical activity. Prerequisites: KIN 260, BYS 215 and BYS 216 with a grade of C- or better Co-requisite: KIN 328.

KIN 328 - INTRO EX PHYSIOLOGY LAB

Semester Hour: 1

Exercise physiology lab experience to accompany the introduction to exercise physiology course lectures. The course meets two hours weekly for one credit hour. Co-requisite: KIN 327.

KIN 340 - SCHOOL AND COMMUNITY HEALTH

Semester Hours: 3

Obtain information and skills related to school and community health programs with an emphasis on health instruction, strategies, and resources. Survey the components of a school health program: school health services, healthful school environment, principles of physical and movement education, nutrition services, counseling and social services, parent/community involvement, health promotion for staff. Examine the core functions of public health, prevention of diseases and injuries, health needs of special populations, and functions of various organizations.

KIN 351 - EXER TEST & PRECR HEALTHY POP

Semester Hours: 3

Provides students with techniques that evaluate aerobic capacity, muscular strength and endurance, flexibility, and body composition. The development of exercise prescriptions based on evaluation results will be emphasized. Prerequisites: KIN 327 (C- or better grade) and KIN 328.

KIN 352 - EXER TEST & PRECR SPECIAL POP

Semester Hours: 3

This advanced-level course integrates both lecture and laboratory to prepare students with the knowledge and skills necessary to conduct fitness evaluations, exercise prescriptions, and risk stratification of at-risk individuals. Specific emphasis will be placed on the administration of safe fitness testing using protocols published by ACSM for the health related components of physical fitness. Prerequisites: KIN 351.

KIN 361 - TEACHING TEAM SPORTS

Semester Hours: 3

Teaching methods and strategies of sports that require more than one participant. While knowledge of how to play the sport will be taught, emphasis will be placed on the organization, management, and assessment of skills in activities such as, but not limited to soccer, handball, and basketball.

KIN 362 - TEACHING INDIVIDUAL ACTIVITIES

Semester Hours: 3

Teaching methods and strategies for games involving individuals rather than a team. Emphasis will be placed on the organization, management, and assessment of skills in activities including, but not limited to, aerobic dance, cross country/trail running, and tumbling/gymnastics.

KIN 363 - TEACHING FITNESS & WELLNESS

Semester Hours: 3

Learn to perform and instruct a variety of fitness activities. Emphasis will be placed on performing fitness skills and on the methods and techniques for instructing and teaching specific fitness activities. Techniques for evaluating the knowledge and skills of the activities will also be stressed.

KIN 370 - ADAPTED PHYSICAL EDUCATION

Semester Hours: 3

Develop knowledge of current concepts and trends in adapted physical education as well as the ability to plan and implement a physical education program designed to meet the unique needs of individuals.

KIN 371 - ADAPTED FITNESS

Semester Hours: 3

Develop knowledge of current concepts and trends in adapted physical fitness as well as the ability to plan and implement fitness and wellness programs designed to meet the unique needs of individuals, particularly those with disabilities and special needs. Prerequisite: KIN 260.

KIN 381 - FACILITIES AND EQUIPMENT MGT

Semester Hours: 3

This course will provide theories for the design, development, operation, maintenance, and management of sport and fitness facilities. Prerequisite: KIN 260.

KIN 382 - SPORT LEADERSHIP

Semester Hours: 3

This course focuses on the role of leadership in general, with a specific application to a sport setting. We will focus on the numerous approaches to leadership that have been used, and emphasize illustrating and applying them to different aspects of sports. Prerequisites: KIN 260.

KIN 383 - SOCIOLOGY IN SPORT

Semester Hours: 3

This course is designed to study the role sport plays as a social institution. Additionally, we will identify what social institutions are most affected by sport and how these institutions are created. Topics will include the definition of sport as well as why and how it is studied, the effect of sport on society, sport as an institution, and sport and culture. Prerequisite: SOC 100.

KIN 418 - STRUCTURE/FUNCTIONAL KIN

Semester Hours: 3

This course will provide development of knowledge of anatomic systems related to purposeful movement of the human body. Thorough instruction of the structure and function of musculoskeletal system will be provided. Prerequisites: BYS 215 and BYS 216.

KIN 419 - EXERCISE & SPORT BIOMECHANICS

Semester Hours: 3

This course will provide an advanced understanding of biomechanical conditions of human movement as well as knowledge and skills needed to analyze and evaluate human motor performance in order to prescribe appropriate interventions for optimized application to rehabilitation and sports performance. Students will learn to appropriately represent kinematic and kinetic quantities as vectors and use vectors, vector addition, and vector resolution to enhance the understanding of basic mechanical concepts. Prerequisites: BYS 215, BYS 216, and PH 101; and either KIN 418 or BYS 402.

KIN 421 - INST APP TO SPORT PEDAGOGY

Semester Hours: 3

This class is designed to expand and enrich the teaching repertoire. Special emphasis will be given to how selected models of teaching can be used to achieve multiple outcomes of teaching in physical education and other contexts (e.g., physical activity programs & youth sport). Additionally, the course will increase awareness in other instructional areas related to the profession (teaching underserved youth, youth sports programs, etc.). Prerequisites: KIN 361 or KIN 362 or KIN 363.

KIN 440 - MGT SPORT & PHYSICAL EDUCATION

Semester Hours: 3

This course provides the student with the knowledge of sport management and administration in both athletic and leisure-based sports. Topics include management concepts, roles and responsibilities, fiscal management, fund-raising, legal issues, event scheduling, and decision making.

KIN 442 - INTRO TO SPORT LAW

Semester Hours: 3

This course is designed to introduce students to the legal doctrines, major statutes, standards, and case law that establish legal responsibilities, rights, privileges and controls related to the field of exercise and sport sciences. Prerequisite: KIN 260.

KIN 443 - SP TOPICS IN SPORT ADMIN

Semester Hours: 3

This course will address a variety of topics based on emerging trends in Sport Administration. Potential course offerings will include coach education, advanced legal issues, sport sociology, sport finance and accounting and globalization of sport. Course content will be offered in rotation as needed. Prerequisite: KIN 260.

KIN 445 - PRINCIPLES OF COACHING

Semester Hours: 3

Gain knowledge and skills specific to coaching: developing a coaching philosophy and objectives, motivating athletes, managing a team. Emphasis is placed on sport at the high school and club level with consideration given to coaching youth, recreational, and intercollegiate. Coursework provides preparation for the American Sport Education Program (ASEP) Coaching Principles exam which is required by the Alabama High School Athletic Association (AHSAA).

KIN 450 - EXERCISE PHYSIOLOGY INTERNSHIP

Semester Hour: 1

Designed to provide on-site practical experience in a wellness/fitness program, physical therapy clinic, and/or a cardiac rehabilitation facility for Kinesiology-Exercise Science majors. Prerequisites: KIN 351.

KIN 451 - RESEARCH EXERCISE SCIENCE I

Semester Hours: 3

Initial capstone course (part of a two-course sequence) providing a broad and balanced background in various types of research methods and the development of a research proposal. Development of a research question, hypothesis, and research methodology. Application of computers will be used to search databases for relevant literature. Completion of an Institutional Review Board application is required. Prerequisites: KIN 351.

KIN 452 - RESEARCH EXERCISE SCIENCE II

Semester Hours: 3

Final capstone course (part of a two-course sequence) in which students must integrate and apply skills acquired throughout the program to complete a comprehensive research project. The student will complete the research project proposed in KIN 451 by recruiting research participants to collect data, writing the results and conclusions for a manuscript. Results will be prepared for publication and presented in a professional setting. Prerequisites: KIN 451 and PY 300 (with concurrency).

KIN 455 - MOTOR LEARNING

Semester Hours: 3

Study the principles and practices that affect the learning and development of motor skills; theories of motor learning, motor control, and development; lifespan motor development perspective related to performing motor and sport skills; and professional applications of motor learning and development in exercise science, athletic training, and physical education.

KIN 457 - MEASUREMNT & EVAL IN PHYS ACTV

Semester Hours: 3

Measure and evaluate learning or skill improvement based on accepted standards. Gain an understanding of the logic behind measurement instruments in order to better interpret and implement results and to achieve improved learning or physical fitness improvement. These methods of measurement and evaluation are important skills in health, physical education, and exercise science fields.

KIN 460 - SP TOPICS EXERCISE SCIENCE I

Semester Hours: 3

This course is intended to cover a variety of topics based on emerging topics in Exercise Science. Potential course offerings will include environmental exercise physiology, cardiovascular exercise physiology, childhood and adolescent exercise physiology, psychology of injury, illness, and disability, and resources for the personal trainer. Course content will be offered in rotation. Prerequisites: KIN 327.

KIN 461 - SP TOPICS EXERCISE SCIENCE II

Semester Hours: 3

This course is developed to cover a variety of topics based on emerging topics in Exercise Science. Potential course offerings will include environmental exercise physiology, cardiovascular exercise physiology, childhood and adolescent exercise physiology, psychology of injury, illness and disability and resources for the personal trainer. Course content will be offered in rotation. Prerequisites: KIN 327.

KIN 462 - TEACHING PHYS ED IN ELEM SCH

Semester Hours: 3

Physical education teacher candidates will acquire the ability to understand, recognize, analyze, and demonstrate the range of teaching skills employed by successful physical educators in the preschool and elementary setting. Emphasis is placed on understanding the theoretical implications of different teaching skills and the contexts in which they are effective. Teacher candidates will design lessons that allow for maximum student participation while remaining aligned with Alabama Consent Standards. Field experience is required. Candidates will observe, participate in, and teach lessons in physical education classrooms. Prerequisite: Admission to the Teacher Education Program. Prerequisite: KIN 370.

KIN 463 - PSYCHOLOGICAL ASPECTS SPORT

Semester Hours: 3

Provides students with an introductory experience in sport, exercise, and fitness psychology based on the latest research and practice. Practical examples and case studies for individual and group sports are provided. The aim is to bridge science and practice to teach students the role of a sport and fitness psychologist. Prerequisites: KIN 327.

KIN 465 - TEACHING SECONDARY PE

Semester Hours: 3

Physical education teacher candidates will acquire the ability to understand, recognize, analyze, and demonstrate the range of teaching skills employed by successful educators in the secondary setting.

KIN 470 - SPORT MARKETING

Semester Hours: 3

Sport Marketing presents an overview of the various techniques and strategies used in meeting the wants and needs of consumers in the sport industry as well as the understanding how sport can be used to assist in the marketing of other companies and products. Areas to be addressed are the uniqueness of sport marketing in comparison with traditional marketing, an overview of the segments of the sport industry, the importance of market research and segmentation in identifying the right sport consumer, the use of data-based marketing in researching the sport consumer, an overview of the marketing mix as individual units and the relationship between those units, and the development of sponsorship and endorsement packages. Prerequisite: MKT 301.

KIN 471 - SPORT FINANCE

Semester Hours: 3

This course examines the financial tools that sports managers use to run their sport businesses. As such, it explores traditional and innovative methods of revenue acquisition and financial management in sports organizations, the financial business structure of sports organizations, and the financial planning and forecasting processes that make organizations effective. Various other aspects of finance are discussed as they relate to sports organizations, including the time value of money, capital structuring, stocks and bonds, inventory management, and taxation. Prerequisite: FIN 301.

KIN 472 - ETHICS IN SPORT

Semester Hours: 3

This course prepares students to take a more critical view of sport, as well as reflect on their own personal ethical and competitive orientations. A central focus of the course is to view sport and competition from social justice and diversity perspectives. More specifically, sport is discussed from a socio-cultural context regarding how dominant and non-dominant groups (racial, ethnic, or socio-economic) have used sport to preserve or change their societal status. This includes such areas as racial identity and equity, gender identity and equity, cultural and ethnic stereotyping, sexual orientation, hazing and bullying, religion and sport, and individuals with disabilities. This course will also look at how to become an agent for change by using social capital to promote ethical equity and diversity. Prerequisite: KIN 265.

KIN 473 - SPORT & FITNESS MANAGEMENT

Semester Hours: 3

The course is an in-depth analysis of the relationship of sport and management. The study of sport includes sporting goods manufacturers; fitness centers; recreation departments; broadcasting; Little League teams; and high school, NCAA, and professional leagues. The study of management follows the four functions of management: planning, organizing, leading, and controlling. Prerequisite: KIN 265.

KIN 490 - EXERCISE SCIENCE INTERNSHIP

Semester Hours: 6

Designed to provide on-site practical experience in a wellness/fitness program, physical therapy clinic, and/or a cardiac rehabilitation facility for Kinesiology-Exercise Science majors. Prerequisites: KIN 351, senior standing.

KIN 491 - SPORT ADMINISTRATION INTERNSHIP

Semester Hours: 6

Sport Administration Internship will introduce and promote professionalism through a hands-on experience with a local company. The student will be guided by a faculty member and company representative to achieve a strong overall work experience pertaining to the student's interests. Prerequisites: KIN 260.

Bachelor of Science in Kinesiology with Exercise Science Option

- A Bachelor of Science in Kinesiology with a concentration in Exercise Science requires 120 credit hours.
- For transfer students, no more than 60 credit hours from a two-year school can be applied toward a UAH degree.
- In order to graduate, 12 of the last 18 credit hours must be taken at UAH, and 25% of all coursework must be taken at UAH.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
FYE 101D	CHARGER SUCCESS - EDUCATION	
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities:		3
CM 113	Intro to Rhetorical Communication ¹	
2nd Humanities/Fine Arts/Literature		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
WLC 204	INTERNATIONAL CINEMA	
Any WLC course 100 or 200 level		
Mathematics and Natural Sciences		11-12
Mathematics: Choose one		3
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
Natural Sciences:		8
BYS 119	PRINCIPLES OF BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
or CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
History or Social and Behavioral Sciences		12
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
AMS 229	ANCIENT & MEDIEVAL WORLDS	
Social and Behavioral Sciences		6
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or Social and Behavioral Science: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	

GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
Pre-professional Courses		22 or 23
PH 101	GENERAL PHYSICS I	
BYS 215 & 215L	HUMAN ANATOMY & PHYSIOLOGY I and HA&P I LABORATORY	
BYS 216 & 216L	HUMAN ANATOMY & PHYSIOLOGY II and HA&P II LABORATORY	
BYS 320	MEDICAL TERMINOLOGY	
BYS 402	KINESIOLOGY & BIOMECHANICS	
PY 300 & 300L	PSYCHOLOGICAL STATISTICS and PSYCHOLOGICAL STATISTICS LAB (Lab optional)	
Kinesiology Major Core		12
KIN 240	HEALTH & WELLNESS CONCEPTS	
KIN 260	FOUNDATIONS OF KINESIOLOGY	
KIN 455	MOTOR LEARNING	
KIN 457	MEASUREMNT & EVAL IN PHYS ACTV	
Exercise Science Courses		43
KIN 210	ATHLC INJURY PREVENTION & CARE	
KIN 290	EX TECHNIQUES & LEADERSHIP	
KIN 300	NUTRITION FOR FITNESS & SPORT	
KIN 315	STRENGTH TRNG & CONDITION	
KIN 327	INTRO TO EXERCISE PHYSIOLOGY	
KIN 328	INTRO EX PHYSIOLOGY LAB	
KIN 351	EXER TEST & PRECR HEALTHY POP	
KIN 352	EXER TEST & PRECR SPECIAL POP	
KIN 440	MGT SPORT & PHYSICAL EDUCATION	
KIN 451	RESEARCH EXERCISE SCIENCE I	
KIN 452	RESEARCH EXERCISE SCIENCE II	
KIN 460	SP TOPICS EXERCISE SCIENCE I	
KIN 463	PSYCHOLOGICAL ASPECTS SPORT	
KIN 490	EXERCISE SCIENCE INTERNSHIP	
Electives: Choose one of the following		3
KIN 361	TEACHING TEAM SPORTS	
KIN 363	TEACHING FITNESS & WELLNESS	
KIN 370	ADAPTED PHYSICAL EDUCATION	
KIN 445	PRINCIPLES OF COACHING	
KIN 461	SP TOPICS EXERCISE SCIENCE II	
Total Semester Hours		120

Sample four year plan for BS degree in Kinesiology: Exercise Science

Note: This is only an example and variations are possible.

Code	Title	Semester Hours
Year 1		
Fall Semester		14
FYE 101D	CHARGER SUCCESS - EDUCATION	1
EH 101	COLLEGE WRITING I	3
BYS 119	PRINCIPLES OF BIOLOGY	4
MA 110	FINITE MATHEMATICS	3
or MA 112	PRECALCULUS ALGEBRA	
Fine Arts elective-see Requirements tab for options		3
Spring Semester		16
EH 102	COLLEGE WRITING II	3
CM 113	Intro to Rhetorical Communication	3
HY 103	WORLD HISTORY TO 1500	3
or HY 104	WORLD HISTORY SINCE 1500	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	4
or CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
KIN 240	HEALTH & WELLNESS CONCEPTS	3
Year 2		
Fall Semester		16
BYS 215 & 215L	HUMAN ANATOMY & PHYSIOLOGY I and HA&P I LABORATORY	4
PY 101	GENERAL PSYCHOLOGY I	3
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	READINGS LITERATURE/CULTURE 2	
or EH 242	MYTHOLOGY	
KIN 210	ATHLC INJURY PREVENTION & CARE	3
KIN 260	FOUNDATIONS OF KINESIOLOGY	3
Spring Semester		16
BYS 216 & 216L	HUMAN ANATOMY & PHYSIOLOGY II and HA&P II LABORATORY	4
PY 201	LIFE-SPAN DEVELOPMENT	3
2nd Humanities, Fine Art, or Literature-see Requirements tab for options		3
2nd History or Social Behavior Science-see Requirements tab for options		3
KIN 290	EX TECHNIQUES & LEADERSHIP	3
Year 3		
Fall Semester		14
PH 101	GENERAL PHYSICS I	4
PH 101L	GENERAL PHYSICS I LAB	0
KIN 300	NUTRITION FOR FITNESS & SPORT	3
KIN 327 & KIN 328	INTRO TO EXERCISE PHYSIOLOGY and INTRO EX PHYSIOLOGY LAB	4
KIN elective		3
Spring Semester		15 or 16
BYS 320	MEDICAL TERMINOLOGY	3
PY 300	PSYCHOLOGICAL STATISTICS	3
PY 300L	PSYCHOLOGICAL STATISTICS LAB (Optional)	1
KIN 315	STRENGTH TRNG & CONDITION	3
KIN 351	EXER TEST & PRECR HEALTHY POP	3
KIN 455	MOTOR LEARNING	3

Year 4

Fall Semester		16
BYS 402 & 402L	KINESIOLOGY & BIOMECHANICS and LABORATORY	4
KIN 352	EXER TEST & PRECR SPECIAL POP	3
KIN 451	RESEARCH EXERCISE SCIENCE I	3
KIN 457	MEASUREMNT & EVAL IN PHYS ACTV	3
KIN 463	PSYCHOLOGICAL ASPECTS SPORT	3
Spring Semester		15
KIN 440	MGT SPORT & PHYSICAL EDUCATION	3
KIN 452	RESEARCH EXERCISE SCIENCE II	3
KIN 460	SP TOPICS EXERCISE SCIENCE I	3
KIN 490	EXERCISE SCIENCE INTERNSHIP	6

Bachelor of Science in Kinesiology with Physical Education (P-12) Licensure

- Bachelor of Science in Kinesiology: Physical Education Teacher Education requires 123 credit hours.
- 12 credit hours of 300 level and above must be taken in the major.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 61 credit hours from a two-year school can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Code	Title	Semester Hours
FYE 101D	CHARGER SUCCESS - EDUCATION	
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities:		3
CM 113	Intro to Rhetorical Communication ¹	
2nd Humanities/Fine Arts/Literature		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Any WLC course 100 or 200 level		
Mathematics and Natural Sciences		11-12
Mathematics: Choose one		3
MA 110	FINITE MATHEMATICS	

MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
Natural Sciences:		8
BYS 119	PRINCIPLES OF BIOLOGY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
History or Social and Behavioral Sciences		12
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
AMS 229	ANCIENT & MEDIEVAL WORLDS	
Social and Behavioral Sciences		6
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
History or Social and Behavioral Science: Choose one		3
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
Pre-professional Courses		12
BYS 215	HUMAN ANATOMY & PHYSIOLOGY I	
BYS 216	HUMAN ANATOMY & PHYSIOLOGY II	
KIN 327 & KIN 328	INTRO TO EXERCISE PHYSIOLOGY and INTRO EX PHYSIOLOGY LAB	
Code	Title	Semester Hours
Education Courses		28
ED 301	INTRO TO EDUCATION PRACTICUM	
ED 307	MULTICULTURAL FND EDUCATION	
ED 308	EDUCATIONAL PSYCHOLOGY	
ED 408	TCHG READING/CONTENT AREA	
ED 499	P-12 INTERNSHIP	
EDC 301	TCHG THE EXCEPTIONAL CHILD	
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	
Kinesiology Core Courses		12
KIN 240	HEALTH & WELLNESS CONCEPTS	
KIN 260	FOUNDATIONS OF KINESIOLOGY	
KIN 455	MOTOR LEARNING	
KIN 457	MEASUREMNT & EVAL IN PHYS ACTV	
PETE Specific Courses		24
KIN 340	SCHOOL AND COMMUNITY HEALTH	
KIN 361	TEACHING TEAM SPORTS	

KIN 362	TEACHING INDIVIDUAL ACTIVITIES	
KIN 363	TEACHING FITNESS & WELLNESS	
KIN 370	ADAPTED PHYSICAL EDUCATION	
KIN 421	INST APP TO SPORT PEDAGOGY	
KIN 462	TEACHING PHYS ED IN ELEM SCH	
KIN 465	TEACHING SECONDARY PE	
Choose 6 hours of KIN Electives 300+		6
Total Semester Hours		123
Year 1		
Fall		Semester Hours
FYE 101D	CHARGER SUCCESS - EDUCATION	1
EH 101	COLLEGE WRITING I	3
BYS 119	PRINCIPLES OF BIOLOGY	4
MA 110	FINITE MATHEMATICS	3
or MA 112	or PRECALCULUS ALGEBRA	
KIN 240	HEALTH WELLNESS CONCEPTS	3
Fine Arts elective-see Requirements tab for options		3
Term Semester Hours:		17
Spring		
EH 102	COLLEGE WRITING II	3
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	4
HY 103	WORLD HISTORY TO 1500	3
or HY 104	or WORLD HISTORY SINCE 1500	
CM 113	Intro to Rhetorical Communication	3
KIN 260	FOUNDATIONS OF KINESIOLOGY	3
Term Semester Hours:		16
Year 2		
Fall		
EH 207	READINGS LITERATURE/CULTURE I	3
or EH 208	or READINGS LITERATURE/CULTURE 2	
PY 101	GENERAL PSYCHOLOGY I	3
BYS 215 & 215L	HUMAN ANATOMY & PHYSIOLOGY I and HA&P I LABORATORY	4
KIN 340	SCHOOL AND COMMUNITY HEALTH	3
KIN 300+ level elective		3
Term Semester Hours:		16
Spring		
PY 201	LIFE-SPAN DEVELOPMENT	3
BYS 216 & 216L	HUMAN ANATOMY & PHYSIOLOGY II and HA&P II LABORATORY	4
KIN 370	ADAPTED PHYSICAL EDUCATION	3
2nd Humanities, Fine Art, or Literature-see Requirements tab for options		3
2nd History or Social Behavior Science-see Requirements tab for options		3
Term Semester Hours:		16
Year 3		
Fall		
KIN 361	TEACHING TEAM SPORTS	3

ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
Term Semester Hours:		16
Spring		
KIN 327 & KIN 328	INTRO TO EXERCISE PHYSIOLOGY and INTRO EX PHYSIOLOGY LAB	4
KIN 362	TEACHING INDIVIDUAL ACTIVITIES	3
KIN 455	MOTOR LEARNING	3
KIN 462	TEACHING PHYS ED IN ELEM SCH	3
KIN 300+ elective		3
Term Semester Hours:		16
Year 4		
Fall		
KIN 363	TEACHING FITNESS WELLNESS	3
KIN 421	INST APP TO SPORT PEDAGOGY	3
KIN 465	TEACHING SECONDARY PE	3
KIN 457	MEASUREMNT EVAL IN PHYS ACTV	3
ED 408	TCHG READING/CONTENT AREA	3
Term Semester Hours:		15
Spring		
ED 499	P-12 INTERNSHIP	12
Term Semester Hours:		12
Total Semester Hours:		124

Coaching, Minor

Open to individuals from any department on campus, this program is designed for those interested in sport coaching. The purpose of the program is to provide students with a general framework of knowledge and the skills to be effective coaches in school, recreational, and adult league settings. The program blends coursework in the fields Sport Pedagogy, Exercise Science, and Sport Management to give students a well-rounded, cross-disciplined approach to athletic coaching. It consists of 6 classes for 18 hours of course work:

Code	Title	Semester Hours
KIN 361 or KIN 362	TEACHING TEAM SPORTS TEACHING INDIVIDUAL ACTIVITIES	3
KIN 381	FACILITIES AND EQUIPMENT MGT	3
KIN 382	SPORT LEADERSHIP	3
KIN 445	PRINCIPLES OF COACHING	3
KIN 463	PSYCHOLOGICAL ASPECTS SPORT	3
KIN 472	ETHICS IN SPORT	3
Total Semester Hours		18

College of Engineering

102 Engineering Building
Telephone: 256.824.6474
Email: engineering@uah.edu

Mission & Vision

The *mission* of the College of Engineering is to advance knowledge through research and education in core engineering disciplines. The College promotes ethical, innovative, and multidisciplinary approaches in an environment of collaboration with local and global partners to address society's technological problems.

The *vision* of the College of Engineering is to attain national and international recognition through innovative, multi-disciplinary research and education, while promoting professional integrity, and inspiring students to become leaders in their profession.

Degree Programs

The College of Engineering offers seven undergraduate programs built around a core consisting of courses in mathematics, the physical sciences, liberal arts, and engineering. Students may pursue one of the following engineering degree programs that leads to a Bachelor of Science degree:

- Aerospace Engineering (BSAE) (p. 392)
- Chemical Engineering (BSChE) (p. 334)
- Civil Engineering (BSCE) (p. 346)
- Computer Engineering (BSCpE) (p. 369)
- Electrical Engineering (BSEE) (p. 372)
- Industrial and Systems Engineering (BSISE) (p. 383)
- Mechanical Engineering (BSME) (p. 395)

Starting Fall 2018, the College of Engineering will offer a Bachelor of Science in Cybersecurity (Pending SACSCOC approval).

History & Objectives

UAH has been an independent and autonomous campus since 1968 with the first engineering degrees awarded in Electrical Engineering. The College of Engineering was established as an independent college in 1981 and is now the largest of the seven academic colleges at UAH. Over 8,000 undergraduate and graduate degrees have been awarded in the College of Engineering's history. Close proximity to the Marshall Space Flight Center, the U.S. Army Research, Development & Engineering Command and Redstone Arsenal, and much of Alabama's fastest growing technological industry gives the College of Engineering a special character that leads to outstanding educational opportunities for its students. This special setting, combined with high quality research-active faculty, affords maximum growth potential for students interested in pursuing a career in engineering.

The goals of the College of Engineering are to:

- Enhance the national and international recognition of the research activities of the College to advance towards the top 50 engineering colleges/schools.
- Be recognized nationally for graduating highly sought after professionals with excellent engineering skills, integrity, and a strong work ethic
- Improve the quality, diversity, and number of students at all levels with an emphasis on increasing full time student enrollment
- Create an engaging educational environment fostering a highly diverse group focusing on nurturing innovation and leadership through core engineering and multidisciplinary research and education

Working with students, our faculty conduct both fundamental and applied research in disciplinary and cross disciplinary fields, developing solutions to many grand challenges. The College of Engineering is strongly committed to the advising of both undergraduate and graduate engineering students.

Undergraduate Engineering Advising

The College of Engineering is committed to student success, which starts with effective and supportive academic advising. Engineering students are advised by a team of professional advisors from the Center for Undergraduate Engineering Education (CUE²) which is located in Room 157 of the Engineering Building. The CUE² advisors will work with you throughout your entire undergraduate career to define and implement sound educational plans that are consistent with your personal goals and career plans. Our advisors are also available to answer questions about degree requirements as well as academic policies and procedures. They can also suggest enrichment opportunities or make referrals to academic and other campus support resources. They're here to offer guidance and support.

More information about CUE² advisors as well as a host of advising and curricular information for UAH engineering students may be found on the Undergraduate Engineering website (<http://www.uah.edu/eng/departments/undergraduate-engineering>). Prospective students may email the CUE² office at engineering@uah.edu.

Admissions

Freshman Students

Each applicant is evaluated based on individual merit and demonstrated success in a rigorous academic environment. High school coursework, grade point average, and ACT/SAT scores are weighed heavily; however, these criteria do not constitute the entire foundation for an admission decision. An

applicant with a grade point average of 2.9 and a composite score of 20 on the ACT or equivalent SAT, for example, is considered a strong candidate for admission.

Transfer Students

Students may transfer to the UAH College of Engineering from another two-year or four-year institution. Students must have a C grade point average (2.0 on a 4.0 scale) for all coursework previously attempted. Students must also provide an official transcript sent directly to the UAH Admissions office.

Transfer credit will be applied as appropriate to the specific engineering program and at the discretion of the College of Engineering. Students must earn a C in any transferred course that serves as a prerequisite to a course required for the engineering degree program.

Students transferring from a two-year, regionally accredited school may, at most, transfer 50% of the total number of hours (maximum of 64 hours) required for an undergraduate engineering degree. UAH follows the Alabama Articulation and General Studies Committee (<http://stars.troy.edu>) agreement for students transferring credit from a State of Alabama community college. Transfer credit from other two-year institutions will be evaluated by the UAH Registrar's Office and the College of Engineering.

Students transferring from an ABET-accredited four-year institution may transfer no more than 70% of course work towards an engineering degree program. Students must also complete 12 of their last 18 semester hours towards their degree requirements at UAH. More information and requirements may be found at the UAH Admission website (<http://www.uah.edu/admissions>).

Engineering Common First Year

The Engineering Common First Year is designed to motivate and engage engineering students. All Engineering students will take a common set of courses including FYE 101 for Engineers and ENG 101. The goals of the Common First Year program are to:

- Introduce students to UAH, the College of Engineering, and the fields of engineering
- Give students flexibility to choose a major at the end of the first year
- Keep students in a loosely defined cohort for the first year
- Emphasize the importance of computing for engineers
- Ensure that students have the skills necessary to be successful in second year engineering courses

Engineering Academic Progress Policy

It is important for engineering students to make good academic progress. Repeating courses increases the time and cost to earn a degree and can negatively impact a student's grade point average. The College of Engineering defines good academic progress as completing 66% or more of the courses for which a student is registered. Completion is defined as earning the minimum grade necessary to have the course satisfy a degree requirement. Withdrawing from course and receiving a W on the transcript is not considered completion.

Engineering students will be limited to three attempts of any math, science or engineering course that is required for the degree. If a student is not successful at completing a course on the third attempt (including Ws), the student will not be able to continue in any engineering degree program for which that course is required. Exceptions to this policy will be considered for unusual or emergency situations.

Chemical and Materials Engineering

117 Engineering Building
Telephone: 256.824.6810
Email: shankar.mahalingam@uah.edu
<http://www.uah.edu/eng/departments/cme>

Department Chair: Shankar Mahalingam (Interim)

Chemical Engineering Program

Chemical engineering deals with any situation in which changes in the chemical composition or the physical state of matter (or both) are involved and, hence, finds unusually wide application. Heat and mass transfer, fluid mechanics, thermodynamics, chemical reaction kinetics, and process control constitute the heart of chemical engineering. Chemical engineers work in many diverse fields ranging from production of many basic chemical products required by today's industrial society to research on major technical and social problems, including energy resources development, space applications, pollution control, and biotechnology.

Students pursuing a UAH Chemical Engineering bachelor's degree may choose one of two concentrations:

1. Materials (p. 342)
2. Biotechnology (p. 338)

Program Educational Objectives

The program educational objectives (PEOS) are designed to prepare graduates to be successful in their professional careers and for them to have the skills needed to contribute to the economic advancement of their firms, their local region, the state and the nation. The PEOS are:

- Graduates have gained a core competency and are expected to advance professionally in positions of increasing technical and/or managerial responsibilities within their chosen field.
- Graduates are expected to engage in educational, business, or technical activities with an understanding of global and economic impacts, civic responsibility, and environmental and human safety.
- Graduates are expected to pursue life-long learning for continuous improvement which is a requisite for a successful engineer to become a leader in the work force or graduate education.

Majors in Chemical Engineering

- Chemical Engineering, BSChE - Biotechnology Concentration (p. 338)
- Chemical Engineering, BSChE - Materials Concentration (p. 342)

CHE 201 - INTRO CHEMICAL ENGR PROCESS

Semester Hours: 2

Introduction to industrial processes used in the production of commodity chemicals important to chemical engineers. Computer programming, spreadsheets, symbolic math, and drawing packages to model fundamental stages of these processes will be presented. Prerequisites: ENG 101 and CH 123.

CHE 244 - INTRO TO CHEM ENGRG SYSTEMS

Semester 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, MA 201 and CHE 201.

CHE 294 - NATURE & PROPERTIES OF MATLS

Semester Hours: 3

Introduction to the fundamental nature and properties of materials including bonding, composition, and phase diagrams. Composite materials and aspects of materials processing, including diffusion, nucleation, and transformation diagrams, will be presented. Prerequisites: CH 121 and PH 111.

CHE 295 - NATURE & PROPERTIES MATLS LAB

Semester Hour: 1

Experiments include characterizing material structures, testing mechanical properties and mapping phase diagram boundaries. Emphasis on numerical and statistical analysis of the data. Written reports are required, and elements of materials design are presented.

CHE 342 - TRANSPORT PHENOMENA

Semester 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: CH 341 and CHE 244 and MAE 310 w/concurrency.

CHE 344 - CHEM ENGR THERMODYNAMICS

Semester 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 CHE

Semester Hours: 3

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

CHE 359 - INDEPENDENT STUDIES IN CHE

Semester Hours: 1-3

Independent studies or research on a topic that requires the application of basic principles in chemical engineering. A written report, analytical or experimental analysis, and oral presentation will be required. Prerequisites: CHE 244 and CHE 294.

CHE 439 - UNIT OPERATIONS I

Semester Hours: 2

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. Prerequisites: CHE 295, CHE 441, and CHE 446.

CHE 440 - UNIT OPERATIONS II

Semester Hours: 2

Experimental studies covering reaction kinetics, mass separation, biotechnology, and special material properties. Applications of laboratory practices, probability and statistical data analysis, and ethics in professional practice. Emphasis placed on technical communications. Prerequisites: CHE 439, CHE 441, and CHE 443.

CHE 441 - CHEM KINETICS & REACTOR DESIGN

Semester Hours: 3

Fundamental principles of chemical kinetics and chemical reactor engineering along with the design of both thermal and catalytic reactors. (Same as CHE 541) Prerequisites: CHE 344 and CHE 347.

CHE 442L - LABORATORY

Semester Hours: 0

CHE 443 - MASS TRANSFER OPERATIONS

Semester 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, CHE 344, and MAE 310.

CHE 445 - CHEMICAL PROCESS CONTROL

Semester Hours: 3

Fundamental principles of chemical process control; control system design for chemical processes. Prerequisite: CHE 441 and CHE 446.

CHE 446 - ANAL & DESIGN TRANSPORT EQUIP

Semester 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 and CHE 443.

CHE 448 - CHEMICAL ENGINEERING DESIGN

Semester Hours: 3

Capstone design course. Design of chemical engineering components, concluding with an overall team design effort using modern CAD techniques includes preliminary design, simulation, and economic evaluation of a chemical production flow sheet, and a study of ethical issues. Prerequisites: CHE 441, CHE 443, CHE 445 and CHE 446.

CHE 459 - ADVD INDEPENDENT STUD CHE

Semester 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 presentation will be required. Prerequisites: CHE 347 and either CH 363 or CH 440.

CHE 460 - INTRO TO BIOPROCESS ENGRG

Semester 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. (Same as CHE 560). Prerequisite: CH 361.

CHE 461 - BIOSEPARATIONS

Semester Hours: 3

Characteristics of separation processes used in biotechnology industries including removal of insolubles, isolation and purification of thermally sensitive products, and preparation for customer use. Applications for biological separations, recombinant DNA techniques, and protein engineering. (Same as CHE 561). Prerequisite: CHE 460.

CHE 485 - PROCESS SAFETY & TOXICOLOGY

Semester Hours: 3

Fundamentals of process safety and aspects of toxicology. Requires the application of chemical engineering concepts to review and analyze case studies to learn from industrial accidents. Introduces regulatory and design concepts. Prerequisite: CHE 448.

CHE 494 - APPLIED MATERIALS ENGINEERING

Semester Hours: 3

Synthesis and processing methods of materials. Selection and use of materials performance factors for design of structural and functional components. Use of computational methods in solving open-ended design problems using nature and properties of materials will be emphasized. (Same as CHE 594) Prerequisites: CHE 294 and CHE 344.

CHE 495 - POLYMER ENGINEERING

Semester 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. (Same as CHE 595) Prerequisites: CH 341 and CH 440.

Chemical Engineering, BSChE

To obtain a Bachelor of Science degree in Chemical Engineering, students are required to complete the general education requirements for engineering majors and the following courses:

Code	Title	Semester Hours
Charger Foundations		
College General Education Requirements		36
Additional Basic Sciences Semester Hours		
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CH 332	ORGANIC CHEMISTRY II	3
CH 341	PHYSICAL CHEMISTRY I	3
BYS 311	INTRO MOLECULAR UNDST BIO SYST	3
Engineering Core for Chemical Engineering		
CHE 244	INTRO TO CHEM ENGRG SYSTEMS	3
CHE 294	NATURE & PROPERTIES OF MATLS	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
MAE 271	STATICS	3
Chemical Engineering Option		
CHE 201	INTRO CHEMICAL ENGR PROCESS	2
CHE 295	NATURE & PROPERTIES MATLS LAB	1
CHE 342	TRANSPORT PHENOMENA	3
CHE 344	CHEM ENGR THERMODYNAMICS	3
MAE 310	FLUID MECHANICS I	3
CHE 347	QUANTITATIVE MODELING FOR CHE	3
CHE 439	UNIT OPERATIONS I	2
CHE 440	UNIT OPERATIONS II	2
CHE 441	CHEM KINETICS & REACTOR DESIGN	3
CHE 443	MASS TRANSFER OPERATIONS	3
CHE 445	CHEMICAL PROCESS CONTROL	3
CHE 446	ANAL & DESIGN TRANSPORT EQUIP	3
CHE 448	CHEMICAL ENGINEERING DESIGN	3
CHE 485	PROCESS SAFETY & TOXICOLOGY	3
Total Semester Hours		102

Suggested Schedule for Full-Time Students

Year 1

		Semester Hours
Fall		
MA 171	CALCULUS A	4
CH 121	GENERAL CHEMISTRY I	3
CH 125	GENERAL CHEMISTRY LAB I	1
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
CHE 201	INTRO CHEMICAL ENGR PROCESS	2
HSBS/HFA		3
Term Semester Hours:		17

Spring

MA 172	CALCULUS B	4
PH 111	GEN PHYSICS W/CALCULUS I	3
PH 114	GENERAL PHYSICS LAB I	1
EH 102	COLLEGE WRITING II	3
CH 123	GENERAL CHEMISTRY II	3
CH 126	GENERAL CHEMISTRY LAB II	1
Term Semester Hours:		15

Year 2

Fall		
MA 201	CALCULUS C	4
PH 112	GEN PHYSICS W/CALC II	3-4
PH 115	GENERAL PHYSICS LAB II	1
CH 331	ORGANIC CHEMISTRY I	3
CH 335	ORGANIC CHEMISTRY LAB I	1
HSBS/HFA		3
Term Semester Hours:		15-16

Spring

MA 238	APPL DIFFERENTIAL EQUATIONS	3
CH 332	ORGANIC CHEMISTRY II	3
MAE 271	STATICS	3
BYS 311	INTRO MOLECULAR UNDST BIO SYST	3
CHE 244	INTRO TO CHEM ENGRG SYSTEMS	3
HSBS/HFA		3
Term Semester Hours:		18

Year 3

Fall		
MAE 310	FLUID MECHANICS I	3
CHE 347	QUANTITATIVE MODELING FOR CHE	3
CH 341	PHYSICAL CHEMISTRY I	3
CHE 294	NATURE PROPERTIES OF MATLS	3
CHE 295	NATURE PROPERTIES MATLS LAB	1
CHE Con Class 1		3
Term Semester Hours:		16

Spring

EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
CHE 342	TRANSPORT PHENOMENA	3
CHE 344	CHEM ENGR THERMODYNAMICS	3
HSBS/HFA		3
Term Semester Hours:		12

Year 4**Fall**

CHE 443	MASS TRANSFER OPERATIONS	3
CHE 446	ANAL DESIGN TRANSPORT EQUIP	3
CHE 441	CHEM KINETICS REACTOR DESIGN	3
CHE 439	UNIT OPERATIONS I	2
CHE Con Class 2		3
Term Semester Hours:		14

Spring

CHE 443	MASS TRANSFER OPERATIONS	3
CHE 448	CHEMICAL ENGINEERING DESIGN	3
CHE 445	CHEMICAL PROCESS CONTROL	3
CHE 440	UNIT OPERATIONS II	2
CHE Con Class 3		3
Technical Elective		3
Term Semester Hours:		17
Total Semester Hours:		124-125

Chemical Engineering, BSChE - Biotechnology Concentration

To obtain a Bachelor of Science degree in Chemical Engineering (biotechnology option), students are required to complete the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	

PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
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History and Social and Behavioral Sciences	9
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History: Choose one or two ¹	3-6
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HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	

Social and Behavioral Science: Choose one or two	3-6
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PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 206	MARRIAGE AND FAMILY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	

Code	Title	Semester Hours
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Additional Basic Mathematics and Sciences Semester Hours

MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CH 332	ORGANIC CHEMISTRY II	3

First Year Engineering

FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3

Chemical Engineering

EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
CHE 244	INTRO TO CHEM ENGRG SYSTEMS	3
MAE 271	STATICS	3
CHE 294	NATURE & PROPERTIES OF MATLS	3
CHE 295	NATURE & PROPERTIES MATLS LAB	1
BYS 311	INTRO MOLECULAR UNDSST BIO SYST	3
CH 341	PHYSICAL CHEMISTRY I	3
CHE 342	TRANSPORT PHENOMENA	3
CHE 344	CHEM ENGR THERMODYNAMICS	3
MAE 310	FLUID MECHANICS I	3
CHE 347	QUANTITATIVE MODELING FOR CHE	3
CHE 439	UNIT OPERATIONS I	2
CHE 440	UNIT OPERATIONS II	2
CHE 441	CHEM KINETICS & REACTOR DESIGN	3

CHE 443	MASS TRANSFER OPERATIONS	3
CHE 445	CHEMICAL PROCESS CONTROL	3
CHE 446	ANAL & DESIGN TRANSPORT EQUIP	3
CHE 448	CHEMICAL ENGINEERING DESIGN	3
CHE 485	PROCESS SAFETY & TOXICOLOGY	3

Biotechnology Concentration

CH 361	GENERAL BIOCHEMISTRY	3
CHE 460	INTRO TO BIOPROCESS ENGRG	3
CHE 461	BIOSEPARATIONS	3

Total Semester Hours 130

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- ³ For choices see the World Languages and Culture (p. 177) department.

Suggested Schedule for Full-Time Students**Year 1****Fall Semester Hours**

MA 171	CALCULUS A	4
CH 121	GENERAL CHEMISTRY I	3
CH 125	GENERAL CHEMISTRY LAB I	1
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
Fine Arts/Humanities/Social Behavior		3
Science		
For course list see Requirements tab		
Term Semester Hours:		15

Spring

MA 172	CALCULUS B	4
ENG 101	INTRO COMPUTING ENGINEERS	3
CH 123	GENERAL CHEMISTRY II	3
CH 126	GENERAL CHEMISTRY LAB II	1
EH 102	COLLEGE WRITING II	3
Fine Arts/Humanities/Social Behavior		3
Science		
For course list see Requirements tab		
Term Semester Hours:		17

Year 2**Fall**

MA 201	CALCULUS C	4
PH 111	GEN PHYSICS W/CALCULUS I	3
PH 114	GENERAL PHYSICS LAB I	1
CHE 201	INTRO CHEMICAL ENGR PROCESS	2
CH 331	ORGANIC CHEMISTRY I	3
CH 335	ORGANIC CHEMISTRY LAB I	1
Fine Arts/Humanities/Social Behavior		3
Science		
For course list see Requirements tab		
Term Semester Hours:		17

Spring

MA 238	APPL DIFFERENTIAL EQUATIONS	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
CHE 244	INTRO TO CHEM ENGRG SYSTEMS	3
CH 332	ORGANIC CHEMISTRY II	3
BYS 311	INTRO MOLECULAR UNDST BIO SYST	3
Term Semester Hours:		16
Year 3		
Fall		
MAE 271	STATICS	3
CHE 347	QUANTITATIVE MODELING FOR CHE	3
CH 341	PHYSICAL CHEMISTRY I	3
CHE 294	NATURE PROPERTIES OF MATLS	3
CHE 295	NATURE PROPERTIES MATLS LAB	1
CH 361	GENERAL BIOCHEMISTRY	3
Term Semester Hours:		16
Spring		
MAE 310	FLUID MECHANICS I	3
CHE 342	TRANSPORT PHENOMENA	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
CHE 344	CHEM ENGR THERMODYNAMICS	3
Fine Arts/Humanities/Social Behavior Science		3
For course list see Requirements tab		
Term Semester Hours:		15
Year 4		
Fall		
CHE 439	UNIT OPERATIONS I	2
CHE 441	CHEM KINETICS REACTOR DESIGN	3
CHE 443	MASS TRANSFER OPERATIONS	3
CHE 446	ANAL DESIGN TRANSPORT EQUIP	3
CHE 460	INTRO TO BIOPROCESS ENGRG	3
Fine Arts/Humanities/Social Behavior Science		3
For course list see Requirements tab		
Term Semester Hours:		17
Spring		
CHE 440	UNIT OPERATIONS II	2
CHE 445	CHEMICAL PROCESS CONTROL	3
CHE 448	CHEMICAL ENGINEERING DESIGN	3
CHE 461	BIOSEPARATIONS	3
CHE 485	PROCESS SAFETY TOXICOLOGY	3
Fine Arts/Humanities/Social Behavior Science		3
For course list see Requirements tab		
Term Semester Hours:		17
Total Semester Hours:		130

Chemical Engineering, BSChE - Materials Concentration

To obtain a Bachelor of Science degree in Chemical Engineering (materials concentration), students are required to complete the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
History and Social and Behavioral Sciences		9
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Science: Choose one or two		3-6
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 206	MARRIAGE AND FAMILY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
ECN 142	PRINC OF MACROECONOMICS	

ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
Code	Title	Semester Hours
Additional Basic Sciences Semester Hours		
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CH 332	ORGANIC CHEMISTRY II	3
First Year Engineering		
FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3
Chemical Engineering		
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
CHE 244	INTRO TO CHEM ENGRG SYSTEMS	3
MAE 271	STATICS	3
CHE 294	NATURE & PROPERTIES OF MATLS	3
CHE 295	NATURE & PROPERTIES MATLS LAB	1
BYS 311	INTRO MOLECULAR UNDSST BIO SYST	3
CH 341	PHYSICAL CHEMISTRY I	3
CHE 342	TRANSPORT PHENOMENA	3
CHE 344	CHEM ENGR THERMODYNAMICS	3
MAE 310	FLUID MECHANICS I	3
CHE 347	QUANTITATIVE MODELING FOR CHE	3
CHE 439	UNIT OPERATIONS I	2
CHE 440	UNIT OPERATIONS II	2
CHE 441	CHEM KINETICS & REACTOR DESIGN	3
CHE 443	MASS TRANSFER OPERATIONS	3
CHE 445	CHEMICAL PROCESS CONTROL	3
CHE 446	ANAL & DESIGN TRANSPORT EQUIP	3
CHE 448	CHEMICAL ENGINEERING DESIGN	3
CHE 485	PROCESS SAFETY & TOXICOLOGY	3
Materials Concentration		
CH 440	POLYMER SYNTHESIS & CHARACTERI	3
CHE 494	APPLIED MATERIALS ENGINEERING	3
CHE 495	POLYMER ENGINEERING	3
Total Semester Hours		128

¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)

² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/ or MA 113) Mathematics courses may be required.

³ For choices see the World Languages and Culture (p. 177) department.

Suggested Schedule for Full-Time Students

Year 1

		Semester Hours
Fall		
MA 171	CALCULUS A	4
CH 121	GENERAL CHEMISTRY I	3
CH 125	GENERAL CHEMISTRY LAB I	1
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
HFA/HSBS		3

Term Semester Hours:	15
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Spring

MA 172	CALCULUS B	4
ENG 101	INTRO COMPUTING ENGINEERS	3
CH 123	GENERAL CHEMISTRY II	3
CH 126	GENERAL CHEMISTRY LAB II	1
EH 102	COLLEGE WRITING II	3
HSBS/HFA		3

Term Semester Hours:	17
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Year 2

Fall		
MA 201	CALCULUS C	4
PH 111	GEN PHYSICS W/CALCULUS I	3
PH 114	GENERAL PHYSICS LAB I	1
CHE 201	INTRO CHEMICAL ENGR PROCESS	2
CH 331	ORGANIC CHEMISTRY I	3
CH 335	ORGANIC CHEMISTRY LAB I	1
HSBS/HFA		3

Term Semester Hours:	17
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Spring

MA 238	APPL DIFFERENTIAL EQUATIONS	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
CHE 244	INTRO TO CHEM ENGRG SYSTEMS	3
CH 332	ORGANIC CHEMISTRY II	3
BYS 311	INTRO MOLECULAR UNDSST BIO SYST	3

Term Semester Hours:	16
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Year 3

Fall		
MAE 271	STATICS	3
CHE 347	QUANTITATIVE MODELING FOR CHE	3
CH 341	PHYSICAL CHEMISTRY I	3
CHE 294	NATURE PROPERTIES OF MATLS	3
CHE 295	NATURE PROPERTIES MATLS LAB	1
CH 440	POLYMER SYNTHESIS CHARACTERI	3

Term Semester Hours:	16
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Spring

MAE 310	FLUID MECHANICS I	3
CHE 342	TRANSPORT PHENOMENA	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
CHE 344	CHEM ENGR THERMODYNAMICS	3

HSBS/HFA		3
	Term Semester Hours:	15
Year 4		
Fall		
CHE 439	UNIT OPERATIONS I	2
CHE 441	CHEM KINETICS REACTOR DESIGN	3
CHE 443	MASS TRANSFER OPERATIONS	3
CHE 446	ANAL DESIGN TRANSPORT EQUIP	3
CHE 495	POLYMER ENGINEERING	3
HSBS/HFA		3
	Term Semester Hours:	17
Spring		
CHE 440	UNIT OPERATIONS II	2
CHE 445	CHEMICAL PROCESS CONTROL	3
CHE 448	CHEMICAL ENGINEERING DESIGN	3
CHE 485	PROCESS SAFETY TOXICOLOGY	3
CHE 494	APPLIED MATERIALS ENGINEERING	3
HSBS/HFA		3
	Term Semester Hours:	17
	Total Semester Hours:	130

Civil and Environmental Engineering

S201 Technology Hall

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URL: <http://www.uah.edu/eng/departments/cee>

Chair: Sherif Ishak

Civil Engineering Program

Civil engineers are involved in many fields including structural engineering, transportation planning, environmental systems, and geotechnical analysis. The modern civil engineer uses traditional design and analysis methods as well as advanced experimental and computational techniques. At UAH, students are exposed to all of these areas of civil engineering and introduced to techniques that will make them competent practicing professional engineers. The civil engineering curriculum consists of general engineering classes (required of all engineering students), the civil engineering core classes, and the civil engineering concentration selected. The concentration requirements may be met by completing either a broad civil engineering curriculum or by specializing in structural, transportation, or environmental engineering.

The department of Civil Engineering offers the following degree programs:

- Civil and Environmental Engineering, BSCE
- C (p. 349)ivil and Environmental Engineering, BSCE - Environmental Track (p. 352)
- C (p. 349)ivil and Environmental Engineering, BSCE - Structural Track (p. 356)
- C (p. 349)ivil and Environmental Engineering, BSCE - Transportation Track (p. 359)

The structural engineering concentration provides students with a strong background in many aspects of structural analysis, foundations, reinforced concrete, steel design, bridge design, and advanced structural design. Students may take additional courses in such areas as advanced concrete design, design of wood structures, wind and seismic loads, advanced cementitious and composite materials, experimental mechanics, and finite element methods.

The environmental engineering concentration provides students with a strong foundation in environmental management and remediation. Within the framework of the program, students are introduced to environmental engineering aspects such as water quality, atmospheric pollution, hydrology, environmental systems, and environmental sampling.

The transportation engineering concentration provides students with the skills necessary to tackle tomorrow's data management and transportation issues. Students are introduced to various topics, including transportation modeling and simulation, application of GIS to transportation issues, use of traffic crash data, and urban transportation planning.

Mission

The mission of the Civil Engineering Program is to educate students with the fundamental knowledge and analytical skills necessary for successful careers in civil and environmental engineering. Through rigorous scholarship, innovative instruction and service, we advance knowledge to improve our global community.

Program Educational Objectives

Within a few years of graduation, Civil Engineering graduates will have:

- Developed creative solutions in their profession through application of civil engineering knowledge and skills,
- Attained successful careers and recognition as emerging leaders in industry and in the civil engineering community, and
- Impacted the global community by addressing societal needs through a combination of professional practice, research, and/or service.

Undergraduate Major in Civil Engineering

- Civil Engineering, BSCE (p. 349)
- Civil Engineering, BSCE - Environmental Track (p. 352)
- Civil Engineering, BSCE - Structural Track (p. 356)
- Civil Engineering, BSCE - Transportation Track (p. 359)

CE 211 - CIVIL ENGINEERING GRAPHICS

Semester 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 laboratory exercises. Prerequisite: ENG 101 with minimum grade of C-.

CE 271 - STATICS

Semester Hours: 3

Topics include: forces, resultant forces, moments, couples, equivalent forces systems, equilibrium, distributed loads, two force members, trusses, centroids, moments of inertia, shear and bending moment diagrams, static and kinematic friction. (Same as MAE 271). Prerequisite: ENG 101, PH 111 and MA 201 w/concurrency.

CE 272 - DYNAMICS

Semester Hours: 3

Kinematics and kinetics of a 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. (Same as MAE 272). Prerequisites: MA 201 and (CE 271 or MAE 271).

CE 284 - SURVEYING

Semester Hours: 2

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. Consent of instructor/advisor. Prerequisite: CE 211.

CE 284L - SURVEYING LAB

Semester Hours: 0

CE 307 - SYSTOLIC ARRAY PROCESSING

Semester Hours: 3

CE 321 - INTRO TO TRANSPORTATION ENG

Semester Hours: 3

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

CE 370 - MECHANICS OF MATERIALS

Semester Hours: 3

Design and analysis of simple structures for predetermined strength and deformation requirements. Topics include: theory of stress-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. Same as MAE 370. Prerequisites: (CPE 211 or MAE 211) and (MAE 271 or CE 271) and MA 244, corequisite CE 375.

CE 370L - LABORATORY

Semester Hours: 0

CE 372 - SOIL MECHANICS & FOUNDATION

Semester 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 or MAE 370) and MAE 310.

CE 373 - SOIL MECHANICS LAB

Semester Hour: 1

Laboratory classification of soils. Determinations of soil properties.

CE 375 - MECHANICS OF MATERIALS LAB

Semester Hour: 1

Experimental verification of material properties and structural deformation under axial, torsional, and bending loads. Test procedures, use of instrumentation, interpretation of experimental results and comparison to theory. (Same as MAE 375). Corequisites: CE 370.

CE 380 - CIVIL ENGINEERING MATERIALS

Semester Hours: 3

Performance properties and selection criteria of various materials used in the practice of civil engineering including aggregates, Portland cement, concrete, bituminous materials, and timber. Emphasis will be placed on standard methods of testing and characterization. Includes a weekly lab. Prerequisites: CE 370 or MAE 370.

CE 380L - CE MATERIALS LAB

Semester Hours: 0

Standard methods of testing and characterization of various materials used in the practice of civil engineering. Determination of civil engineering materials properties.

CE 381 - STRUCTURAL ANALYSIS I

Semester Hours: 3

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

CE 411 - INTRO GEOGRAPHICAL INFO SYS

Semester Hours: 3

Introduces vector, raster, and tabular concepts. Topics include spatial relationships, map features, attributes, relational database, layers of data, data ingesting, digitizing from maps, projections, output, and availability of public data sets. Same as CE 511.

CE 412 - ADVANCED CE GRAPHICS

Semester Hours: 3

Trending geospatial and graphics technologies including 3-D land development workflows, GPS data acquisition and processing of aerial, lidar, and topographical surveys, terrain modeling, earthwork, sanitary, drainage, and transportation design methodologies within the graphical CAD environment. Prerequisite: CE 211.

CE 420 - URBAN TRANSPORTATION PLANNING

Semester Hours: 3

Planning of highways systems and terminals as part of a complete planning approach; public transportation system planning; transportation planning studies, projection analysis, plan formulation, and programming. Same as CE 520. Prerequisite: CE 321.

CE 422 - TRAFFIC ENGINEERING DESIGN

Semester 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. Prerequisite: CE 321.

CE 441 - HYDRAULIC ENGINEERING DESIGN

Semester Hours: 3

Water-hammer analysis, open channel flow, hydraulic structures such as dams, spillways, stilling basins, flood control devices, locks, pipe-flow systems and water-supply facilities, computational methods. Prerequisite: MAE 310.

CE 449 - INTRO ENVIRONMENTAL ENGR

Semester 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. (Same as CE 549 and CHE 549) Prerequisites: MAE 310 and MAE 341.

CE 452 - CREDIT EXPERIENTIAL LEARNING

Semester Hours: 1-3

Students are engaged in research and creative projects as meaningful experiential learning opportunities. The course fosters cooperation between students and faculty in a research or creative endeavor, and enhances the students' education via active participation in a research, creative or scholarly project.

CE 456 - WATER QUALITY CONTROL PROC

Semester 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. (Same as CE 556). Prerequisite: CE 449.

CE 457 - HYDROLOGY

Semester 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. (Same as CE 557) Prerequisite: MAE 310.

CE 458 - ENVIRONMENTAL ENGR DESIGN

Semester Hours: 3

Engineering design and project management of environmental quality/restoration systems. Design project focusing on: sanitary landfill, municipal incinerator, or groundwater/site remediation. Develops skills for technical communications, process design and decision making. (Same as CE 558) Prerequisite: CE 449.

CE 459 - SEL TOP IN CIVIL ENGR

Semester Hours: 1-6

Special topics in Civil Engineering.

CE 471 - ADVANCED SOIL MECHANICS

Semester Hours: 3

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

CE 472 - SOIL DYNAMICS

Semester Hours: 3

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

CE 473 - EARTH STRUCTURES ENGRG

Semester Hours: 3

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. Stability analyses for retaining walls, earth slopes, and embankment designs. (Same as CE 573) Prerequisites: CE 372 and CE 373.

CE 474 - APP MECHANICS OF SOLIDS

Semester 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. (Same as CE 574 and MAE 474 or MAE 574) Prerequisites: CE 370 or MAE 370.

CE 481 - STRUCTURAL ANALYSIS II

Semester Hours: 3

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

CE 483 - REINFORCED CONCRETE DESIGN

Semester 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. Same as CE 583. Prerequisites: CE 380 and CE 381.

CE 484 - STEEL DESIGN

Semester Hours: 3

Principles of design of steel structures using ASD methods. Analysis and design of structural elements using beams, columns, connection details. (Same as CE 584). Prerequisites: CE 381 and MA 244.

CE 485 - FOUNDATION ENGINEERING

Semester Hours: 3

Design of foundations with emphasis on reinforced concrete, footings, caissons, piles retaining walls, and mat foundations. Effect of bearing pressure on foundations. (Same as CE 585) Prerequisites: CE 372 and CE 483.

CE 487 - BRIDGE DESIGN

Semester 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. (Same as CE 583) Prerequisite: CE 483.

CE 498 - CIVIL ENGINEERING DESIGN I

Semester Hour: 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, CE 372, and CE 483.

CE 499 - CIVIL ENGINEERING DESIGN II

Semester 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 483 and CE 498.

CE 499L - DESIGN II LABORATORY

Semester Hours: 0

Civil and Environmental Engineering, BSCE

To obtain a Bachelor of Science degree in Civil Engineering, students are required to complete the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	

PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
History and Social and Behavioral Sciences		9
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Science: Choose one or two		3-6
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 206	MARRIAGE AND FAMILY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
Code	Title	Semester Hours
Additional Mathematics and Science		
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
BYS 119	PRINCIPLES OF BIOLOGY	4
First Year Engineering		
FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3
Civil Engineering		
CE 211	CIVIL ENGINEERING GRAPHICS	2
CE 271	STATICS	3
CE 272	DYNAMICS	3
CE 284	SURVEYING	2
MAE 310	FLUID MECHANICS I	3
CE 321	INTRO TO TRANSPORTATION ENG	3
ISE 321	ENGINEERING ECONOMY	3

MAE 341	THERMODYNAMICS I	3
CE 370	MECHANICS OF MATERIALS	4
CE 372	SOIL MECHANICS & FOUNDATION	3
CE 373	SOIL MECHANICS LAB	1
CE 380	CIVIL ENGINEERING MATERIALS	3
CE 381	STRUCTURAL ANALYSIS I	3
ISE 390	PROB & ENGR STATISTICS I	3
CE 422	TRAFFIC ENGINEERING DESIGN	3
CE 441	HYDRAULIC ENGINEERING DESIGN	3
CE 449	INTRO ENVIRONMENTAL ENGR	3
CE 483	REINFORCED CONCRETE DESIGN	3
CE 484	STEEL DESIGN	3
CE 485	FOUNDATION ENGINEERING	3
CE 498	CIVIL ENGINEERING DESIGN I	1
CE 499	CIVIL ENGINEERING DESIGN II	2

Civil Engineering Concentration Electives

Select 6 semester hours from one concentration area: 6

CE 411	INTRO GEOGRAPHICAL INFO SYS
CE 412	ADVANCED CE GRAPHICS
CE 420	URBAN TRANSPORTATION PLANNING
CE 456	WATER QUALITY CONTROL PROC
CE 457	HYDROLOGY
CE 458	ENVIRONMENTAL ENGR DESIGN
CE 473	EARTH STRUCTURES ENGRG
CE 481	STRUCTURAL ANALYSIS II
CE 487	BRIDGE DESIGN

Total Semester Hours 128

¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)

² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.

³ For choices see the World Languages and Culture (p. 177) department.

Suggested Schedule for Full-Time Students**Year 1**

Fall		Semester Hours
MA 171	CALCULUS A	4
CH 121	GENERAL CHEMISTRY I	3
CH 125	GENERAL CHEMISTRY LAB I	1
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
HFA/HSBS		3
Term Semester Hours:		15
Spring		
MA 172	CALCULUS B	4
PH 111	GEN PHYSICS W/CALCULUS I	3
PH 114	GENERAL PHYSICS LAB I	1
ENG 101	INTRO COMPUTING ENGINEERS	3
EH 102	COLLEGE WRITING II	3
HSBS/HFA		3
Term Semester Hours:		17

Year 2

Fall		
MA 201	CALCULUS C	4
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
MA 244	INTRO TO LINEAR ALGEBRA	3
CE 211	CIVIL ENGINEERING GRAPHICS	2
CE 271	STATICS	3
CE 284	SURVEYING	2
Term Semester Hours:		18
Spring		
MA 238	APPL DIFFERENTIAL EQUATIONS	3
CE 272	DYNAMICS	3
MAE 370	MECHANICS OF MATERIALS	4
BYS 119	PRINCIPLES OF BIOLOGY	4
HSBS/HFA		3
Term Semester Hours:		17
Year 3		
Fall		
MAE 341	THERMODYNAMICS I	3
ISE 321	ENGINEERING ECONOMY	3
ISE 390	PROB ENGR STATISTICS I	3
CE 381	STRUCTURAL ANALYSIS I	3
HSBS/HFA		3
Term Semester Hours:		15
Spring		
MAE 310	FLUID MECHANICS I	3
CE 372	SOIL MECHANICS FOUNDATION	3
CE 373	SOIL MECHANICS LAB	1
CE 321	INTRO TO TRANSPORTATION ENG	3
CE 380	CIVIL ENGINEERING MATERIALS	3
HSBS/HFA		3
Term Semester Hours:		16
Year 4		
Fall		
CE Con Class 1		3
CE 498	CIVIL ENGINEERING DESIGN I	1
CE 483	REINFORCED CONCRETE DESIGN	3
CE 449	INTRO ENVIRONMENTAL ENGR	3
CE 484	STEEL DESIGN	3
HSBS/HFA		3
Term Semester Hours:		16
Spring		
CE Con Class 2		3
CE 441	HYDRAULIC ENGINEERING DESIGN	3
CE 422	TRAFFIC ENGINEERING DESIGN	3
CE 485	FOUNDATION ENGINEERING	3
CE 499	CIVIL ENGINEERING DESIGN II	2
Term Semester Hours:		14
Total Semester Hours:		128

Civil Engineering, BSCE - Environmental Track

To obtain a Bachelor of Science degree in Civil Engineering, students are required to complete the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
History and Social and Behavioral Sciences		9
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Science: Choose one or two		3-6
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 206	MARRIAGE AND FAMILY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	

Code	Title	Semester Hours
Additional Mathematics and Science		
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
BYS 119	PRINCIPLES OF BIOLOGY	4
First Year Engineering		
FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3
Civil Engineering		
CE 211	CIVIL ENGINEERING GRAPHICS	2
CE 271	STATICS	3
CE 272	DYNAMICS	3
CE 284	SURVEYING	2
MAE 310	FLUID MECHANICS I	3
CE 321	INTRO TO TRANSPORTATION ENG	3
ISE 321	ENGINEERING ECONOMY	3
MAE 341	THERMODYNAMICS I	3
CE 370	MECHANICS OF MATERIALS	4
CE 372	SOIL MECHANICS & FOUNDATION	3
CE 373	SOIL MECHANICS LAB	1
CE 380	CIVIL ENGINEERING MATERIALS	3
CE 381	STRUCTURAL ANALYSIS I	3
ISE 390	PROB & ENGR STATISTICS I	3
CE 422	TRAFFIC ENGINEERING DESIGN	3
CE 441	HYDRAULIC ENGINEERING DESIGN	3
CE 449	INTRO ENVIRONMENTAL ENGR	3
CE 483	REINFORCED CONCRETE DESIGN	3
CE 484	STEEL DESIGN	3
CE 485	FOUNDATION ENGINEERING	3
CE 498	CIVIL ENGINEERING DESIGN I	1
CE 499	CIVIL ENGINEERING DESIGN II	2
Civil Engineering Environmental Concentration Electives		
CE 456	WATER QUALITY CONTROL PROC	3
CE 457	HYDROLOGY	3
Total Semester Hours		128

¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)

² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.

³ For choices see the World Languages and Culture (p. 177) department.

Suggested Schedule for Full-Time Students

Year 1

Fall		Semester Hours
MA 171	CALCULUS A	4
CH 121	GENERAL CHEMISTRY I	3
CH 125	GENERAL CHEMISTRY LAB I	1

FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
HFA/HSBS		3
Term Semester Hours:		15
Spring		
MA 172	CALCULUS B	4
PH 111	GEN PHYSICS W/CALCULUS I	3
PH 114	GENERAL PHYSICS LAB I	1
ENG 101	INTRO COMPUTING ENGINEERS	3
EH 102	COLLEGE WRITING II	3
HSBS/HFA		3
Term Semester Hours:		17
Year 2		
Fall		
MA 201	CALCULUS C	4
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
MA 244	INTRO TO LINEAR ALGEBRA	3
CE 211	CIVIL ENGINEERING GRAPHICS	2
CE 271	STATICS	3
CE 284	SURVEYING	2
Term Semester Hours:		18
Spring		
MA 238	APPL DIFFERENTIAL EQUATIONS	3
CE 272	DYNAMICS	3
MAE 370	MECHANICS OF MATERIALS	4
BYS 119	PRINCIPLES OF BIOLOGY	4
HSBS/HFA		3
Term Semester Hours:		17
Year 3		
Fall		
MAE 341	THERMODYNAMICS I	3
ISE 321	ENGINEERING ECONOMY	3
ISE 390	PROB ENGR STATISTICS I	3
CE 381	STRUCTURAL ANALYSIS I	3
HSBS/HFA		3
Term Semester Hours:		15
Spring		
MAE 310	FLUID MECHANICS I	3
CE 372	SOIL MECHANICS FOUNDATION	3
CE 373	SOIL MECHANICS LAB	1
CE 321	INTRO TO TRANSPORTATION ENG	3
CE 380	CIVIL ENGINEERING MATERIALS	3
HSBS/HFA		3
Term Semester Hours:		16
Year 4		
Fall		
CE Con Class 1		3
CE 498	CIVIL ENGINEERING DESIGN I	1
CE 483	REINFORCED CONCRETE DESIGN	3
CE 449	INTRO ENVIRONMENTAL ENGR	3
CE 484	STEEL DESIGN	3

HSBS/HFA		3
	Term Semester Hours:	16
Spring		
CE Con Class 2		3
CE 441	HYDRAULIC ENGINEERING DESIGN	3
CE 422	TRAFFIC ENGINEERING DESIGN	3
CE 485	FOUNDATION ENGINEERING	3
CE 499	CIVIL ENGINEERING DESIGN II	2
	Term Semester Hours:	14
	Total Semester Hours:	128

Civil Engineering, BSCE - Structural Track

To obtain a Bachelor of Science degree in Civil Engineering, students are required to complete the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
History and Social and Behavioral Sciences		9
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	

Social and Behavioral Science: Choose one or two

3-6

PY 101	GENERAL PSYCHOLOGY I
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 206	MARRIAGE AND FAMILY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES

Code	Title	Semester Hours
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Additional Mathematics and Science

MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
BYS 119	PRINCIPLES OF BIOLOGY	4

First Year Engineering

FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3

Civil Engineering

CE 211	CIVIL ENGINEERING GRAPHICS	2
CE 271	STATICS	3
CE 272	DYNAMICS	3
CE 284	SURVEYING	2
MAE 310	FLUID MECHANICS I	3
CE 321	INTRO TO TRANSPORTATION ENG	3
ISE 321	ENGINEERING ECONOMY	3
MAE 341	THERMODYNAMICS I	3
CE 370	MECHANICS OF MATERIALS	4
CE 372	SOIL MECHANICS & FOUNDATION	3
CE 373	SOIL MECHANICS LAB	1
CE 380	CIVIL ENGINEERING MATERIALS	3
CE 381	STRUCTURAL ANALYSIS I	3
ISE 390	PROB & ENGR STATISTICS I	3
CE 422	TRAFFIC ENGINEERING DESIGN	3
CE 441	HYDRAULIC ENGINEERING DESIGN	3
CE 449	INTRO ENVIRONMENTAL ENGR	3
CE 483	REINFORCED CONCRETE DESIGN	3
CE 484	STEEL DESIGN	3
CE 485	FOUNDATION ENGINEERING	3
CE 498	CIVIL ENGINEERING DESIGN I	1
CE 499	CIVIL ENGINEERING DESIGN II	2

Civil Engineering Structural Concentration Electives

CE 481	STRUCTURAL ANALYSIS II	3
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CE 487	BRIDGE DESIGN	3
Total Semester Hours		128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- ³ For choices see the World Languages and Culture (p. 177) department.

Suggested Schedule for Full-Time Students

Year 1

Fall		Semester Hours
MA 171	CALCULUS A	4
CH 121	GENERAL CHEMISTRY I	3
CH 125	GENERAL CHEMISTRY LAB I	1
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
HFA/HSBS		3
Term Semester Hours:		15
Spring		
MA 172	CALCULUS B	4
PH 111	GEN PHYSICS W/CALCULUS I	3
PH 114	GENERAL PHYSICS LAB I	1
ENG 101	INTRO COMPUTING ENGINEERS	3
EH 102	COLLEGE WRITING II	3
HSBS/HFA		3
Term Semester Hours:		17

Year 2

Fall		
MA 201	CALCULUS C	4
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
MA 244	INTRO TO LINEAR ALGEBRA	3
CE 211	CIVIL ENGINEERING GRAPHICS	2
CE 271	STATICS	3
CE 284	SURVEYING	2
Term Semester Hours:		18
Spring		
MA 238	APPL DIFFERENTIAL EQUATIONS	3
CE 272	DYNAMICS	3
MAE 370	MECHANICS OF MATERIALS	4
BYS 119	PRINCIPLES OF BIOLOGY	4
HSBS/HFA		3
Term Semester Hours:		17

Year 3

Fall		
MAE 341	THERMODYNAMICS I	3
ISE 321	ENGINEERING ECONOMY	3
ISE 390	PROB ENGR STATISTICS I	3
CE 381	STRUCTURAL ANALYSIS I	3
HSBS/HFA		3
Term Semester Hours:		15
Spring		

MAE 310	FLUID MECHANICS I	3
CE 372	SOIL MECHANICS FOUNDATION	3
CE 373	SOIL MECHANICS LAB	1
CE 321	INTRO TO TRANSPORTATION ENG	3
CE 380	CIVIL ENGINEERING MATERIALS	3
HSBS/HFA		3
Term Semester Hours:		16
Year 4		
Fall		
CE Con Class 1		3
CE 498	CIVIL ENGINEERING DESIGN I	1
CE 483	REINFORCED CONCRETE DESIGN	3
CE 449	INTRO ENVIRONMENTAL ENGR	3
CE 484	STEEL DESIGN	3
HSBS/HFA		3
Term Semester Hours:		16
Spring		
CE Con Class 2		3
CE 441	HYDRAULIC ENGINEERING DESIGN	3
CE 422	TRAFFIC ENGINEERING DESIGN	3
CE 485	FOUNDATION ENGINEERING	3
CE 499	CIVIL ENGINEERING DESIGN II	2
Term Semester Hours:		14
Total Semester Hours:		128

Civil Engineering, BSCE - Transportation Track

To obtain a Bachelor of Science degree in Civil Engineering, students are required to complete the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	

Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
History and Social and Behavioral Sciences		9
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Science: Choose one or two		3-6
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 206	MARRIAGE AND FAMILY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
Code	Title	Semester Hours
Additional Mathematics and Science		
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
BYS 119	PRINCIPLES OF BIOLOGY	4
First Year Engineering		
FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3
Civil Engineering		
CE 211	CIVIL ENGINEERING GRAPHICS	2
CE 271	STATICS	3
CE 272	DYNAMICS	3
CE 284	SURVEYING	2
MAE 310	FLUID MECHANICS I	3
CE 321	INTRO TO TRANSPORTATION ENG	3
ISE 321	ENGINEERING ECONOMY	3
MAE 341	THERMODYNAMICS I	3
CE 370	MECHANICS OF MATERIALS	4
CE 372	SOIL MECHANICS & FOUNDATION	3
CE 373	SOIL MECHANICS LAB	1

CE 380	CIVIL ENGINEERING MATERIALS	3
CE 381	STRUCTURAL ANALYSIS I	3
ISE 390	PROB & ENGR STATISTICS I	3
CE 422	TRAFFIC ENGINEERING DESIGN	3
CE 441	HYDRAULIC ENGINEERING DESIGN	3
CE 449	INTRO ENVIRONMENTAL ENGR	3
CE 483	REINFORCED CONCRETE DESIGN	3
CE 484	STEEL DESIGN	3
CE 485	FOUNDATION ENGINEERING	3
CE 498	CIVIL ENGINEERING DESIGN I	1
CE 499	CIVIL ENGINEERING DESIGN II	2
Civil Engineering Transportation Concentration Electives		
CE 411	INTRO GEOGRAPHICAL INFO SYS	3
CE 420	URBAN TRANSPORTATION PLANNING	3
Total Semester Hours		128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- ³ For choices see the World Languages and Culture (p. 177) department.

Suggested Schedule for Full-Time Students

Year 1

Fall		Semester Hours
MA 171	CALCULUS A	4
CH 121	GENERAL CHEMISTRY I	3
CH 125	GENERAL CHEMISTRY LAB I	1
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
HFA/HSBS		3
Term Semester Hours:		15
Spring		
MA 172	CALCULUS B	4
PH 111	GEN PHYSICS W/CALCULUS I	3
PH 114	GENERAL PHYSICS LAB I	1
ENG 101	INTRO COMPUTING ENGINEERS	3
EH 102	COLLEGE WRITING II	3
HSBS/HFA		3
Term Semester Hours:		17

Year 2

Fall		
MA 201	CALCULUS C	4
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
MA 244	INTRO TO LINEAR ALGEBRA	3
CE 211	CIVIL ENGINEERING GRAPHICS	2
CE 271	STATICS	3
CE 284	SURVEYING	2
Term Semester Hours:		18
Spring		
MA 238	APPL DIFFERENTIAL EQUATIONS	3
CE 272	DYNAMICS	3

MAE 370	MECHANICS OF MATERIALS	4
BYS 119	PRINCIPLES OF BIOLOGY	4
HSBS/HFA		3
Term Semester Hours:		17
Year 3		
Fall		
MAE 341	THERMODYNAMICS I	3
ISE 321	ENGINEERING ECONOMY	3
ISE 390	PROB ENGR STATISTICS I	3
CE 381	STRUCTURAL ANALYSIS I	3
HSBS/HFA		3
Term Semester Hours:		15
Spring		
MAE 310	FLUID MECHANICS I	3
CE 372	SOIL MECHANICS FOUNDATION	3
CE 373	SOIL MECHANICS LAB	1
CE 321	INTRO TO TRANSPORTATION ENG	3
CE 380	CIVIL ENGINEERING MATERIALS	3
HSBS/HFA		3
Term Semester Hours:		16
Year 4		
Fall		
CE Con Class 1		3
CE 498	CIVIL ENGINEERING DESIGN I	1
CE 483	REINFORCED CONCRETE DESIGN	3
CE 449	INTRO ENVIRONMENTAL ENGR	3
CE 484	STEEL DESIGN	3
HSBS/HFA		3
Term Semester Hours:		16
Spring		
CE Con Class 2		3
CE 441	HYDRAULIC ENGINEERING DESIGN	3
CE 422	TRAFFIC ENGINEERING DESIGN	3
CE 485	FOUNDATION ENGINEERING	3
CE 499	CIVIL ENGINEERING DESIGN II	2
Term Semester Hours:		14
Total Semester Hours:		128

Electrical and Computer Engineering

272 Engineering Building
 Telephone: 256.824.6316
 Email: ece@uah.edu

URL: <http://www.uah.edu/eng/departments/ece>

Department Chair: Dr. Ravi Gorur

Mission

The mission of the Electrical and Computer Engineering Department is to develop and maintain high quality undergraduate and graduate programs in Electrical, Computer, and Optical Engineering to meet the needs of its constituents, and to participate in scholarly and productive research that contributes to the economic well-being and quality of life for the residents of Huntsville, the State of Alabama, and the citizens of the United States of America.

Computer, Electrical & Optical Engineering Programs

The Department of Electrical and Computer Engineering (ECE) offers three undergraduate programs. The Computer Engineering program deals with the analysis, design, and application of both computer hardware and software and computer systems through a blend of Computer Engineering, Computer Science, and Electrical Engineering courses. The Electrical Engineering program offers coursework that enables students to pursue careers in any of the many diverse facets of Electrical Engineering such as electronics, networks, power systems, instrumentation, communications, and controls. The Optical Engineering program prepares students for careers in opto-electronics, including the design and application of systems for optical fiber communications, optical instrumentation, holography, image forming and processing, lasers and optical detection, as well as areas such as optical testing.

The Department of Computer, Electrical, and Optical Engineering offers the following degree programs:

- Bachelor of Science in Computer Engineering (p. 369)
- Bachelor of Science in Electrical Engineering (p. 372)
- Bachelor of Science in Optical Engineering (p. 376)

Program Educational Objectives

*Within a few years of graduation, **computer engineering** graduates will have:*

- Established successful careers as computer engineers and received recognition as emerging leaders in government, industry and academia
- Created viable solutions through the application of their knowledge base and capacity for communicating ideas effectively to advance the state-of-the-art
- Demonstrated continuous professional development and pursued advanced-study opportunities

*Within a few years of graduation, **electrical engineering** graduates will have:*

- Established successful careers as electrical engineers and received recognition as emerging leaders in government, industry and academia
- Created viable solutions through the application of their knowledge base and capacity for communicating ideas effectively to advance the state-of-the-art
- Demonstrated continuous professional development and pursued advanced-study opportunities

*Within a few years of graduation, **optical engineering** graduates will have:*

- Established successful careers as optical engineers and received recognition as emerging leaders in government, industry and academia
- Created viable solutions through the application of their knowledge base and capacity for communicating ideas effectively to advance the state-of-the-art
- Demonstrated continuous professional development and pursued advanced-study opportunities

Majors in Electrical, Computer and Optical Engineering

- Computer Engineering, BSCpE (p. 369)
- Electrical Engineering, BSEE (p. 372)
- Electrical Engineering, BSEE with Optics and Photonics Concentration
- Optical Engineering, BSOE (p. 376)

CPE 211 - INTRO COMPUTER PROG FOR ENGR

Semester Hours: 3

Advanced programming in a high level language such as C++ with an emphasis on practice in solving engineering problems using top-down design and algorithms. Prerequisites: ENG 101 and MA 171 with concurrency.

CPE 211L - LABORATORY

Semester Hours: 0

This lab is the 0-credit lab component of the 3 credit course.

CPE 212 - FUNDAMENTALS SOFTWARE ENGRG

Semester Hours: 3

Introduction to structured programming using C++. Search and sort algorithms. Introduction to data structures. Applications to engineering related problems. Prerequisite: CPE 211.

CPE 221 - COMPUTER ORGANIZATION

Semester Hours: 3

Functional organization of stored-program digital computers including number representation, assembly language programming, computer hardware, micro-operations, and control logic; microprocessor architecture. Prerequisite: CPE 211 and EE 202 w/concurrency.

CPE 322 - DIGITAL HDWR DESIGN FUNDMNTLS

Semester 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. Laboratory required. Prerequisite: CPE 221.

CPE 323 - INTRO TO EMBEDDED COMPUTER SYS

Semester Hours: 3

Hardware and software aspects in building embedded computer systems. Includes methods to evaluate design tradeoffs of different technology choices and technology capabilities and limitations of system components necessary to design and implement an embedded system and interface it to the outside world. Laboratory required. Prerequisite: CPE 221.

CPE 324 - ADV LOGIC DESIGN LABORATORY

Semester Hour: 1

Laboratory component of CPE 322 includes 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. Prerequisite: CPE 322.

CPE 325 - EMBEDDED SYSTEMS LAB

Semester Hour: 1

Laboratory component of CPE 323 includes experience working with modern integrated software development environments and hardware platforms to solve practical problems.

CPE 348 - INTRO TO COMPUTER NETWORKS

Semester 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 211 and CPE 221.

CPE 353 - SOFTWARE DESIGN & ENGINEERING

Semester Hours: 3

Hands-on experience developing a substantial software project using software design tools such as SQL database system and the Qt graphical interface development environment. Introduction to a software process including requirements elicitation and testing techniques. Prerequisites CPE 212 and CS 317 (with concurrency).

CPE 381 - FUND SIGNALS & SYS FOR COMP EN

Semester Hours: 3

Introduction to the fundamental concepts in continuous and discrete signals and systems, and methods of signal and system analysis for computer engineers. No credit for EE or OPE students. Prerequisites: EE 213 and MA 238.

CPE 412 - INTRO TO PARALLEL PROGRAMMING

Semester Hours: 3

Introduction to processing in parallel and distributed computing environments. Design and analysis of parallel algorithms. Parallel programming environments: Pthreads for shared memory multiprocessor systems and PVM/MPI for distributed networked computers. (Same as CPE 512) Prerequisites: CPE 212 and CS 317.

CPE 423 - HARDWARE/SOFTWARE CO-DESIGN

Semester Hours: 3

Study and design of Systems On A Chip (SOC). Emphasis on Field Programmable realizations of SOC systems. (Same as CPE 523) Prerequisites: CPE 322 and CPE 426.

CPE 426 - VLSI HARDWARE DESC LANG/MODL/S

Semester 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. (Same as CPE 526) Prerequisites: EE 202 and EE 315.

CPE 427 - VLSI DESIGN I

Semester 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. Laboratory required. (Same as CPE 527) Prerequisites: EE 202 and EE 315.

CPE 427L - LABORATORY

Semester Hours: 0

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

CPE 431 - INTRO COMPUTER ARCHITECTURE

Semester 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. (Same as CPE 531) Prerequisites: CPE 322 and CPE 323.

CPE 434 - OPERATING SYSTEMS

Semester Hours: 3

Study of the fundamentals of operating systems. Emphasis on processes, file management, interprocess communication, input-output, virtual memory, networking and security. Course must be taken concurrently with CPE 435. Prerequisites: CPE 221 and CPE 353/.

CPE 435 - OPERATING SYSTEMS LABORATORY

Semester Hour: 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 MODERN OPER SYS

Semester 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. (Same as CPE 536) Prerequisite: CPE 434.

CPE 449 - INTRO TO CYBERSECURITY ENGINRG

Semester Hours: 3

Introduction to cryptography and computer security through hardware and physical security to a knowledge of audit methods, security management, and public law. Includes skills such as business process analysis, software security, IAE evaluation, and IAE testing. (Same as CPE 549) Prerequisite: CPE 448.

CPE 449L - INTRO CYBERSECURITY ENG LAB

Semester Hours: 0

Students enrolling in CPE 449 must enroll concurrently in CPE 449L.

CPE 453 - SENIOR SOFTWARE STUDIO

Semester Hours: 3

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

CPE 455 - SECURE SOFTWARE DEVELOPMENT

Semester Hours: 3

Overview of methodologies for development of high-assurance software. Major topics include analysis of security and safety risks, software certification criteria, the software development lifecycle, risk mitigation, design and coding best practices, verification techniques, and auditing of software for insecure and unsafe coding constructs. Prerequisites: CPE 353 or CS 307.

CPE 457 - SOFTWARE REVERSE ENGINEERING

Semester Hours: 3

This course provides fundamental knowledge of software reverse engineering. The course provides the ability (a) to understand software of unknown origin or software for which source code is unavailable, (b) to determine how something works, (c) to discover data used by software, and (d) to aid in the analysis of software. The course introduces tools for reverse engineering, including disassemblers, debuggers, monitors, virtual machines and modern tools for software analysis. Prerequisites: CPE 353 and CS 307.

CPE 459 - SYSTEMS SECURITY

Semester Hours: 3

This course (1) introduces cyber physical, industrial control, embedded, and Supervisory Control and Data Acquisition (SCADA) control systems, (2) examines common vulnerabilities and threats associated with these systems, and (3) examine techniques to defend these systems from cyber-attacks. Prerequisite: CPE 448.

CPE 490 - SPECIAL TOPICS IN COMP ENGR

Semester Hours: 1-3

Topics will vary. The course may be repeated when topics vary. Consent of advisor.

CPE 490L - SPECIAL TOPICS LABORATORY

Semester Hours: 0

CPE 493 - VLSI DESIGN II

Semester Hours: 3

Advanced experience with CAD tools for VLSI design, IC testing. Design Project from EE/CPE 492 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. Fulfills senior design requirement.

CPE 495 - COMPUTER ENGINEERING DESIGN I

Semester Hours: 3

First course in the senior capstone design sequence. Application of techniques to the design of electronic systems that have digital hardware and software components. Application of engineering courses to solve real-world design problems. Must be taken in the same academic year as CPE 496. Prerequisites: CPE 323, CPE 353 and EE 315.

CPE 496 - COMPUTER ENGINEERING DESIGN II

Semester Hours: 3

Second course in the senior capstone design sequence. Must be taken in the same academic year as CPE 495. Prerequisite: CPE 495.

CPE 497 - COMPUTER ENGR INTERNSHIP

Semester 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. Junior/senior standing and approval from Engineering Faculty advisor.

CPE 498 - CYBERSECURITY CAPSTONE

Semester Hours: 3

Students will participate in a team based cybersecurity project which is a culminating experience for the cybersecurity degree. For a target system, student teams will conduct and document a risk assessment, then design, implement, and test cybersecurity controls to mitigate threats to the system.

CPE 499 - PROJECT IN COMPUTER ENGRG

Semester Hours: 3

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

EE 202 - INTRO DIGITAL LOGIC DSGN

Semester Hours: 3

Engineering approaches to design and analysis of digital logic circuits. Boolean algebra, Karnaugh maps, design using Hardware Description Languages, digital computer building blocks, standard logic (SSI MSI) vs. programmable logic (PLD, PGA0, finite state machine design. Prerequisites: CPE 112 and EE 100.

EE 203 - DIGITAL LOGIC DESIGN LAB

Semester Hour: 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. Prerequisite: EE 202.

EE 213 - ELECTRICAL CIRCUIT ANALYSIS I

Semester Hours: 3

Basic concepts of DC and AC circuit theory and analysis. Includes both DC and AC power. Prerequisites: MA 201 and PH 112 both w/concurrency.

EE 223 - DES & MOD ELEC CIR & SYS

Semester Hours: 3

Electrical circuit and systems design and modeling. Includes using modern tools (i.e. Matlab and simulink) to design and model circuits. Introduces and reinforces engineering design principles. Prerequisites: EE 202 & EE 213.

EE 307 - ELECTRICITY & MAGNETISM

Semester 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, MA 238 and MA 244.

EE 308 - ELECTROMAGNETIC ENGR

Semester Hours: 3

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

EE 310 - SOLID STATE FUNDAMENTALS

Semester Hours: 3

Introduction to semiconductors including crystalline structure, energy bands and charge carriers, excess carriers, and thermal properties. Introduction to semiconductor junctions, the bipolar junction transistor, the MOSFET. Prerequisites: PH 113 and MA 238.

EE 315 - INTRO ELECTRONIC ANAL & DESIGN

Semester Hours: 3

Properties of diode, bipolar transistors, FET and operational amplifiers, analysis of DC and AC small-signal operation and circuit models for the design and analysis of electronic circuits. Prerequisite: EE 213.

EE 316 - ELE CIRCUITS & ELTRNC DSGN LAB

Semester Hour: 1

Electric circuit experiments including first and second order DC circuits, maximum power transfer, impedance measurements, transformers, measurement of electronic device characteristics and design and testing of operational amplifier circuits and single-stage amplifiers using MOSFETs and BJTs. Prerequisite: EE 315.

EE 382 - ANALY METH CONTINUOUS TIME SYS

Semester 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, MA 238 and MA 244.

EE 383 - ANALY METH MULTIVARIABLE

Semester Hours: 3

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

EE 384 - DIG SIGNAL PROCESS LAB

Semester Hour: 1

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

EE 385 - RANDOM SIGNALS & NOISE

Semester Hours: 3

Random variables and probabilities 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 - INTRO CONTROL/ROBOTIC SYS

Semester Hours: 3

Theory 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 PROC

Semester 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/ECE

Semester Hours: 1-6

Special topics in Electrical Engineering.

EE 410L - SELECTED TOPIC LABORATORY

Semester Hours: 0

EE 411 - ELECTRIC POWER SYSTEM

Semester Hours: 3

Power generation, transmission and distribution. Three-phase circuits, conventional and renewable power systems, transformers and motors, protection and control. Prerequisite: EE 382.

EE 412 - SR DSGN PROJ ELECT ENGR

Semester Hours: 1-6

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

EE 414 - ANALOG & DIGITAL FILTER DESIGN

Semester 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 EE 383.

EE 416 - ELECTRONICS II

Semester Hours: 3

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

EE 421 - ANTENNA DESIGN & ANALYSIS

Semester Hours: 3

Covers analytical methods and mathematical foundations for solving antenna radiation problems, based on Maxwell's equations. Different types of antennas will be studied, including wire, phased array, aperture, microstrip, and reflector antennas. Prerequisite: EE 308.

EE 423 - COMM SYS & SIMULATION W/ LAB

Semester Hours: 3

Modern test equipment and computer-based simulation methods are used to conduct experiments in the area of communication systems. Includes experiments to investigate signal modulation and demodulation, and filters. (Same as EE 523) Prerequisite: EE 426.

EE 424 - INTRO DATA COMMUN NETWORKS

Semester 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. (Same as EE 504) Prerequisites: EE 383 and EE 385.

EE 426 - COMMUNICATION THEORY

Semester Hours: 3

Signals and systems including the Hilbert transform, cross and auto correlation, power density spectrum, and the Wiener-Khintchine theorem. Filter design. Linear and nonlinear modulation and demodulation methods and circuits. Phase lock and frequency feedback techniques. (Same as EE 506). Prerequisites: EE 382 or CPE 381.

EE 436 - DIGITAL ELECTRONICS

Semester 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. (Same as EE 516) Prerequisites: EE 202 and EE 315.

EE 437 - ELECTRONICS MANUF PROCESSES

Semester Hours: 3

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. Senior standing. (Same as ISE 437 and EE 537).

EE 451 - OPTOELECTRONICS

Semester 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. (Same as OPE 451) Prerequisites: EE 307 and EE 315.

EE 453 - LASER SYSTEMS

Semester 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. Prerequisite: EE 307.

EE 454 - OPTICAL FIBER COMMUNICA

Semester 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. (Same as OPE 454) Prerequisites: (EE 307 or PH 432) and (EE 382 or CPE 381).

EE 486 - INTRO MODERN CONTROL SYSTEMS

Semester Hours: 3

Modern control theory including techniques for modeling, analysis and control of MIMO dynamic systems, state-variable feedback control design and state observers. Kalman-filtering. Fundamentals of nonlinear systems analysis and discrete-time system modeling, analysis and control. Prerequisites: EE 386.

EE 494 - EE DESIGN PROJECTS

Semester Hours: 3

Senior Capstone Course. Design, simulation, and construction of technical projects. Review of legal, economic, and ethical issues. Students work as individuals or teams to design, implement, test, and evaluate their projects. Oral presentation and written reports are required. Senior Standing. Prerequisites: ISE 321, EE 308, EE 310, EE 313, EE 315, CPE 323, EE 383, and EE 386.

EE 497 - ELEC ENGR INTERNSHIP

Semester Hours: 1-3

Active involvement in an engineering project in an engineering enterprise, professional organization, or government agency that has particular interest and relevance in the student. Junior/senior standing and Approval of Engineering Faculty Advisor.

Computer Engineering, BSCpE

To obtain a Bachelor of Science degree in Computer Engineering, students are required to complete the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	

EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
History and Social and Behavioral Sciences		9
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Science: Choose one or two		3-6
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 206	MARRIAGE AND FAMILY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
Code	Title	Semester Hours
Additional Mathematics		
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
First Year Engineering		
FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3
Computer Science		
CS 214	INTRO DISCRETE STRUCTURE	3
CS 317	INTRO DESIGN/ANALYSIS OF ALG	3
Computer Engineering		
CPE 211	INTRO COMPUTER PROG FOR ENGR	3

EE 202	INTRO DIGITAL LOGIC DSGN	3
CPE 212	FUNDAMENTALS SOFTWARE ENGRG	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
CPE 221	COMPUTER ORGANIZATION	3
EE 315	INTRO ELECTRONIC ANAL & DESIGN	3
EE 316	ELE CIRCUITS & ELTRNC DSGN LAB	1
CPE 322 & CPE 324	DIGITAL HDWR DESIGN FUNDMNTLS and ADV LOGIC DESIGN LABORATORY	4
CPE 323 & CPE 325	INTRO TO EMBEDDED COMPUTER SYS and EMBEDDED SYSTEMS LAB	4
CPE 348	INTRO TO COMPUTER NETWORKS	3
CPE 353	SOFTWARE DESIGN & ENGINEERING	3
CPE 381	FUND SIGNALS & SYS FOR COMP EN	3
EE 384	DIG SIGNAL PROCESS LAB	1
EE 385	RANDOM SIGNALS & NOISE	3
or ISE 390	PROB & ENGR STATISTICS I	
CPE 431	INTRO COMPUTER ARCHITECTURE	3
CPE 434 & CPE 435	OPERATING SYSTEMS and OPERATING SYSTEMS LABORATORY	4
CPE 495	COMPUTER ENGINEERING DESIGN I	3
CPE 496	COMPUTER ENGINEERING DESIGN II	3

Computer Engineering Electives

Select 12 semester hours of 300-level or above CPE, EE, CS or other upper-level courses approved by the Department 12

Total Semester Hours 128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- ³ For choices see the World Languages and Culture (p. 177) department.

Suggested Schedule for Full-Time Students**Year 1**

		Semester Hours
Fall		
MA 171	CALCULUS A	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
HFA/HSBS		3
Term Semester Hours:		15
Spring		
MA 172	CALCULUS B	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
ENG 101	INTRO COMPUTING ENGINEERS	3
EH 102	COLLEGE WRITING II	3
HSBS/HFA		3
Term Semester Hours:		17

Year 2

Fall		
MA 201	CALCULUS C	4

PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CPE 211	INTRO COMPUTER PROG FOR ENGR	3
MA 244	INTRO TO LINEAR ALGEBRA	3
EE 202	INTRO DIGITAL LOGIC DSGN	3
Term Semester Hours:		17
Spring		
MA 238	APPL DIFFERENTIAL EQUATIONS	3
CPE 212	FUNDAMENTALS SOFTWARE ENGRG	3
CS 214	INTRO DISCRETE STRUCTURE	3
CPE 221	COMPUTER ORGANIZATION	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
Term Semester Hours:		15
Year 3		
Fall		
EE 315	INTRO ELECTRONIC ANAL DESIGN	3
CS 317	INTRO DESIGN/ANALYSIS OF ALG	3
CPE 353	SOFTWARE DESIGN ENGINEERING	3
CPE 323 & CPE 325	INTRO TO EMBEDDED COMPUTER SYS and EMBEDDED SYSTEMS LAB	4
HSBS/HFA		3
Term Semester Hours:		16
Spring		
CPE 381	FUND SIGNALS SYS FOR COMP EN	3
CPE 322 & CPE 324	DIGITAL HDWR DESIGN FUNDMNTLS and ADV LOGIC DESIGN LABORATORY	4
EE 316	ELE CIRCUITS ELTRNC DSGN LAB	1
ISE 390 or EE 385	PROB ENGR STATISTICS I or RANDOM SIGNALS & NOISE	3
HSBS/HFA		6
Term Semester Hours:		17
Year 4		
Fall		
CPE 495	COMPUTER ENGINEERING DESIGN I	3
CPE 431	INTRO COMPUTER ARCHITECTURE	3
CPE Elective I		3
CPE Elective II		3
EE 384	DIG SIGNAL PROCESS LAB	1
HSBS/HFA		3
Term Semester Hours:		16
Spring		
CPE 496	COMPUTER ENGINEERING DESIGN II	3
CPE 434 & CPE 435	OPERATING SYSTEMS and OPERATING SYSTEMS LABORATORY	4
CPE 448	Course CPE 448 Not Found	3
CPE Elective III		3
CPE Elective IV		3
Term Semester Hours:		16
Total Semester Hours:		129

Electrical Engineering, BSEE

To obtain a Bachelor of Science degree in Electrical Engineering, students are required to complete the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
History and Social and Behavioral Sciences		9
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Science: Choose one or two		3-6
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 206	MARRIAGE AND FAMILY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	

Code	Title	Semester Hours
Additional Mathematics and Sciences		
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
PH 113	GEN PHYSICS W/CALC III	3
PH 116	GENERAL PHYSICS LAB III	1
First Year Engineering		
FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3
Electrical Engineering		
CPE 211	INTRO COMPUTER PROG FOR ENGR	3
EE 202	INTRO DIGITAL LOGIC DSGN	3
EE 203	DIGITAL LOGIC DESIGN LAB	1
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
CPE 221	COMPUTER ORGANIZATION	3
EE 223	DES & MOD ELEC CIR & SYS	3
EE 307	ELECTRICITY & MAGNETISM	3
EE 308	ELECTROMAGNETIC ENGR	3
EE 310	SOLID STATE FUNDAMENTALS	3
EE 315	INTRO ELECTRONIC ANAL & DESIGN	3
EE 316	ELE CIRCUITS & ELTRNC DSGN LAB	1
ISE 321	ENGINEERING ECONOMY	3
CPE 323 & CPE 325	INTRO TO EMBEDDED COMPUTER SYS and EMBEDDED SYSTEMS LAB	4
EE 382	ANALY METH CONTINUOUS TIME SYS	3
EE 383	ANALY METH MULTIVARIABLE	3
EE 384	DIG SIGNAL PROCESS LAB	1
EE 385	RANDOM SIGNALS & NOISE	3
EE 386	INTRO CONTROL/ROBOTIC SYS	3
EE 494	EE DESIGN PROJECTS	3
Electrical Engineering Electives		
Select one ECE approved track (see approved list at CUE2 website):		6
Select 6 hours of 300-level or above EE, CPE, or OPE classes approved by advisor (CPE 212 is also allowed)		6
Technical Elective		
Select 3 hours at the 200-level or above from the College of Science or Engineering (Note: ESS 210 is not allowed)		3
Total Semester Hours		128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- ³ For choices see the World Languages and Culture (p. 177) department.

Suggested Schedule for Full-Time Students

Year 1

		Semester Hours
Fall		
MA 171	CALCULUS A	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
HFA/HSBS		3
Term Semester Hours:		15
Spring		
MA 172	CALCULUS B	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
ENG 101	INTRO COMPUTING ENGINEERS	3
EH 102	COLLEGE WRITING II	3
HSBS/HFA		3
Term Semester Hours:		17

Year 2

Fall		
MA 201	CALCULUS C	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CPE 211	INTRO COMPUTER PROG FOR ENGR	3
MA 244	INTRO TO LINEAR ALGEBRA	3
EE 202	INTRO DIGITAL LOGIC DSGN	3
Term Semester Hours:		17
Spring		
MA 238	APPL DIFFERENTIAL EQUATIONS	3
EE 223	DES MOD ELEC CIR SYS	3
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
CPE 221	COMPUTER ORGANIZATION	3
EE 313	Course EE 313 Not Found	3
EE 203	DIGITAL LOGIC DESIGN LAB	1
Term Semester Hours:		17

Year 3

Fall		
EE 313	Course EE 313 Not Found	3
EE 382	ANALY METH CONTINUOUS TIME SYS	3
EE 310	SOLID STATE FUNDAMENTALS	3
CPE 323 & CPE 325	INTRO TO EMBEDDED COMPUTER SYS and EMBEDDED SYSTEMS LAB	4
EE 307	ELECTRICITY MAGNETISM	3
Term Semester Hours:		16
Spring		
EE 315	INTRO ELECTRONIC ANAL DESIGN	3
EE 383	ANALY METH MULTIVARIABLE	3
EE 386	INTRO CONTROL/ROBOTIC SYS	3
EE 316	ELE CIRCUITS ELTRNC DSGN LAB	1
EE 385	RANDOM SIGNALS NOISE	3

EE 308	ELECTROMAGNETIC ENGR	3
Term Semester Hours:		16
Year 4		
Fall		
EE Track Elective I		3
EE Elective		3
ISE 321	ENGINEERING ECONOMY	3
HSBS/HFA		6
Term Semester Hours:		15
Spring		
EE 494	EE DESIGN PROJECTS	3
EE Track Elective II		3
Technical Elective		3
EE 384	DIG SIGNAL PROCESS LAB	1
HSBS/HFA		6
Term Semester Hours:		16
Total Semester Hours:		129

Optical Engineering, BSOE

To obtain a Bachelor of Science degree in Optical Engineering, students are required to complete the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	

PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
History and Social and Behavioral Sciences		9
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Science: Choose one or two		3-6
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 206	MARRIAGE AND FAMILY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
Code	Title	Semester Hours
Additional Mathematics and Science		
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
First Year Engineering		
FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3
Optical Engineering		
CPE 211	INTRO COMPUTER PROG FOR ENGR	3
EE 202	INTRO DIGITAL LOGIC DSGN	3
EE 203	DIGITAL LOGIC DESIGN LAB	1
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
EE 307	ELECTRICITY & MAGNETISM	3
EE 308	ELECTROMAGNETIC ENGR	3
EE 310	SOLID STATE FUNDAMENTALS	3
EE 315	INTRO ELECTRONIC ANAL & DESIGN	3
EE 316	ELE CIRCUITS & ELTRNC DSGN LAB	1
ISE 321	ENGINEERING ECONOMY	3
OPT 341	GEOMETRICAL OPTICS	3
OPT 342	PHYSICAL OPTICS	3
EE 382	ANALY METH CONTINUOUS TIME SYS	3
EE 383	ANALY METH MULTIVARIABLE	3
EE 384	DIG SIGNAL PROCESS LAB	1
EE 385	RANDOM SIGNALS & NOISE	3

EE 412	SR DSGN PROJ ELECT ENGR	1
OPE 451	OPTOELECTRONICS	3
OPE 453	LASER SYSTEMS	3
OPE 454	OPTICAL FIBER COMMUNICATIONS	3
OPE 456	PHOTONICS LABORATORY	3
OPE 459	OPTICAL ENGINEERING DESIGN I	3
OPE 460	OPTICAL ENGINEERING DESIGN II	3

Optical Engineering Elective

Select one 3 semester hour technical elective at the 300-level or higher approved by an advisor. 3

Total Semester Hours 129

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- ³ For choices see the World Languages and Culture (p. 177) department.

Suggested Schedule for Full-Time Students**Year 1**

Fall		Semester Hours
MA 171	CALCULUS A	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
HFA/HSBS		3
Term Semester Hours:		15
Spring		
MA 172	CALCULUS B	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
ENG 101	INTRO COMPUTING ENGINEERS	3
EH 102	COLLEGE WRITING II	3
HSBS/HFA		3
Term Semester Hours:		17

Year 2

Fall		
MA 201	CALCULUS C	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CPE 211	INTRO COMPUTER PROG FOR ENGR	3
MA 244	INTRO TO LINEAR ALGEBRA	3
EE 202	INTRO DIGITAL LOGIC DSGN	3
Term Semester Hours:		17
Spring		
MA 238	APPL DIFFERENTIAL EQUATIONS	3
ISE 321	ENGINEERING ECONOMY	3
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
EE 203	DIGITAL LOGIC DESIGN LAB	1
HSBS/HFA		3
Term Semester Hours:		17

Year 3**Fall**

EE 382	ANALY METH CONTINUOUS TIME SYS	3
OPE 451	OPTOELECTRONICS	3
EE 315	INTRO ELECTRONIC ANAL DESIGN	3
OPT 341	GEOMETRICAL OPTICS	3
EE 307	ELECTRICITY MAGNETISM	3
Term Semester Hours:		15

Spring

EE 313	Course EE 313 Not Found	3
EE 383	ANALY METH MULTIVARIABLE	3
EE 310	SOLID STATE FUNDAMENTALS	3
OPE 456	PHOTONICS LABORATORY	3
EE 316	ELE CIRCUITS ELTRNC DSGN LAB	1
EE 384	DIG SIGNAL PROCESS LAB	1
OPT 342	PHYSICAL OPTICS	3
Term Semester Hours:		17

Year 4**Fall**

EE 308	ELECTROMAGNETIC ENGR	3
OPE 453	LASER SYSTEMS	3
OPE 454	OPTICAL FIBER COMMUNICATIONS	3
OPE 459	OPTICAL ENGINEERING DESIGN I	3
HSBS/HFA		3
Term Semester Hours:		15

Spring

OPE 460	OPTICAL ENGINEERING DESIGN II	3
OPE Elective		3
EE 385	RANDOM SIGNALS NOISE	3
EE 412	SR DSGN PROJ ELECT ENGR	1
HSBS/HFA		6
Term Semester Hours:		16
Total Semester Hours:		129

Engineering Clusters

Engineering clusters are offered by several College of Engineering programs. The request for a cluster is initiated with the non-engineering student's advisor. Students must meet any prerequisites for the courses in the cluster.

Industrial & Systems Engineering Cluster (21 Semester Hours)

Code	Title	Semester Hours
ISE 224	INTRO INDUSTRIAL & SYSTEMS	3
ISE 321	ENGINEERING ECONOMY	3
ISE 340	OPERATIONS RESEARCH	3
ISE 390	PROB & ENGR STATISTICS I	3
ISE 391	PROB/ENGR STAT II	3
ISE 423	INTR STATISTICAL QUALITY CONTR	3
ISE 430	MANUF SYS & FACILITIES DESIGN	3
Total Semester Hours		21

Mechanical Engineering Cluster (21 Semester Hours)

Code	Title	Semester Hours
ENG 101	INTRO COMPUTING ENGINEERS	3
MAE 211	INTRO COMPUTATIONAL TOOLS	2
MAE 271	STATICS	3
MAE 272	DYNAMICS	3
MAE 310	FLUID MECHANICS I	3
MAE 341	THERMODYNAMICS I	3
MAE 370	MECHANICS OF MATERIALS	4
Total Semester Hours		21

Electrical Systems Cluster (20 Semester Hours)

Code	Title	Semester Hours
ENG 101	INTRO COMPUTING ENGINEERS	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
EE 315	INTRO ELECTRONIC ANAL & DESIGN	3
EE 316	ELE CIRCUITS & ELTRNC DSGN LAB	1
EE 382	ANALY METH CONTINUOUS TIME SYS	3
EE 383	ANALY METH MULTIVARIABLE	3
EE 384	DIG SIGNAL PROCESS LAB	1
EE 386	INTRO CONTROL/ROBOTIC SYS	3
Total Semester Hours		20

Circuits/Digital Electronics Cluster (20 Semester Hours)

Code	Title	Semester Hours
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
EE 223	DES & MOD ELEC CIR & SYS	3
EE 310	SOLID STATE FUNDAMENTALS	3
EE 315	INTRO ELECTRONIC ANAL & DESIGN	3
EE 316	ELE CIRCUITS & ELTRNC DSGN LAB	1
EE 382	ANALY METH CONTINUOUS TIME SYS	3
EE 384	DIG SIGNAL PROCESS LAB	1
EE 436	DIGITAL ELECTRONICS	3
Total Semester Hours		20

Music Technology Cluster (23 Semester Hours)

Code	Title	Semester Hours
ENG 101	INTRO COMPUTING ENGINEERS	3
EE 202	INTRO DIGITAL LOGIC DSGN	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
EE 223	DES & MOD ELEC CIR & SYS	3
EE 315	INTRO ELECTRONIC ANAL & DESIGN	3
EE 316	ELE CIRCUITS & ELTRNC DSGN LAB	1
EE 382	ANALY METH CONTINUOUS TIME SYS	3
EE 383	ANALY METH MULTIVARIABLE	3
EE 384	DIG SIGNAL PROCESS LAB	1
Total Semester Hours		23

Industrial and Systems Engineering and Engineering Management

N143 Technology Hall
Telephone: 256.824.6256
Email: ise@uah.edu (ise@uah.edu)
Chair: James Swain

Industrial and Systems Engineering

Industrial & Systems Engineering is a branch of engineering dealing with the optimization of complex processes or systems. It is concerned with the development, improvement, implementation and evaluation of integrated systems of people, money, knowledge, information, equipment, energy, materials, analysis and synthesis, as well as the mathematical, physical, and social sciences together with the principles and methods of engineering design to specify, predict, and evaluate the results to be obtained from such systems or processes. Its underlying concepts overlap considerably with certain business-oriented disciplines such as operations management.

Depending on the sub-specialties involved, industrial engineering may also be known as, or overlap with, operations management, management science, operations research, systems engineering, manufacturing engineering, ergonomics or human factors engineering, safety engineering, or others, depending on the viewpoint or motives of the user. For example, in health care, the engineers known as health management engineers or health systems engineers are, in essence, industrial engineers by another name.

The Industrial and Systems Engineering Department offers the following degree programs:

- Industrial and Systems Engineering, BSISE (p. 383)

Mission

To provide integrated, applications-oriented education and research programs in the areas of industrial engineering, systems engineering, and engineering management to support the needs of students and organizations in the Huntsville area and beyond.

ISE Program Educational Objectives

To realize the mission of the department, the following educational objectives have been adopted for the undergraduate program. These objectives cover the fundamentals of both engineering and the humanities that characterize a university education, plus the specialized knowledge of industrial and systems engineering needed for a successful career in industry, the government, or academia.

- Graduates will have utilized a foundation in the knowledge and skills of industrial and systems engineering to improve lives and advance professionally in positions of increasing responsibility within their chosen field.
- Graduates will have become effective collaborators and innovators, leading or participating in efforts to address social, technical, and business challenges.
- Graduates will have engaged in lifelong learning and professional development through self-study, continuing education, or graduate and professional studies.

Major in Industrial and Systems Engineering

- Industrial and Systems Engineering, BSISE (p. 383)

ISE 224 - INTRO INDUSTRIAL & SYSTEMS

Semester 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. Prerequisites: ENG 101.

ISE 321 - ENGINEERING ECONOMY

Semester Hours: 3

Economic evaluation of engineering alternatives. Interest, time-value of investments, depreciation and income taxes, break-even cost analysis. Sophomore standing.

ISE 324 - WORK DESIGN

Semester Hours: 3

Principles of methods analysis and ergonomics to fit a task and workstation to the human operator including work measurement and tools, work sampling, job analysis, anthropometric data, and workplace design. Laboratory exercises focus on the implementation of lean principles. (Same as PY 324) Prerequisites: ISE 390 or PY 300.

ISE 327 - MANAGEMENT SYSTEMS ANALYSIS

Semester 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. Prerequisite: ISE 390.

ISE 340 - OPERATIONS RESEARCH

Semester Hours: 3

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

ISE 390 - PROB & ENGR STATISTICS I

Semester Hours: 3

Engineering uses of probability, 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: MA 201.

ISE 391 - PROB/ENGR STAT II

Semester Hours: 3

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

ISE 402 - INDUSTRIAL & ORGANIZA PSY

Semester Hours: 3

Application of basic principles of learning, motivation, and perception to typical industrial and organizational problems. Senior standing. (Same as PY 402/502).

ISE 403 - HUMAN FACTORS PSYCHOLOGY

Semester 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. Senior standing. (Same as PY 403/503).

ISE 423 - INTR STATISTICAL QUALITY CONTR

Semester Hours: 3

Introduces statistical theory and techniques to control quality of manufacturing products. Provides a solid foundation in Statistical Quality Control. The Six Sigma methodology is also introduced in this course. Students can take the certification exam to earn Green Belt in Six Sigma. Prerequisite: ISE 391.

ISE 426 - DSGN & ANALY OF EXPERIM

Semester Hours: 3

Advanced topics in statistical experiments with emphasis on the design aspect. Factorial designs, including fractional replication and confounding. Includes computer laboratory exercises. (Same as ISE 526). Prerequisite: ISE 391.

ISE 428 - SYSTEMS ANALYSIS & DESIGN I

Semester 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. Senior Standing. Prerequisites: ISE 124, ISE 321, ISE 340, and ISE 391.

ISE 429 - SYS ANALYSIS/DESIGN II

Semester Hours: 3

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

ISE 430 - MANUF SYS & FACILITIES DESIGN

Semester Hours: 3

Modern manufacturing systems design with emphasis on facility location and plant layout. Includes classical systems, just-in-time systems, principles of integrated manufacturing systems design, and an analysis of process flow and productivity, and available space to determine facility layout. (Same as ISE 530).

ISE 433 - PROD & INVENTORY CONTROL SYS

Semester Hours: 3

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

ISE 437 - ELECTRONICS MANUF PROCESSES

Semester Hours: 3

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. Senior Standing. (Same as ISE 537).

ISE 439 - SELECTED TOPICS/ISE

Semester Hours: 1-3

ISE 447 - INTRO TO SYSTEMS SIMULATION

Semester 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. (Same as ISE 547) Prerequisites: CPE 112 and ISE 391.

Industrial and Systems Engineering, BSISE

To obtain a Bachelor of Science degree in Industrial and Systems Engineering, students are required to complete the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
History and Social and Behavioral Sciences		9

History: Choose one or two ¹ 3-6

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Science: Choose one or two 3-6

PY 101	GENERAL PSYCHOLOGY I
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 206	MARRIAGE AND FAMILY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES

Code	Title	Semester Hours
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Additional Mathematics and Science

MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1

Select one of the following science electives: 3-4

CH 123	GENERAL CHEMISTRY II
PH 113	GEN PHYSICS W/CALC III
BYS 119	PRINCIPLES OF BIOLOGY
Any 300 or 400 Mathematics	

First Year Engineering

FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3

Industrial and Systems Engineering Electives

ISE 224	INTRO INDUSTRIAL & SYSTEMS	3
MAE 211	INTRO COMPUTATIONAL TOOLS	2
or CE 211	CIVIL ENGINEERING GRAPHICS	
MAE 271	STATICS	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
ISE 321	ENGINEERING ECONOMY	3
ISE 324	WORK DESIGN	3
ISE 327	MANAGEMENT SYSTEMS ANALYSIS	3
ISE 340	OPERATIONS RESEARCH	3
MAE 341	THERMODYNAMICS I	3
MAE 370	MECHANICS OF MATERIALS	4
ISE 390	PROB & ENGR STATISTICS I	3
ISE 391	PROB/ENGR STAT II	3
ISE 423	INTR STATISTICAL QUALITY CONTR	3
ISE 428	SYSTEMS ANALYSIS & DESIGN I	3
ISE 429	SYS ANALYSIS/DESIGN II	3

ISE 430	MANUF SYS & FACILITIES DESIGN	3
ISE 433	PROD & INVENTORY CONTROL SYS	3
ISE 447	INTRO TO SYSTEMS SIMULATION	3

Industrial and Systems Engineering Technical Elective 9

Choose a minimum of 3 hours from the following courses (or others approved by the ISE Faculty):

MA 385	INTRO TO PROBABILITY & STATIST
ISE 402	INDUSTRIAL & ORGANIZA PSY
ISE 403	HUMAN FACTORS PSYCHOLOGY
ISE 426	DSGN & ANALY OF EXPERIM
ISE 437	ELECTRONICS MANUF PROCESSES

May select a maximum of 6 hours from the following:

EH 301	TECHNICAL WRITING
ACC 211	PRINC OF FINANCIAL ACCOUNTING
MKT 301	PRINCIPLES OF MARKETING
MGT 363	HUMAN RESOURCE & LABOR REL MGT
MGT 462	EMPLOYMENT LAW FOR MANAGERS

Technical Elective 3

Total Semester Hours 128

- Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/ or MA 113) Mathematics courses may be required.
- For choices see the World Languages and Culture (p. 177) department.

Suggested Schedule for Full-Time Students

Year 1

Fall		Semester Hours
MA 171	CALCULUS A	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
HFA/HSBS		3
Term Semester Hours:		15

Spring		
MA 172	CALCULUS B	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
EH 102	COLLEGE WRITING II	3
ENG 101	INTRO COMPUTING ENGINEERS	3
HSBS/HFA		3
Term Semester Hours:		17

Year 2

Fall		
MA 201	CALCULUS C	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
ISE 224	INTRO INDUSTRIAL SYSTEMS	3
ISE 390	PROB ENGR STATISTICS I	3
ISE 321	ENGINEERING ECONOMY	3
HSBS/HFA		3
Term Semester Hours:		20

Spring

MA 238	APPL DIFFERENTIAL EQUATIONS	3
MAE 271	STATICS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
CE 211	CIVIL ENGINEERING GRAPHICS	2
or MAE 211	or INTRO COMPUTATIONAL TOOLS	
ISE 391	PROB/ENGR STAT II	3
Science Elective		3
Term Semester Hours:		17

Year 3**Fall**

MAE 341	THERMODYNAMICS I	3
ISE 340	OPERATIONS RESEARCH	3
ISE 324	WORK DESIGN	3
MAE 370	MECHANICS OF MATERIALS	4
HSBS/HFA		3
Term Semester Hours:		16

Spring

ISE 423	INTR STATISTICAL QUALITY CONTR	3
ISE 327	MANAGEMENT SYSTEMS ANALYSIS	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
Tech Elective		3
HSBS/HFA		3
Term Semester Hours:		15

Year 4**Fall**

ISE 428	SYSTEMS ANALYSIS DESIGN I	3
ISE 430	MANUF SYS FACILITIES DESIGN	3
ISE 447	INTRO TO SYSTEMS SIMULATION	3
ISE Elective		3
HSBS/HFA		3
Term Semester Hours:		15

Spring

ISE 429	SYS ANALYSIS/DESIGN II	3
ISE 433	PROD INVENTORY CONTROL SYS	3
ISE Elective		3
ISE Elective		3
HSBS/HFA		3
Term Semester Hours:		15
Total Semester Hours:		130

Mechanical and Aerospace Engineering

N274 Technology Hall
 Telephone: 256.824.6154
 Email: mae@uah.edu (mae@uah.edu)
 Chair: D. Keith Hollingsworth

Mechanical and Aerospace Programs

Aerospace Engineering is a diverse and rapidly changing field that consists of four fundamental technical disciplines: aerodynamics, structures and materials, propulsion, and flight mechanics and control. Aerospace engineers have traditionally applied their knowledge of these disciplines to the design and development of high performance flight systems such as aircraft, rotorcraft, spacecraft, missiles and rockets.

Mechanical Engineering applies the principles of physics and materials science for design, analysis and manufacturing of mechanical and thermal systems. Mechanical engineers use core concepts: mechanics, kinematics, thermodynamics, and fluid mechanics and tools: computer-aided design and modeling to design and build machines, weapons, medical devices, and robotics.

The department of Mechanical and Aerospace Engineering offers the following degree programs:

- Bachelor of Science in Aerospace Engineering (p. 392)
- Bachelor of Science in Mechanical Engineering (p. 395)

Mission Statement

The mission of the Department of Mechanical and Aerospace Engineering is to provide undergraduate and graduate education, research, and public service in the mechanical and aerospace engineering disciplines and to support the mechanical and aerospace engineering needs of Huntsville, the State of Alabama, the region, our nation, and the international community.

Program Educational Objectives

Within a few years of graduation, Aerospace and Mechanical Engineering graduates will have:

- attained successful careers and recognition as young leaders in industry and in the community;
- created innovative solutions through the application of their knowledge base and capacity for critical thinking;
- established collaborative working relationships wherein they communicate their ideas effectively; and
- pursued continuous professional development and advanced-study opportunities.

Majors in Mechanical and Aerospace Engineering

- Aerospace Engineering, BSAE (p. 392)
- Mechanical Engineering, BSME (p. 395)

MAE 115 - INTRODUCTION TO MACHINING

Semester Hour: 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.

MAE 200 - PRINC AERONAUTICS & ASTRONAUTI

Semester Hours: 3

Fundamental concepts of aerospace engineering including the history of flight, standard atmosphere, fluid and flow properties, lift and drag, propulsion, and structures; elementary aircraft performance, stability and control; basic astronautics and space environment; and aerospace vehicle design.

Prerequisites: PH 111, ENG 101, MA 172. Prerequisite with concurrency: MAE 211.

MAE 211 - INTRO COMPUTATIONAL TOOLS

Semester Hours: 2

Computer-aided design and solid modeling concepts including: model definition through constraints and dimensioning, and development of subassemblies and assemblies. Prerequisites: ENG 101 and MA 171.

MAE 271 - STATICS

Semester 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. (Same as CE 271) Prerequisites: PH 111, MA 201 and ENG 101.

MAE 272 - DYNAMICS

Semester 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 plan motion, relative motion in rotating coordinates, and gyroscopic motion. (Same as CS 362) Prerequisites: (CE 271 or MAE 271) and MA 201.

MAE 284 - NUMERICAL METHODS

Semester 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, LA 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, ENG 101, MAE 211 and MA 238.

MAE 284L - NUMERICAL METHODS LAB

Semester Hours: 0

MAE 310 - FLUID MECHANICS I

Semester 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: (CE 271 or MAE 271) and MA 238.

MAE 311 - PRIN MEASUREMENT & INSTRUMEN

Semester Hours: 3

Instrumentation and techniques for measurement of mechanical phenomena. Calibration, standards, computerized data acquisition, error analysis, signal conditioning, dynamic response, and experimental design. Laboratory included. Prerequisites: EE 213 and MAE 284.

MAE 311L - PRINC MEASUREMENT & INSTR LAB

Semester Hours: 0

MAE 330 - FUNDAMENTALS AERODYNAMICS

Semester Hours: 3

Fundamentals of incompressible flow, conservation laws, potential flow, similarity, airfoil and finite wing lift and drag, thin airfoil and panel methods, introduction to viscous flows and boundary layers, and modern airfoil and wing design. Prerequisites: MAE 200, MAE 272 and MA 238 (all with minimum grade of C-). Corequisite: MAE 331.

MAE 330L - LABORATORY

Semester Hours: 0

This lab is a 0 credit lab component of the 4 credit MAE 330 course.

MAE 331 - AERODYNAMICS LAB

Semester Hour: 1

Demonstration of fundamental aerodynamic principles through wind tunnel testing including comparison of theory to experimental results. Corequisite: MAE 330.

MAE 341 - THERMODYNAMICS I

Semester 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: CH 121, PH 112, and MA 201.

MAE 342 - THERMODYNAMICS II

Semester Hours: 3

Continuation of MAE 341. Thermodynamic cycles, thermodynamic relations among properties, chemical reactions, and phase and chemical equilibrium. Prerequisites: MAE 341 and MA 238.

MAE 343 - COMPRESSIBLE AERODYNAMICS

Semester Hours: 3

Compressible flow including area change, friction, and heat transfer. Fundamentals of acoustic waves, 1- and 2-D 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, MAE 341 and MA 238 (all with minimum grade of C-).

MAE 345 - HONORS THERMODYNAMICS COLQ

Semester Hour: 1

Students in this course will be expected to participate in assigned readings and discussions to develop an understanding of the context behind the fundamental concepts and principles of thermodynamics. Through reflections students will be encouraged to apply this knowledge to develop their own creative ideas. Prerequisites with concurrency: MAE 341 or CHE 344.

MAE 364 - KINEMATICS/DYNAM MACHINE

Semester Hours: 3

Kinematics and dynamics of planar machinery including principles of mechanisms, cam design, gears and epicycle gear trains, determination of velocity and acceleration in mechanisms. Inertia forces in machines, balancing of rotating masses and reciprocating masses, and vibration analysis.

Prerequisites: MAE 211 and (MAE 272 or CE 272).

MAE 364L - KINEMATICS/DYN MACHINE LAB

Semester Hours: 0

MAE 370 - MECHANICS OF MATERIALS

Semester Hours: 3

Design and analysis of simple structures for predetermined strength and deformation requirements. Topics include: theory of stress-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. Same as MAE 370. Prerequisites: (CPE 211 or MAE 211) and (MAE 271 or CE 271) and MA 244, corequisite MAE 375.

MAE 370L - LABORATORY

Semester Hours: 0

MAE 371 - AEROSPACE STRUCTURES

Semester 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 200 and (MAE 370 or CE 370).

MAE 375 - MECHANICS OF MATERIALS LAB

Semester Hour: 1

Experimental verification of material properties and structural deformation under axial, torsional, and bending loads. Test procedures, use of instrumentation, interpretation of experimental results and comparison to theory. (Same as CE 375). Corequisites: MAE 370.

MAE 378 - MATERIALS & MFG PROCESS

Semester 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. (Same as ISE 378).

Prerequisites: MAE 370 or CE 370.

MAE 395 - SEL TOPICS:MECH & AEROSPACE EG

Semester Hours: 1-3

Special topics in Mechanical or Aerospace Engineering.

MAE 425 - DESIGN OF MACHINE ELEMENTS/A&M

Semester Hours: 3

MAE 440 - ROCKET PROPULSION I

Semester Hours: 3

Introduction to the operation, analysis, and design of liquid and solid rockets. Incorporates design and realization of a thermal system, in which students work in teams to design a rocket motor or component. Prerequisite: MAE 343.

MAE 441 - AIRBREATHING PROPULSION

Semester Hours: 3

Air breathing propulsion systems with emphasis on gas turbine engines for air-and rotor-craft. Includes thermodynamic power cycles, components design, and engine performance analysis. Incorporates a turbine engine design and realization team project. Prerequisite: MAE 343.

MAE 444 - INTRO TO ELECTRIC PROPULSION

Semester Hours: 3

Elements of electrically-driven rocket propulsion for applications from low earth orbit to the outer planets will be discussed. The physics of ionizing and heating gases and plasmas for electrothermal, electrostatic and electromagnetic acceleration will be studied. Characteristics of Resistojet, Arcjet, Magnetoplasmadynamic thrusters, Electrothermal, Pulsed plasma, Electrostatic, and Hall thrusters will be covered. Review thruster system performance, power requirements and selection for space missions. Overview of current research efforts, including thruster systems, physics, and performance. Prerequisite: MAE 420.

MAE 449 - AEROSPACE LABORATORY

Semester Hours: 2

Experimental investigation of aerospace structures, airfoils and bodies in subsonic flow, and performance of various aerospace propulsion systems. An experiment design project is included. Concurrent registration in MAE 449L is required.

MAE 450 - INTRO TO HEAT & MASS TRANSFER

Semester Hours: 3

Principles of heat and mass transfer; application of principles to problems in conductive, convective, and radioactive heat transfer and mass transfer; laminar and turbulent flow processes; boiling and condensation; heat exchangers. Prerequisites: MAE 283, MAE 311, MAE 341 and (MAE 310 or MAE 330). Corequisite: MAE 451.

MAE 450L - INTRO HEAT & MASS TRANSFER LAB

Semester Hours: 0

MAE 451 - HEAT & MASS TRANSFER LAB

Semester Hour: 1

Experimental measurements and analysis of heat and mass transfer mechanisms, processes and systems. Test procedures, use of instrumentation, interpretation of experimental results and comparison to theory. Corequisite: MAE 450.

MAE 455 - DESIGN OF THERMAL SYSTEMS

Semester Hours: 3

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 and MAE 450.

MAE 461 - VIBRATIONS ELASTIC SYS

Semester Hours: 3

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

MAE 463 - INTERMEDIATE DYNAMICS

Semester Hours: 3

Kinematics and dynamics of particles, system of particles, and rigid-bodies. Variational principles and Lagrangian mechanics. Prerequisites: MAE 272 and MAE 488.

MAE 466 - MECH & DSGN MACH ELEMENT

Semester 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 370 or CE 370).

MAE 468 - ELEMENTS OF SPACECRAFT DESIGN

Semester 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 371 and (MAE 272 or CE 272).

MAE 471 - ADV AEROSPACE STR & MTRLS

Semester Hours: 3

Composite materials and applications in aerospace structures including: material types and properties and fabrication techniques, micromechanics, constitutive behavior, and classical laminated plate theory. Introduction to failure concepts, sandwich panels and finite element modeling of 1-and 2-D aerospace structures. Prerequisites: MAE 311 and MAE 371.

MAE 474 - APP MECHANICS OF SOLIDS

Semester 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 370 or CE 370.

MAE 477 - EXP TECH SOLID MECHANICS

Semester 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: MAE 370 or CE 370.

MAE 480 - AIRCRAFT STABILITY & CONTROL

Semester 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. Prerequisites: MAE 430 and MAE 488.

MAE 488 - ANALY ENGINEERING SYSTEM

Semester 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 284 and (MAE 272 or CE 272).

MAE 489 - COMPUTER AIDED ENGR

Semester Hours: 3

Analysis of design of structural, thermal, and dynamical systems using 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. Prerequisites: MAE 370 or CE 370 and MAE 284 w/concurrency.

MAE 490 - SENIOR DESIGN I

Semester Hours: 3

Application of basic design principles including: design methodology, decision making, creativity, product liability, human factors, patents, ethics, and technical writing. Students will be assigned to a multi-disciplinary teams to develop design project requirements and initial concepts. Prerequisites: ISE 321, MAE 311, MAE 341 and [(MAE 310, MAE 364, MAE 375 & MAE 371) or (MAE 330, MAE 331, MAE 343, MAE 371 & MAE 375)].

MAE 491 - SENIOR DESIGN II

Semester Hours: 3

Continuation of MAE 490. Students work on multi-disciplinary teams to design, fabricate, test and demonstrate the performance of various mechanisms, products and vehicles according to customer requirements. Oral presentations and written detailed documentation of the project must also be completed. Prerequisite: MAE 490.

MAE 492 - MISSION DESIGN & DEVELOPMNT

Semester Hours: 3

Senior Capstone Course Option. Students work design teams to develop missions of interest to NASA, DoD and industry. Includes defining the mission architecture and associated vehicles and components required to meet the customer requirements. Prerequisites: MAE 490.

MAE 493 - ROCKET DESIGN

Semester Hours: 3

Senior Capstone Course Option. 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. Prerequisites: MAE 490.

MAE 494 - AIRCRAFT DESIGN

Semester Hours: 3

Senior Capstone Course Option. Design, build, and test an unmanned aircraft to meet specified requirements. Students work on multi-disciplinary teams. Systems engineering aspects including simulation, fabrication, integration, scheduling and cost estimation are also emphasized. Prerequisite: MAE 490.

MAE 495 - SEL TOPICS:MECH & AEROSPACE EG

Semester Hours: 1-4

MAE 496 - IND STUDY:MECH & AEROSPACE EG

Semester Hours: 1-4

Special independent project in a topic of Mechanical or Aerospace Engineering. Must work with a MAE faculty member with project approved by MAE department chair.

MAE 499 - UNDERGRADUATE THESIS

Semester Hours: 3

Required for students completing an Honors Program Bachelors Thesis. Senior standing and permission of thesis advisor required.

Aerospace Engineering, BSAE

To obtain a Bachelor of Science degree in Aerospace Engineering, students are required to complete the general education requirements for engineering majors and the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
History and Social and Behavioral Sciences		9
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Science: Choose one or two		3-6
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 206	MARRIAGE AND FAMILY	

PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES

Code	Title	Semester Hours
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Additional Mathematics and Science

MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1

Select one of the following science electives: 3-4

CH 123	GENERAL CHEMISTRY II
PH 113	GEN PHYSICS W/CALC III
BYS 119	PRINCIPLES OF BIOLOGY

Any 300 of 400 Mathematics

First Year Engineering

FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3

Aerospace Engineering

MAE 200	PRINC AERONAUTICS & ASTRONAUTI	3
MAE 211	INTRO COMPUTATIONAL TOOLS	2
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
MAE 271	STATICS	3
MAE 272	DYNAMICS	3
MAE 284	NUMERICAL METHODS	3
ISE 321	ENGINEERING ECONOMY	3
MAE 311	PRIN MEASUREMENT & INSTRUMEN	3
MAE 330	FUNDAMENTALS AERODYNAMICS	4
MAE 341	THERMODYNAMICS I	3
MAE 343	COMPRESSIBLE AERODYNAMICS	3
MAE 370	MECHANICS OF MATERIALS	4
MAE 371	AEROSPACE STRUCTURES	3
MAE 440	ROCKET PROPULSION I (or)	3
MAE 441	AIRBREATHING PROPULSION	3
MAE 468	ELEMENTS OF SPACECRAFT DESIGN	3
MAE 471	ADV AEROSPACE STR & MTRLS	3
MAE 480	AIRCRAFT STABILITY & CONTROL	3
MAE 488	ANALY ENGINEERING SYSTEM	3
MAE 490	SENIOR DESIGN I	3

Select one of the following:

MAE 491	SENIOR DESIGN II	3
MAE 492	MISSION DESIGN & DEVELPMNT	3
MAE 493	ROCKET DESIGN	3
MAE 494	AIRCRAFT DESIGN	3

Aerospace Technical Electives

Select two 3-semester hour technical electives from the College of Engineering or the College of Science at the 300-level or higher.

6

AE students may not take both MA 385 and ISE 390 for credit. AE students may not take MAE 310 for credit.

Total Semester Hours 128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- ³ For choices see the World Languages and Culture (p. 177) department.

Suggested Pathway for Aerospace Engineering

Year 1

Fall		Semester Hours
MA 171	CALCULUS A	4
CH 121	GENERAL CHEMISTRY I	3
CH 125	GENERAL CHEMISTRY LAB I	1
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
HSBS/HFA		3
Term Semester Hours:		15
Spring		
MA 172	CALCULUS B	4
PH 111	GEN PHYSICS W/CALCULUS I	3
PH 114	GENERAL PHYSICS LAB I	1
ENG 101	INTRO COMPUTING ENGINEERS	3
EH 102	COLLEGE WRITING II	3
HSBS/HFA		3
Term Semester Hours:		17

Year 2

Fall		
MA 201	CALCULUS C	4
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
MA 244	INTRO TO LINEAR ALGEBRA	3
MAE 271	STATICS	3
MAE 211	INTRO COMPUTATIONAL TOOLS	2
Term Semester Hours:		16
Spring		
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MAE 272	DYNAMICS	3
MAE 284	NUMERICAL METHODS	3
MAE 370	MECHANICS OF MATERIALS	4
MAE 200	PRINC AERONAUTICS ASTRONAUTI	3
Term Semester Hours:		16

Year 3

Fall		
MAE 341	THERMODYNAMICS I	3
MAE 330	FUNDAMENTALS AERODYNAMICS	4
MAE 371	AEROSPACE STRUCTURES	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
Science Elective		3
Term Semester Hours:		16
Spring		

MAE 343	COMPRESSIBLE AERODYNAMICS	3
MAE 311	PRIN MEASUREMENT INSTRUMEN	3
ISE 321	ENGINEERING ECONOMY	3
MAE 488	ANALY ENGINEERING SYSTEM	3
HSBS/HFA		6
Term Semester Hours:		18
Year 4		
Fall		
MAE 490	SENIOR DESIGN I	3
MAE 480	AIRCRAFT STABILITY CONTROL	3
MAE 440	ROCKET PROPULSION I	3
or MAE 441	or AIRBREATHING PROPULSION	
Technical Elective		3
HSBS/HFA		3
Term Semester Hours:		15
Spring		
MAE 471	ADV AEROSPACE STR MTRLs	3
MAE 468	ELEMENTS OF SPACECRAFT DESIGN	3
Technical Elective		3
HSBS/HFA		3
Select one of the following		3
Senior Capstone courses:		
MAE 491	SENIOR DESIGN II	
MAE 492	MISSION DESIGN DEVELOPMNT	
MAE 493	ROCKET DESIGN	
MAE 494	AIRCRAFT DESIGN	
Term Semester Hours:		15
Total Semester Hours:		128

Mechanical Engineering, BSME

To obtain a Bachelor of Science degree in Mechanical Engineering, students are required to complete the following courses:

Code	Title	Semester Hours
Freshman Composition		3-6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		9
Fine Art: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two ¹		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 242	MYTHOLOGY	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	

PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ³		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Mathematics and Natural Sciences		12
Mathematics		4
MA 171	CALCULUS A ²	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
History and Social and Behavioral Sciences		9
History: Choose one or two ¹		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Science: Choose one or two		3-6
PY 101	GENERAL PSYCHOLOGY I	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 206	MARRIAGE AND FAMILY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
GS 200	GLOBAL SYSTEMS AND CULTURES	
Code	Title	Semester Hours
Additional Mathematics and Science		
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
Select on of the following science electives:		3-4
BYS 119	PRINCIPLES OF BIOLOGY	
CH 123	GENERAL CHEMISTRY II	
PH 113	GEN PHYSICS W/CALC III	
Any 300 or 400 level Mathematics		
First Year Engineering		
FYE 101	CHARGER SUCCESS	1
ENG 101	INTRO COMPUTING ENGINEERS	3
Mechanical Engineering		
MAE 211	INTRO COMPUTATIONAL TOOLS	2
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
MAE 271	STATICS	3

MAE 272	DYNAMICS	3
MAE 284	NUMERICAL METHODS	3
MAE 310	FLUID MECHANICS I	3
MAE 311	PRIN MEASUREMENT & INSTRUMEN	3
ISE 321	ENGINEERING ECONOMY	3
MAE 341	THERMODYNAMICS I	3
MAE 342	THERMODYNAMICS II	3
MAE 364	KINEMATICS/DYNAM MACHINE	4
MAE 370	MECHANICS OF MATERIALS	3
MAE 378	MATERIALS & MFG PROCESS	3
MAE 450	INTRO TO HEAT & MASS TRANSFER	4
MAE 455	DESIGN OF THERMAL SYSTEMS	3
MAE 466	MECH & DSGN MACH ELEMENT	3
MAE 488	ANALY ENGINEERING SYSTEM	3
MAE 489	COMPUTER AIDED ENGR	3
MAE 490	SENIOR DESIGN I	3
Select one of the following:		3
MAE 491	SENIOR DESIGN II	
MAE 492	MISSION DESIGN & DEVELPMNT	
MAE 493	ROCKET DESIGN	
MAE 494	AIRCRAFT DESIGN	

Mechanical Engineering Technical Electives

Select two 3-semester hour technical electives from the College of Engineering or the College of Science at the 300-level or higher. 6

ME students may not take both MA 385 AND ISE 390 for credit. ME students may not take MAE 330 for credit.

Total Semester Hours 128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- ³ For choices see the World Languages and Culture (p. 177) department.

Suggested Schedule for Full-Time Students

Year 1

Fall		Semester Hours
MA 171	CALCULUS A	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
HSBS/HFA		3
Term Semester Hours:		15
Spring		
MA 172	CALCULUS B	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
ENG 101	INTRO COMPUTING ENGINEERS	3
EH 102	COLLEGE WRITING II	3
HSBS/HFA		3
Term Semester Hours:		17

Year 2

Fall		
MA 201	CALCULUS C	4

PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
MA 244	INTRO TO LINEAR ALGEBRA	3
MAE 271	STATICS	3
MAE 211	INTRO COMPUTATIONAL TOOLS	2
Term Semester Hours:		16
Spring		
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MAE 272	DYNAMICS	3
MAE 284	NUMERICAL METHODS	3
ISE 321	ENGINEERING ECONOMY	3
HSBS/HFA		3
Science Elective		3
Term Semester Hours:		18
Year 3		
Fall		
MAE 341	THERMODYNAMICS I	3
MAE 370	MECHANICS OF MATERIALS	4
MAE 310	FLUID MECHANICS I	3
EE 213	ELECTRICAL CIRCUIT ANALYSIS I	3
HSBS/HFA		3
Term Semester Hours:		16
Spring		
MAE 342	THERMODYNAMICS II	3
MAE 311	PRIN MEASUREMENT INSTRUMEN	3
MAE 378	MATERIALS MFG PROCESS	3
MAE 364	KINEMATICS/DYNAM MACHINE	4
HSBS/HFA		3
Term Semester Hours:		16
Year 4		
Fall		
MAE 450	INTRO TO HEAT MASS TRANSFER	4
MAE 466	MECH DSGN MACH ELEMENT	3
MAE 489	COMPUTER AIDED ENGR	3
MAE 490	SENIOR DESIGN I	3
Technical Elective		3
Term Semester Hours:		16
Spring		
MAE 455	DESIGN OF THERMAL SYSTEMS	3
MAE 488	ANALY ENGINEERING SYSTEM	3
Select one of the following:		3
MAE 491	SENIOR DESIGN II	
MAE 492	MISSION DESIGN DEVELPMNT	
MAE 493	ROCKET DESIGN	
MAE 494	AIRCRAFT DESIGN	
Technical Elective		3
HSBS/HFA		3
Term Semester Hours:		15
Total Semester Hours:		129

Honors College

Dr. William S. Wilkerson, Dean
104 Frank Franz Hall
Telephone: 256.824.6450
uah.edu/honors

The Honors College at the University of Alabama in Huntsville provides academically talented undergraduate students with an elite college experience at a large research university. It offers enriched coursework, research opportunities, and a community of like-minded students.

The Honors College serves students in all the colleges. While students are encouraged to join the Honors College at the beginning of their freshman year to gain full advantage of its benefits and enhanced curriculum, the College welcomes qualified transfer students. All interested students must apply through the Honors College website: uah.edu/honors. While there is no strict minimum GPA and ACT/SAT score, first-time Freshmen Honors Students have an average ACT over 28 and a high school GPA over 3.5. Current and transfer students must have a college GPA of 3.25 or higher and must complete the full application.

The Honors College grants either an Honors Diploma or an Honors Certificate, depending on the number of Honors Credits earned. The Diploma and the Certificate are in the student's chosen field or fields and appear on both the physical Diploma and the official transcript. The Honors Diploma or the Certificate add little extra coursework to the degree: both are mostly accomplished by taking Honors sections of courses students would already take. Please see the tabs above for more information about the requirements for the Diploma and the Certificate.

Whether students seek the Honors Diploma or the Certificate, they must complete an Honors Capstone Project or Thesis. This is independent work students typically do in their major field. It is done under close faculty supervision, and it can be either a traditional research thesis or a project, such as a computer application, an art installation, or a collection of stories. More information about the thesis can be found at uah.edu/honors.

Honors courses come in three kinds:

1. Self-standing Honors Sections, which replace courses students would already take. These are smaller, more intensive, but not more work. They are designated with an "H" ("Philosophy 101 H" vs. "Philosophy 101").
2. Honors contract courses: any course can be made an Honors Course if the instructor and the student agree on a way to enrich the course and obtain the Honors Dean's signature on the contract. The forms for this contract can be found on the Honors College website or in Honors College office.
3. Courses offered by the Honors College. These can be special, interdisciplinary seminars, such as "The Art of Writing Science" or "Poverty in the U.S.," or they can take the form of the Honors Internship or Honors Thesis course. See the tab above to see Honors offerings for this academic year.

Honors Diploma Requirements

The following summarizes the requirements for receiving the Honors Diploma. For college specific information, refer to the Honors Advisement webpage or the Honors Student Handbook at uah.edu/honors.

- **24 or more semester hours of Honors course credit**
- **Satisfactory completion of the Honors Capstone Project or Thesis**
- **An overall 3.25 GPA at graduation**
- **Required courses:**
 - EH 105: Honors English Seminar - 3 semester hours
 - 300/400 level Honors courses – 6 semester hours
 - HON 499 (3 semester hours in HON or your department)
- Honors courses may come in the following categories:
 - Honors sections of regular courses (ex: PHL 101)
 - Specially designed courses just for Honors (ex: EH 209/EH 210)
 - Honors lab sections including lecture credit (ex: BYS 119/BYS 119L)
 - Honors Interdisciplinary Seminars
 - Honors Contracts
 - Honors Internships

For more information on Honors courses, see the Honors College Handbook (https://www.uah.edu/images/administrative/Honors/Information/honors_college_handbook_2017-2018.pdf).

Honors Certificate Requirements

Students who want to participate in the Honors College but who may not be able to complete the entire 24 honors credit hour requirement have the choice to pursue the Honors Certificate of Completion of Upper-Level Requirements. Please talk to the Honors Office first; you may still be able to complete the full Honors Diploma. Requirements for the Certificate are as follows:

- **12-23 semester hours of Honors courses**
- **Satisfactory completion of the Honors Capstone Project or Thesis**
- **An overall 3.25 GPA at graduation**
- **Additional requirements involve:**
 - 3 hours from any 300 or 400 level course (or Honors contract)

For more information on Honors courses, please see the Honors College Handbook (https://www.uah.edu/images/administrative/Honors/Information/honors_college_handbook_2017-2018.pdf).

Honors Courses

HON 101 - INTRO TO HONORS RESEARCH

Semester Hour: 1

Introduction to research methods and information literacy for new Honors Students. Helps students transition to research and coursework commensurate with Honors College standards.

HON 201 - SCHOLARSHIPS GRAD SCHOOL

Semester Hour: 1

Assist select Honors Students to prepare and apply for prestigious national scholarships and top graduate programs.

HON 301 - HONORS SPECIAL SEMINAR

Semester Hour: 1

Intensive, discussion-based, interdisciplinary exploration of contemporary topics in the sciences, social sciences, humanities, and engineering. Topics will be decided by instructors and will vary by term. May be team taught. Open only to Honors Students.

HON 399 - HONORS INTERDISCIPLINARY SEM

Semester 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. Prerequisites: Admission to the Honors College.

HON 400 - HONORS INTERNSHIP

Semester 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 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 Honors College Dean. Prerequisites: Admission to the Honors College.

HON 401 - HON ENGINEERING CAPSTONE

Semester Hour: 1

Course provides support and mentoring for Honors Students wishing to use their Engineering Senior Design course to complete their Honors Capstone.

HON 499 - HONORS THESIS

Semester Hours: 1-3

Individual research under direction of a faculty advisor. May be taken for up to 6 semester hours of credit. Prerequisites: Admission to the Honors College.

Honors Sections offered in the following courses:

ARS 160 - DRAWING: FOUNDATIONS

Semester Hours: 3

Introduction to principles, materials, and techniques of drawing. Observational drawing and exercises teach students visual skills and introduce aesthetics and artistic expression. Class covers visual and manual skills, problem solving, critical thinking, and the tools and materials artists use.

BYS 119L - LABORATORY

Semester Hours: 0

Laboratory exercised to introduce students to accurate measurement techniques, observation, and the development of relevant hypotheses. Several formal lab reports are required as an introduction to scientific writing.

BYS 120L - ORGANISMAL BIOLOGY LAB

Semester Hours: 0

Introduction to the basic concepts of natural selection, population biology, and the biodiversity of animals and plants. Several formal lab reports are required as a further introduction to scientific writing, along with a lab practical on the biodiversity of animals and plants.

BYS 499 - UNGRAD HONORS RES & THESIS

Semester 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.

CM 113 - Intro to Rhetorical Communication

Semester Hours: 3

Develops public speaking skills through an examination of rhetorical theory, training, and practice. Includes informative, persuasive, and other forms of speeches to prepare students for oral presentations in college and post-college ("real world") settings.

ECN 142 - PRINC OF MACROECONOMICS

Semester Hours: 3

How does our economy function? Why do we have periods of unemployment and inflation and what can we do about it? Economics is a way of thinking about the world, how to identify and focus on fundamental issues so we can understand our economy and how monetary and fiscal policy affects our lives. Prerequisite: any 100 level or 200 level MA course.

ECN 143 - PRINC OF MICROECONOMICS

Semester Hours: 3

How do markets coordinate our unlimited wants with our limited capacity to produce? We study producer and consumer choice in a variety of market structures, the social welfare implications inherent in market systems and policies designed to correct those market failures. Prerequisite: Any 100 level or 200 level MA course.

EE 213 - ELECTRICAL CIRCUIT ANALYSIS I

Semester Hours: 3

Basic concepts of DC and AC circuit theory and analysis. Includes both DC and AC power. Prerequisites: MA 201 and PH 112 both w/concurrency.

EH 105 - HONORS ENGLISH SEMINAR

Semester Hours: 3

Interpretive and comparative readings in texts of enduring intellectual, esthetic, and ethical importance; critical and analytic writing and research projects. 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 Program.

EH 209 - HONORS SEM READINGS LIT/CUL I

Semester 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. Prerequisite: EH 102 or EH 103 or EH 105, and Honor's College Student.

EH 210 - HONORS SEM READINGS LIT/CUL 2

Semester 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. Prerequisite: EH 102 or EH 103 or EH 105, and Honor's College Student.

EH 301 - TECHNICAL WRITING

Semester 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 Cognate Studies in Technical Writing. Junior Standing. Prerequisite: EH 102 or EH 105.

ESS 103L - LABORATORY

Semester Hours: 0

FYE 101 - CHARGER SUCCESS

Semester Hour: 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 career direction. This course is mandatory for all freshman students.

HY 103 - WORLD HISTORY TO 1500

Semester Hours: 3

Explore the historical development of peoples and cultures from their beginnings to 1500. Trace cross-cultural interactions among societies, states, and economies of Asia, Europe, Africa, the Americas and Oceania.

HY 104 - WORLD HISTORY SINCE 1500

Semester Hours: 3

Explore global interdependence from the period of transoceanic exploration to the present. Trace cross-cultural interactions among societies, states, and economies of Asia, Europe, Africa, the Americas, and Oceania.

MA 171 - CALCULUS A

Semester Hours: 4

Limits, derivatives, applications of the derivative, definite and indefinite integrals, exponential and logarithmic functions, and inverse functions.

Prerequisites: MA 113 or MA 115 with a grade of C or better, or Level 3 placement.

MA 172 - CALCULUS B

Semester Hours: 4

Techniques of integration, applications of the integral, polar coordinates, sequences, series, and conic sections. Prerequisites: MA 171 with a grade of C or better.

MA 201 - CALCULUS C

Semester Hours: 4

Vectors, vector-valued functions, partial derivatives, multiple integrals, vector fields, line and surface integrals. Prerequisites: MA 172 with a grade of C or better.

MAE 271 - STATICS

Semester 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. (Same as CE 271) Prerequisites: PH 111, MA 201 and ENG 101.

MAE 395 - SEL TOPICS:MECH & AEROSPACE EG

Semester Hours: 1-3

Special topics in Mechanical or Aerospace Engineering.

MU 100 - INTRO TO MUSIC LITERATURE

Semester Hours: 3

Basic music appreciation. Exploration of ideas and issues in various types of western music through reading, listening, and discussion. Offered every semester.

NUR 307 - INQRY TO EVIDNC BASED NURS PRC

Semester Hours: 3

This course identifies various modes of inquiry and critical analysis used in the development of nursing science. Explore evidence based models to examine the evidence from a variety of research designs used to formulate nursing decisions. Emphasis is on identifying and synthesizing the best evidence to solve complex health problems in order to deliver safe, competent nursing care to diverse populations. Prerequisites: NUR 310 and NUR 312 and NUR 321.

NUR 415 - HONORS DIRECTED RESEARCH

Semester Hours: 2

This course allows for implementation of the student's research proposal as developed in the Honors section of NUR 307. The focus is on data collection and preliminary data analysis. The seminar format will provide students access to expert researchers.

PHL 101 - INTRODUCTION TO PHILOSOPHY

Semester Hours: 3

Introduction to philosophical reflection focusing upon central problems in the major branches of the western tradition: metaphysics, epistemology and value theory.

PHL 102 - INTRO TO ETHICS

Semester 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.

PH 111 - GEN PHYSICS W/CALCULUS I

Semester Hours: 3

For science and engineering students. Basic laws of physics and their application to specific problems: vectors, Newtonian mechanics, energy, conservation laws, simple harmonic motion, statics, fluids. Offered all terms. Prerequisite: MA 171 Corequisite: PH 114.

PH 114 - GENERAL PHYSICS LAB I

Semester Hour: 1

Laboratory instruction in support of material covered in PH 111. Offered all terms. Corequisite: PH 111.

PH 112 - GEN PHYSICS W/CALC II

Semester Hours: 3

Continuation of PH 111. Heat and thermodynamics, basic electricity, electric and magnetic fields. Offered all terms. Prerequisite: MA 172, PH 111, PH 114. Corequisite: PH 115.

PH 115 - GENERAL PHYSICS LAB II

Semester Hour: 1

Laboratory instruction in support of material covered in PH 112. Offered all terms. Corequisite: PH 112.

SOC 100 - INTRO TO SOCIOLOGY

Semester Hours: 3

An introduction to the critical and scientific study of society, culture, social institutions and social change. Illuminates the social and cultural context of our lives and is useful for exploring contemporary social issues, problems and change in society.

College of Nursing

1610 Ben Graves Drive

Telephone: 256.824.6345

Email: nursing@uah.edu

Dean:

Marsha Howell Adams, PhD, RN, CNE, ANEF, FAAN, Professor

Mission

Educate and inspire individuals to become nurse leaders who act with integrity, discover through scientific methods, and advocate for the best health care experiences of people and communities in a complex and evolving health care environment. In collaboration with our university colleagues and community partners, we are committed to excellence through our teaching, scholarship, practice, and service.

Vision

To have a global reputation for transforming health care through innovative nursing practice, education, and research.

Core Values

- Integrity - Resolutely adhering to moral, ethical, and professional standards.
- Inspiration - Encouraging, role-modeling, and mentoring others to pursue their professional dreams.
- Caring - Acting with compassion and respecting all persons by embracing cultural humility, diversity, and person-centered care.
- Excellence - Pursuing and achieving goals of the highest caliber.
- Wellness - Maximizing well-being in different states of health.

Degrees and Certificates Offered

The College of Nursing offers the Bachelor of Science in Nursing (BSN), Master of Science in Nursing (MSN), and Doctor of Nursing Practice (DNP) degrees. The College of Nursing also offers a Post-Master's Family Nurse Practitioner Certificate Program, and a Graduate Certificate in Nursing Education. The bachelor's program includes a track for students who are completing their initial nursing education (pre-licensure) and a track for students currently licensed as registered nurses (RN-BSN).

Accreditation

The Bachelor of Science in Nursing program offered by the College of Nursing is accredited by the Commission on Collegiate Nursing Education (CCNE). The undergraduate program is also approved by the Alabama Board of Nursing.

Bachelor of Science in Nursing

The College of Nursing offers the Bachelor of Science in Nursing (BSN) degree. The BSN degree includes a track for students who are completing their initial nursing education (pre-licensure) and a track for students currently licensed as registered nurses (RN-BSN).

The undergraduate pre-licensure program prepares graduates to assume entry-level positions in a variety of health care settings. The program is divided into two components: the lower and upper divisions. Lower division general studies (prerequisite) courses provide a broad background in general education and form the foundation for the professional nursing component of the program. Upper division courses provide the theoretical and practical basis for nursing practice in the complex U.S. health care system. In addition to focusing on essentials of nursing in the hospital including the critical care area, the curriculum also emphasizes community and primary care. Opportunities to provide care to diverse clients are provided. Use of technology, including simulation and telehealth, is integrated throughout the program. The program prepares graduates for professional positions immediately after graduation and provides a firm foundation for graduate study. Students who earn the BSN degree are eligible to sit for the National Council Licensure Examination for Registered Nurses (NCLEX-RN). The guiding framework for the BSN Program is the *The Essentials of Baccalaureate Education for Professional Nursing Practice*.

The RN-BSN program is specifically designed for Registered Nurses with a diploma or associate degree and is offered online. Students who enroll in the full-time option may complete the nursing component of the program in one year. Part-time options are available as well. The college awards up to 42 semester hours of validated nursing credit to each registered nurse upon successful completion of the first semester.

Program Objectives

Upon completion of the BSN program, the graduate will be able to:

1. Practice nursing as a generalist using the nursing process and clinical reasoning based on ethical, legal, and professional standards and principles.
2. Translate research and utilize evidence based practice to promote quality healthcare across diverse, vulnerable populations, and cultures.
3. Examine healthcare policy, care delivery models, and organizational systems for current and future healthcare needs within a clinical setting.
4. Demonstrate characteristics of leadership and accountability to promote effective interprofessional collaboration in healthcare systems.
5. Display proficiency in the use of patient care technologies, healthcare information systems, and communication devices to support safe and competent nursing practice.
6. Engage in lifelong learning and participate in professional activities that enhance the nursing profession.
7. Recognize the nurse's role in bio-immunogenetic technology to promote safe and competent nursing practice.

Advising and Assistance

The focus of advising in the College of Nursing is to assist students to successfully make progress toward their educational objectives. The Bachelor of Science in Nursing (BSN) Program is divided into two components: the lower division and the upper division. All students taking classes at UAH in the lower division (100 and 200 level classes), those seeking admission to the upper division (UAH or transfer students), and Registered Nurses (RNs) are advised in the College of Nursing Office of Undergraduate Programs. Advisors in the Nursing Office of Undergraduate Programs assist students to define and develop realistic educational and career plans. In addition, they monitor progress toward educational and career goals, approve all designated educational transactions such as schedules, drop/adds, withdrawals, and they maintain advising records for each student. Advisors also refer students to other campus resources when needed.

Once students are admitted to BSN Program and enroll in upper division nursing courses, they meet with faculty who will provide guidance for future academic success, educational endeavors, and employment opportunities. Group advising occurs each semester in upper division for general academic progression.

All students use the the Degree Evaluation tool (CAPP) in Banner Self Service to track their progress toward meeting the requirements of the program of study (POS).

Majors in Nursing

- Nursing, BSN (p. 410)
- Nursing, RN-BSN (p. 417)

NUR 000 - NURSING-CREDIT BY VALIDATION

Semester Hours: 3-42

NUR 001 - NURSING TESTING BLOCK

Semester Hours: 0

Nursing Testing Block is a common block of time for students in different cohorts to take their examinations.

NUR 102 - MULTIDIMENSIONS OF NURSING

Semester Hours: 3

This course is designed for the student who has declared nursing as a major. Emphasis will be placed on the role of professional nurses working with clients and other health care professionals. The evolution of nursing as a profession will be examined and the student introduced to the health care delivery system.

NUR 201 - MULTIDIM ASPECTS HL CAREER OPT

Semester Hours: 3

This course is designed for the student who wishes to explore a career in the health 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 disease.

NUR 202 - HEALTHY LIVING LIFESPAN

Semester Hours: 3

This class will focus on health and wellness across the lifespan, with an emphasis on promoting healthy living and preventing illness. It is designed to develop health literacy and to identify ways to put healthy ideas into practice. Diverse perceptions and beliefs related to health are explored and strategies to optimize health are presented.

NUR 220 - HEALTH PROMOTION NUR MAJORS

Semester Hours: 3

The focus of this class is on health and high-level wellness across the lifespan, with an emphasis on promoting healthy living and preventing illness. Diverse perceptions and beliefs related to health and wellness are explored, and ways to put healthy ideas into practice are applied. Medical terminology to improve healthcare communication is incorporated into the course.

NUR 301 - CONCEPTS IN NURSING

Semester Hours: 2

This course will focus on development using concepts and theories basic to the art and science of nursing. Students are introduced to the concepts of communication, teaching/learning, clinical decision making, ethical, legal, nursing history, and philosophy for knowledge development of the discipline. Prerequisites with concurrency: NUR 303, 304, 309, and 311.

NUR 302 - NURSING & HEALTH PROMOTION

Semester 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.

NUR 303 - HEALTH ASSESSMENT

Semester Hours: 4

Focus on holistic assessment of culturally diverse clients across the life span. Communication & psychomotor skills are developed in clinical laboratory settings with an emphasis on normal findings and health promotion.

NUR 303L - CLINICAL

Semester Hours: 0

NUR 304 - APP PATHOPHYSIOLOGY LIFESPAN

Semester Hours: 3

The course is designed to help the student build on previous knowledge of anatomy and physiology and microbiology. Adaptations and alterations in health status throughout the lifespan are emphasized. Students explore the implications of lifestyle to pathology within a nursing framework, and learn to relate normal body functioning to the pathophysiological changes that occur in, and as a result of disease.

NUR 305 - NUR PROC MENTAL HLTH/ILLNESS

Semester Hours: 4

Nursing process in the promotion of psychosocial integrity. Emphasis is on the therapeutic use of self through providing interventions for individuals and groups in a variety of settings. Prerequisites: NUR 310 and NUR 312 and NUR 321.

NUR 305L - CLINICAL

Semester Hours: 0

NUR 307 - INQRY TO EVIDNC BASED NURS PRC

Semester Hours: 3

This course identifies various modes of inquiry and critical analysis used in the development of nursing science. Explore evidence based models to examine the evidence from a variety of research designs used to formulate nursing decisions. Emphasis is on identifying and synthesizing the best evidence to solve complex health problems in order to deliver safe, competent nursing care to diverse populations. Prerequisites: NUR 310 and NUR 312 and NUR 321.

NUR 308 - NURS CARE ADULTS ALTER HLTH

Semester Hours: 9

This course focuses on the application of the nursing process in the collaborative nursing management of adult clients experiencing simple to complex physiological health alterations. Clinical experiences provide opportunities for beginning to intermediate clinical reasoning in the acute care environment. The embodiment of professionalism and professional values are emphasized. Prerequisites: NUR 310 and NUR 312 and NUR 321.

NUR 308L - CLINICAL

Semester Hours: 0

NUR 309 - CLINICAL INFORMATICS

Semester Hours: 2

This course is designed to introduce clinical informatics as a tool to improve healthcare systems through safe, ethical, and evidence-based practice. Advances in technology, data management, and decision support software are explored. Competencies in basic computer skills are also included in the course to improve information literacy. Prerequisites with concurrency: NUR 301, 303, 304, and 311.

NUR 310 - PROFESSIONAL PRACTICE NURS I

Semester Hours: 6

This course will begin the process of learning foundational nursing skills to be used in nursing practice. Psychomotor nursing skills needed to assist individuals meet basic human needs will be taught with expectation the student will demonstrate competency in performing skills. Laboratory and clinical experiences are included. Prerequisites: NUR 301, NUR 303, NUR 304, NUR 309, NUR 311.

NUR 310L - CLINICAL

Semester Hours: 0

NUR 311 - CLINICAL CALCULATIONS

Semester Hour: 1

In this course, students will learn to accurately calculate medication dosages. Testing in this course will establish minimal medication calculation proficiency required to progress to the second semester of the nursing program. Prerequisites with concurrency: NUR 301, 304, 303, and 309.

NUR 312 - GERO NURSING CARE

Semester Hours: 3

This course is designed to focus on current health care issues affecting the older adult. Physical, psychological, sociocultural, and spiritual aspects of aging are examined within the context of the family and society. The course applies the nursing process with emphasis on optimal health for the older adult. Prerequisites: NUR 301, 303, 304, 309, and 311. Prerequisite with concurrency: NUR 310 and 321.

NUR 312L - CLINICAL

Semester Hours: 0

This is the clinical component of the Gerontological Nursing Care course. The course will focus on current health care issues affecting the older adult. Physical, psychological, sociocultural, and spiritual aspects of aging are examined within the context of the family and society. The course applies the nursing process with emphasis on optimal health for the older adult.

NUR 321 - PHARMACOLOGY IN NURS

Semester Hours: 3

This course comprises pharmacological concepts incorporating an overview of historical and current issues in drug therapy. Pharmacotherapeutics, pharmacodynamics, pharmacokinetics, contraindications and precautions for prototype drugs for multiple body systems are presented. Major emphasis is placed on nursing management practices using nursing process as well as the nurses' role in optimizing reliable medication administration.

Prerequisites: NUR 301, 303, 304, 309, 311.

NUR 336 - SPIRITUALITY IN NURSING

Semester 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.

NUR 339 - INFO MGMT IN HEALTHCARE

Semester Hours: 3

This course is designed to introduce information management, including decision support systems. The use of information management nomenclature is integrated into the learning activities. The role of the nurse as an advocate in improving patient outcomes using data management is explored. Safety, ethical, and legal concerns are addressed. Prerequisite: NUR 410.

NUR 390 - INDEPENDENT STUDY

Semester Hours: 1-4

Individualized independent study of specific nursing problem under sponsorship of a nursing faculty member with special preparation in the field. Elective.

NUR 400 - SPECIAL TOPICS

Semester Hours: 3

NUR 401 - NURS CARE CRITICALLY ILL ADULT

Semester Hours: 4

This course explores the evidence-based collaborative nursing management of clients experiencing complex physiological health alterations. Clinical experiences will provide opportunities for advanced clinical reasoning in the acute and critical care environments. Prerequisites: NUR 305 and NUR 307 and NUR 308.

NUR 401L - CLINICAL

Semester Hours: 0

NUR 402 - POPULATION BASED HLTH CARE

Semester Hours: 3

Promotion of health, prevention of disease in at-risk aggregate populations. Examines complex problems and health care policy. Open to all university students.

NUR 402L - CLINICAL EXPERIENCE

Semester Hours: 0

NUR 403 - MATERNAL INFANT NURSING

Semester Hours: 4

This course explores internal and external factors, which impact the health of the family during the antepartal, intrapartal, postpartal and neonatal periods of childbearing. Emphasis is placed on nursing care of these clients, normal physiology, pathophysiology, psychological and sociocultural needs, and risk identification and reduction. Prerequisites: NUR 305 and NUR 307 and NUR 308 and NUR 321.

NUR 403L - CLINICAL

Semester Hours: 0

NUR 404 - FAMILY-CENTER NUR CARE CHILDRE

Semester Hours: 4

This course is designed to introduce the concept of family centered pediatric care that is developmentally appropriate for a culturally diverse population. Clinical experiences in selected agencies. Prerequisites: NUR 301 and NUR 307 and NUR 308 and NUR 321.

NUR 404L - CLINICAL

Semester Hours: 0

NUR 405 - COMMUNITY HEALTH NURS

Semester Hours: 4

The course explores the community as client and teaches concepts and knowledge necessary to promote the health of the public and communities. Emphasis is on community health theory, individual, family, and community assessment, aspects of epidemiology, program planning and evaluation, trends and issues, legislation, ethics, research, health care economics and disaster management. Prerequisites: NUR 401 and NUR 403 and NUR 404.

NUR 405L - CLINICAL EXPERIENCE

Semester Hours: 0

NUR 406 - LEADERSHIP & MGMT IN NURSING

Semester 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.

NUR 407 - PROF PRACTICE IN NURSING II

Semester Hours: 8

The focus of this course is the leadership and management functions of professional nursing. Essential skills are communication, interprofessional collaboration, delegation, coordination, and the application of evidence-based practice models. Clinical experiences will focus on performance of the professional nurse role in a concentrated practicum. Prerequisites: NUR 401 and NUR 403 and NUR 404.

NUR 407L - CLINICAL EXPERIENCE

Semester Hours: 0

NUR 408 - PROF PRAC IN NURS III SEMINAR

Semester Hours: 2

The purpose of this class is to facilitate the synthesis of knowledge, the application of critical thinking to decisions about patient care, and to ensure safe and competent nursing practice. Test-taking skills and time management concepts will be applied in preparation of the NCLEX-RN licensure exam. Prerequisites: NUR 407.

NUR 410 - TRANSITION INTO PROFESSIONAL ROLES

Semester Hours: 3

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 learning plan, 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. Nursing credit hours for prior learning will be conferred upon successful completion of this transition course.

NUR 411 - THEORETICAL APPL IN PROF NURS

Semester Hours: 3

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.

NUR 412 - CARE FOR AGGREGATES, FAM & POP

Semester Hours: 7

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. Prerequisites: NUR 339 and NUR 410.

NUR 412L - CLINICAL EXPERIENCE

Semester Hours: 0

NUR 413 - NUR LEADERSHIP PROF PRACT

Semester Hours: 5

4 Course/1 Clinical. Designed for registered nurse students, this 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 indirect/direct practice experience opportunities to apply nursing leadership concepts through a case study experience and in a clinical practice setting by conducting a clinical project. Prerequisite: NUR 410.

NUR 415 - HONORS DIRECTED RESEARCH

Semester Hours: 2

This course allows for implementation of the student's research proposal as developed in the Honors section of NUR 307. The focus is on data collection and preliminary data analysis. The seminar format will provide students access to expert researchers.

NUR 416 - HONORS RESEARCH SEMINAR

Semester Hour: 1

The focus of this seminar is completion of final research report, as begun in NUR 307 and NUR 415.

NUR 417 - NURS CARE VUL POP

Semester Hours: 4

This course investigates factors related to increased vulnerability arising from threats to well-being for selected populations. Factors will include individual characteristics and conditions (such as profound and chronic illnesses, genetic factors, health behaviors), those attributable to group identity (such as age or socioeconomic status), and those due to environmental exposures (such as high risk occupations, exposure to toxins and pollution, and occurrences of nature). Students will examine strategies aimed at risk reduction and improvement in disparities in outcomes. Relevant professional and agency/organizational resources are explored. Prerequisite: NUR 410.

NUR 418 - GLOBAL HEALTH: INTERN'L STUDY

Semester Hours: 3

This course will focus on global health concepts and issues, and on selected international health care systems in comparison to the U.S. health care system. These systems will be examined and analyzed in relation to economic, social, cultural, policy, and environmental influences. Culmination of the course will center on international experiences with health care facilities, historical and cultural influences, and policy making bodies in another country. This course is an accepted elective in the nursing program (not all electives are offered each year).

NUR 419 - SCHOLRY INQUIRY IN NURSING PRA

Semester 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.

NUR 420 - EVIDENCE BASED NURS PRACTICE

Semester 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. Structured for the registered nurse student.

NUR 421 - AC CARE NURS RNBSN

Semester Hours: 3

The nursing process is applied to clients experiencing physiological health alterations requiring complex and collaborative nursing strategies and appropriate resource management. Application experiences are focused on conducting comprehensive and focused assessments of clients in the acute care environment. Prerequisite: NUR 410.

NUR 422 - COMMUNITY HEALTH FOR PRCTNG RN

Semester Hours: 5

4 course/1 clinical. This course is designed for registered nurses to apply theoretical concepts related to primary, secondary, and tertiary care of families and aggregates. Emphasis is on application of the nursing process in promoting community health for at-risk populations. Application of direct/indirect practice experience activities are designed to meet individual learning needs of the registered nurse student in delivering and managing care of selected families with emphasis on the aggregate. Prerequisite: NUR 410.

NUR 423 - EVID BASED RN

Semester Hours: 3

This course fosters the application of the best clinical evidence into practice in order to promote improvement in healthcare experiences and patient outcomes. Various modes of scientific inquiry used in the development of nursing science are incorporated into a survey of research techniques, methodologies, and ethical concerns. This will enable students to select and evaluate appropriate information relevant to evidence based practice. Students will develop skills in the use of electronic databases to facilitate acquisition of current information. Emphasis is placed on the critical analysis of evidence to be used in formulating nursing decisions and the design of client care guidelines. Prerequisite: NUR 410.

NUR 426 - SPACE LIFE SCIENCES

Semester Hours: 3

Theories and concepts of contemporary issues in health and nursing related to space life sciences.

NUR 427 - INTRODUCTION TO FORENSICS

Semester 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. Elective, open to all university students.

NUR 428 - GERONTOLOGICAL NURSING

Semester Hours: 3

Nursing care of older adults in multiple settings. Issues and trends are incorporated.

NUR 430 - HLTH CARE WKFR:ISS/LDRSH STRAT

Semester Hours: 3

Description and analysis of contemporary issues regarding the health care workforce. Particular focus will be placed on the multifaceted nature of health care 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.

NUR 434 - PALLIATIVE CARE

Semester 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, emotional, social cultural and spiritual needs of individuals and their families. A course focus will be 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

Semester 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. Elective, open to all university students.

NUR 439 - NURSING MEDICAL MISSIONS

Semester Hours: 3

This course will focus on global health and humanitarian concepts and issues, and the nursing care needed to impact those issues. These issues will be examined and analyzed in relation to the mission country's economic, social, cultural, policy and environmental influences. Culmination of the course will center on international experiences with supervised nursing care for a medical mission in another country. This course is an accepted elective in the Nursing program.

Nursing, BSN

Programs of Study for Lower Division Courses for UAH and Transfer Students

Students completing the lower division general studies (prerequisite courses) of the program at UAH should follow the program of study outlined below. All transfer students seeking admission to UAH should read and follow the Admissions Information section of this catalog. Specific UAH courses that satisfy admission requirements are listed under the degree description. Students transferring from Alabama two-year colleges should follow the general studies curriculum approved by the Articulation and General Studies Committee (AGSC). A copy of this curriculum is available in the UAH Office of Admissions. Students transferring from other institutions are encouraged to complete courses equivalent to those listed below:

Code	Title	Semester Hours
First Year Experience		1
FYE 101	CHARGER SUCCESS	
Freshman Composition		6
EH 101 or EH 101S	COLLEGE WRITING I COLLEGE WRITING I W/STUDIO	
EH 102	COLLEGE WRITING II	
EH 105	HONORS ENGLISH SEMINAR	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	

ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Two sequential courses required		6
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 209	HONORS SEM READINGS LIT/CUL I	
EH 210	HONORS SEM READINGS LIT/CUL 2	
Humanities: Choose one		3
CM 113	Intro to Rhetorical Communication	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS (Preferred)	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
Any WLC 100 or 200 level ¹		
Mathematics and Natural Sciences		11
Mathematics: Choose one * Higher level courses accepted		3
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
Natural Sciences: *Higher level courses accepted		8
BYS 119	PRINCIPLES OF BIOLOGY	
CH 101	INTRO TO CHEMISTRY	
& CH 105	and INTRO CHEMISTRY LAB	
History and Social and Behavioral Sciences		12
12 hours of History and Social and Behavioral Sciences chosen from the following categories below		
History: Choose one		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
AMS 229	ANCIENT & MEDIEVAL WORLDS	
Social and Behavioral Sciences		
PY 101	GENERAL PSYCHOLOGY I (Required)	
PY 201	LIFE-SPAN DEVELOPMENT (Required)	
Choose one:		3
SOC 100	INTRO TO SOCIOLOGY (Preferred)	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
Pre Professional		18
Additional lower division BSN requirements		
BYS 214	INFECTION & IMMUNITY	
BYS 215	HUMAN ANATOMY & PHYSIOLOGY I	
BYS 216	HUMAN ANATOMY & PHYSIOLOGY II	

NUR 220	HEALTH PROMOTION NUR MAJORS (Required)	
Choose one:		
PY 300	PSYCHOLOGICAL STATISTICS (Preferred)	
SOC 303	STATISTICS/SOCIAL SCIENCES (Preferred)	
MSC 287	BUSINESS STATISTICS I	
Total Lower Division Semester Hours		60

Upper Division Courses

The following upper Division courses are required for a baccalaureate degree in nursing. Contact the College of Nursing Office of Undergraduate Programs for the most current information.

For Pre-Licensure Students:

Code	Title	Semester Hours
NUR 001	NURSING TESTING BLOCK	0
NUR 301	CONCEPTS IN NURSING	2
NUR 303	HEALTH ASSESSMENT	4
NUR 303L	CLINICAL	0
NUR 304	APP PATHOPHYSIOLOGY LIFESPAN	3
NUR 305	NUR PROC MENTAL HLTH/ILLNESS	4
NUR 305L	CLINICAL	0
NUR 307	INQRY TO EVIDNC BASED NURS PRC	3
NUR 308	NURS CARE ADULTS ALTER HLTH	9
NUR 308L	CLINICAL	0
NUR 309	CLINICAL INFORMATICS	2
NUR 310	PROFESSIONAL PRACTICE NURS I	6
NUR 310L	CLINICAL	0
NUR 311	CLINICAL CALCULATIONS	1
NUR 312	GERO NURSING CARE	3
NUR 312L	CLINICAL	0
NUR 321	PHARMACOLOGY IN NURS	3
NUR 401	NURS CARE CRITICALLY ILL ADULT	4
NUR 401L	CLINICAL	0
NUR 403	MATERNAL INFANT NURSING	4
NUR 403L	CLINICAL	0
NUR 404	FAMILY-CENTER NUR CARE CHILDRE	4
NUR 404L	CLINICAL	0
NUR 405	COMMUNITY HEALTH NURS	4
NUR 405L	CLINICAL EXPERIENCE	0
NUR 407	PROF PRACTICE IN NURSING II	8
NUR 407L	CLINICAL EXPERIENCE	0
NUR 408	PROF PRAC IN NURS III SEMINAR	2
Total BSN Semester Hours		126

Admission Policies

Admission as a Freshman

Entering UAH freshmen interested in nursing as a career must meet the general entrance requirements of the University. Each student in the lower division (freshman and sophomore years) interested in nursing as a career is advised in the College of Nursing Office of Undergraduate Programs. Students enrolled in the lower division of the College should meet with an advisor in planning a program of study. The program of study will ensure that each student registers for the correct prerequisite courses for the upper division major. Students are encouraged to meet with a nursing advisor each semester. Students must complete all lower division general studies (prerequisites) courses prior to enrolling in the upper division of nursing. For information and assistance, call the College of Nursing Office of Undergraduate Programs (256.824.6742).

Early Promotion into UAH Nursing Program (EPNP)

Highly qualified students who enter UAH as freshmen, declare Nursing as their major, take all lower division Nursing coursework as listed in the BSN lower division program of study on the UAH campus, and meet the requirements listed below will be guaranteed a slot in the upper division Nursing courses as long as they continue to meet the criteria for EPNP. Since students will also be eligible to enroll in the UAH Honors College, students enrolling in the EPNP should consider applying for the UAH Honor's College.

Enrollment in the UAH Honors College, provides students an opportunity to have enriched freshman and sophomore years and additional academic support in preparation for admittance into upper division Nursing. Students may apply online at <http://www.uah.edu/honors/application-forms>. The combined EPNP/Honors College is not an accelerated Nursing program. It expects students to spend four years as an undergraduate Nursing Student. Rather, the EPNP assures highly motivated undergraduates promotion into the UAH College of Nursing after successful completion of lower division Nursing program of study while maintaining a 3.25 GPA and scoring an 80 or higher on the HESI Admission Assessment (A2) Exam.

University merit scholarships are available for in-state and out-of state students who meet the criteria. Additional scholarships are available for in-state students who meet the requirements and conditions of the program and are Alabama residents who have completed their high school education in Alabama. Scholarship support can be used to cover tuition and fees. The following requirements and conditions are to be met by UAH EPNP students in order to maintain good standing status for promotion into the upper division of Nursing:

- A high school GPA of 3.5.*
- A minimum composite ACT score of 28.*
- Maintain a minimum cumulative GPA of 3.25 on all lower division Nursing and Charger Foundations required courses given in the BSN lower division program of study.
- Successful completion of the required BSN lower division program of study for promotion into upper division Nursing courses.
- An overall cumulative score of at least 80% on the HESI Admissions Assessment (A2) exam (comprised of seven required parts).
- Students who do not meet these criteria are eligible for admission, but they are placed in the pool of applications.

* Requirements and conditions are subject to change.

Admission as a Transfer Student

All transfer students seeking admission to UAH should read and follow the Admissions Information section of this catalog. Specific UAH courses that satisfy admission requirements are listed under in the degree description. All transfer students are encouraged to complete courses equivalent to those listed in that summary. Students transferring from Alabama two-year colleges should follow the general studies curriculum approved by the Articulation and General Studies Committee (AGSC). You may visit UAH Office of Admissions online to access the Transfer Equivalency (https://sierra.uah.edu:9021/PROD/wxfer_artic.main) page to see how the courses you have taken at your previous institution may transfer here at UAH. For information and assistance, call the College of Nursing Office of Undergraduate Programs (256.824.6742).

Admission to the Upper Division BSN Program

Students must apply and be admitted to the nursing program to be eligible to enroll in upper division or level 300 and 400 courses with clinical labs. Admission into the upper division nursing major is competitive, and spaces are limited. A separate application for the upper division of the nursing major must be submitted by published dates, on forms provided by the College of Nursing. Each year's junior class is selected from all applicants who meet or exceed the minimum requirements. When the number of students applying to the upper division exceeds the number of spaces available, the most qualified applicants will be admitted. Those applicants who present the strongest academic records and who show the most promise for success in the upper division will be admitted. Enrollment at UAH as a nursing major in the lower division component does not assure admission to the upper division/professional component. Students admitted into the Early Promotion into Nursing Program (EPNP) as freshman are exempt from these criteria unless they do not maintain their eligibility for EPNP. Students will be notified within four weeks of the application deadlines of admission status.

Enrollment in the upper division nursing component is limited and competitive. Students are admitted without regard to race, color, creed, national origin, sex, or qualified disability.

The criteria for admission are shown below.

Admission Criteria

1. Students must meet the following criteria to be considered eligible for admission:
 - a. Admission to the University prior to the application deadline.
 - b. Submission of a completed nursing application by posted deadlines.
 - c. A minimum cumulative calculated nursing GPA of 3.0 on all nursing prerequisite courses.
 - d. A minimum cumulative GPA of 2.75 in all required science courses.
 - e. A minimum grade of "C" in all nursing prerequisite courses.
 - f. A minimum ACT/SAT score of 18/940.
 - g. A minimum cumulative score of 70% on the HESI Admission Assessment (A2) Exam (comprised of seven required parts).

2. Once students have been selected for promotion to the upper division, grades on prerequisite courses are checked just prior to the start of the semester for which they were accepted. Promotion to the upper division will be forfeited if any prerequisite course is found lacking or less than a "C" is earned.
3. Students seeking transfer from the upper division of another nursing education program must submit a letter of good standing indicating that the student is in good standing and eligible for continued enrollment in that program. Students who were dismissed (failed out) of another nursing program are not eligible for admission to the UAH College of Nursing undergraduate program. Nursing courses requested for transfer will be reviewed individually for equivalency by the College of Nursing. Transfer requests are to be submitted to the College of Nursing Office of Undergraduate Programs.
4. The nursing application requires evidence of eligibility listed above in 1.a - 1.g. plus a professional statement and application fee. Applications are accepted twice a year for fall or spring entry into the upper division nursing curriculum.
5. Changes in curricula and/or admission requirements will be published as far in advance as possible. Refer to admission application for details of admission criteria.

Advising in the Upper Division BSN Program

Once students are admitted to BSN Program and enroll in upper division nursing courses, they meet with faculty who will provide guidance for future academic success, educational endeavors, and employment opportunities. Group advising occurs each semester in upper division for general academic progression.

Progression Standards

I. Grading Scale (to be implemented fall 2019):

The faculty of the College of Nursing adopted a grading scale for the upper division nursing courses in the traditional BSN program, which is consistent with major universities across the United States. The scale is listed below:

A = 90 - 100

B = 80 - 89

C = 75 - 79

D = 60 - 74

F <60

II. Students must follow the program of study (POS) under which they were admitted (see A below). Students who withdraw or fail courses must follow the policies outlined in sections B-D below.

A. Progression according to the Program of Study (POS):

1. A grade of "C" or above must be earned in all required nursing courses.
2. Students must meet standards of professional conduct as described in the American Nurses Association Code of Ethics for Nurses, the Alabama Board of Nursing Practice Act, and standards of student behavior as described in the *UAH Undergraduate Student Handbook*.
3. Throughout the program, student must meet health and other requirements as identified in the *Health and Other Requirements*, as well as requirements specified in clinical agency contracts.

B. Failure of One Course:

1. A student who receives a grade below "C" in a required nursing course may repeat the course only once and must meet with the Associate Dean of Undergraduate Programs to develop a revised program of study based on space-availability and progression constraints. Before considering placement of any students who have not succeeded in a course, preference for spaces will be given to those applicants who meet all progression criteria. Any alteration of the initial program of study will lengthen the student's program. A progression agreement may be required.

C. Dismissal from Nursing Program:

1. A student who receives two or more grades below "C" in required nursing courses, in either the same course or in separate courses, at any time during the program will be dismissed from the College of Nursing (except NUR 311 and NUR 408). Students may petition for readmission to the College of Nursing by following the policy and completing the form found in the *College of Nursing Undergraduate Student Handbook* and submitting it to the Director of Undergraduate Admissions and Advisement in the College of Nursing. Readmission into the upper division nursing program is not guaranteed and is based on the availability of space in a cohort and on the information submitted in the application. Students who are readmitted and subsequently earn another grade below "C" in any nursing course will be permanently dismissed from the program.

2. Academic dismissal from the College of Nursing precludes progression in the nursing curriculum. Retroactive withdrawal or other related progression decisions from courses after academic dismissal from the nursing program does not result in a reversal of the dismissal.

D. Withdrawal from Nursing Program:

1. Any student who withdraws from a course must meet with the Associate Dean of Undergraduate Programs to develop a revised program of study based on space-availability and progression constraints. Before considering placement of any students who have not succeeded in a course, preference for spaces will be given to those applicants who meet all progression criteria. Any alteration of the initial program of study will lengthen the student's program. A progression agreement may be required.

E. Graduation from the Nursing Program:

1. Students are required to take national standardized examinations in selected courses. These examinations are counted as a portion of the overall course grade for each course. Remediation will be required if scores fall below UAH Nursing passing standard.
2. An overall "C" (2.0) grade point average (GPA) on all courses taken at UAH is required for graduation.

Health and Other Requirements for Students in Upper Division Nursing Courses

Clinical agencies require students to meet various health related requirements. Students must complete and maintain currency of all health documentation requirements prior to enrollment in upper division level courses and throughout the program for progression. Students are responsible for maintaining original health records. Some of these records will be managed by the Office of Undergraduate Programs, an external clearing house, or by the UAH Student Health Center. **Students who fail to complete their health requirements by the designated deadline will not be allowed to begin classes until all health requirements are completed.** The following are required as part of admission, enrollment, and progression in the upper division nursing major:

1. Physical examination: within the past three (3) months prior to starting the upper division curriculum. Any medical or mental health status change from the time of enrollment in the nursing program must be shared with the Associate Dean and documentation of release from healthcare provider for program progression. If a status change is not reported in a timely manner, the student may not be allowed to progress in the program.
2. Hepatitis B: Three (3) doses of vaccine or titer results demonstrating immunity. For initial enrollment a minimum of first 2 immunizations is required prior to entry to the upper division curriculum.
3. Evidence of immunity to measles, mumps, rubella (MMR), and varicella (chickenpox/VZV).
4. Evidence of negative for tuberculosis (TB/PPD). Each student is required to have a 2-step tuberculin (TB) skin test or a T-spot less than three months prior to the first day of class of upper division nursing courses. The 2-step TB/PPD skin tests must be at least 7 days apart and no more than 21 days apart. Instead of skin testing, students may provide evidence of a blood test indicating negative for tuberculosis. If the skin test or the blood test is positive, a chest x-ray is required and possible other medical evaluation may be requested. An annual one-step TB renewal test is required while enrolled in the Nursing Program.
5. Annual Influenza Vaccination (Flu): Students are required to provide evidence of influenza vaccination each year while enrolled in the Nursing Program.
6. Evidence of Tetanus, Diphtheria, Pertussis (Tdap) or TD booster required every 10 years after initial Tdap on file. May never be more than 10 years old during enrollment.
7. Current health insurance: Students are required to provide evidence of current health insurance each year while enrolled in the Nursing Program.
8. CPR certification: American Heart Association Basic Life Support for the Healthcare Provider while enrolled in the Nursing Program.
9. Drug testing and criminal background check: Students are required to submit to drug testing and criminal background checks upon admission and annually. In addition, drug testing and criminal background checks can be administered for reasonable suspicion of drug/alcohol use and as required by affiliating clinical agencies while enrolled in any Nursing Program. The College of Nursing Undergraduate and Graduate Student Handbooks provide detailed policies. Violations of the policies are serious and will result in dismissal of students from the College of Nursing.
10. Other health requirements may be implemented based on community or clinical agency requirements.

Standards of Conduct and Accountability

The nursing student shall comply with legal, moral, and legislative standards that determine unacceptable behavior of the nurse and that may be cause for denial of a license to practice as a registered nurse, in accordance with the Alabama law regulating practice of registered and nursing as provided below.

The Alabama Board of Nursing may deny a license and/or temporary permit by examination or endorsement based on Alabama rule 610-x-8-.02 and rule 610-x-8-.03. Examples of grounds for denial and discipline of a license may include:

1. Engaging in fraud, misrepresentation, deception, or concealment of a material fact in applying for or securing licensure or taking any examination required for licensure.
2. Having engaged in conduct that is inconsistent with good moral character such as having a criminal history or pattern of illegal conduct or disregard for the law.

3. Having disciplinary action pending or having had a license, registration, or certification for any health-related profession denied, conditionally issued, fined, reprimanded, censured, restricted, limited, placed on probation, suspended, revoked, voluntarily surrendered, or otherwise encumbered in any state, territory or country.
4. Having been court-martialed or administratively discharged by a branch of the United States Armed Forces for any act or conduct that would constitute grounds for discipline Alabama under Rule 610-X-8-.03.
5. Any other reasons authorized by law.

Failure to comply with any of the Alabama Board of Nursing rules while in the nursing program constitutes grounds for dismissal from the program.

Completion of the nursing program does not guarantee licensure based on the Alabama Board of Nursing's regulations governing review of candidates for eligibility for initial and continuing licensure.

Core Performance Standards

Core Performance Standards may also be referred to as essential functions define selected attributes and behaviors necessary for students to demonstrate in order to successfully complete their education and subsequently enter nursing practice. These essential functions are determined to be required for initial and continued enrollment in the College of Nursing. Students must be able to perform each of the following essential functions with or without reasonable accommodations.

1. Critical thinking ability for effective clinical reasoning and clinical judgment consistent with level of education preparation. Examples (not all inclusive) of necessary activities include identifying cause-effect relationships in clinical and classroom situation, use of scientific method in developing patient care plans; evaluation of effectiveness of nursing interventions.
2. Professional relationships, Interpersonal skills sufficient for professional interactions with a diverse population of individuals, families, and groups. Examples (not all inclusive) include the ability to establish rapport with patients/clients and colleagues; capacity to engage in successful conflict resolution; peer accountability.
3. Communication adeptness sufficient for verbal and written professional interaction. Examples (not all inclusive) include explaining treatment procedures, initiating health teaching, and documenting and interpreting nursing actions and patient/client responses.
4. Mobility as physical abilities sufficient to move from room to room and maneuver in small spaces. Examples (not inclusive) include moving around in clients' rooms, work spaces and treatment areas; and administering cardiopulmonary procedures.
5. Gross and fine motor abilities sufficient for providing safe, effective nursing care. Examples (not all inclusive) include completing examinations/evaluations by writing, typing or demonstration; calibrating and using equipment, and therapeutic positioning of clients.
6. Auditory ability sufficient to monitor and assess health needs. Examples (not all inclusive) include hearing basic conversation; monitoring alarms, emergency signals and auscultatory sounds; and hearing cries for help.
7. Visual abilities sufficient for observation and assessment necessary in patient care. Examples (not all inclusive) include reading documents such as patient charts and laboratory reports, reading calibrations on syringes, sphygmomanometers, and thermometers, and equipment outputs such as waves, printouts, and digital readings; and accurately observing client behaviors such as color changes and nonverbal communication and responses to treatments.
8. Tactile abilities sufficient for physical assessment. Examples (not all inclusive) include performing palpation, percussion, temperature changes, complete physical examinations and other activities related to therapeutic interventions.
9. Behavioral/Social abilities sufficient to demonstrate emotional stability, maintenance or composure under stress, development of mature, empathetic and effective nurse-patient relationships and use of sound and unimpaired judgment in classroom and clinical activities.

These core performance standards are not intended to be complete listing of all nursing behaviors, but they are a sampling of the types of abilities needed by nursing students to meet program objectives and requirements. The College or its affiliated agencies may identify additional critical behaviors or abilities. The identified core performance standards are revised and adopted from the Americans with Disabilities Act implications for Nursing Education (revised 2008).

Responsibility Compliance with Clinical Agencies

Students are responsible for complying with policies and procedures required by clinical agencies. The College of Nursing may not be able to provide alternative placements for students. Failure to meet this requirement may lead to exclusion from required clinical educational experiences and prevent completion of the program.

For Pre-Licensure (Basic) Students:

Semester 1		Semester Hours
NUR 001	NURSING TESTING BLOCK	0
NUR 301	CONCEPTS IN NURSING	2
NUR 303	HEALTH ASSESSMENT	4
NUR 303L	CLINICAL	0
NUR 304	APP PATHOPHYSIOLOGY LIFESPAN	3

NUR 309	CLINICAL INFORMATICS	2
NUR 311	CLINICAL CALCULATIONS	1
Term Semester Hours:		12
Semester 2		
NUR 001	NURSING TESTING BLOCK	0
NUR 310	PROFESSIONAL PRACTICE NURS I	6
NUR 310L	CLINICAL	0
NUR 312	GERO NURSING CARE	3
NUR 321	PHARMACOLOGY IN NURS	3
Term Semester Hours:		12
Semester 3		
NUR 001	NURSING TESTING BLOCK	0
NUR 305	NUR PROC MENTAL HLTH/ILLNESS	4
NUR 305L	CLINICAL	0
NUR 307	INQRY TO EVIDNC BASED NURS PRC	3
NUR 308	NURS CARE ADULTS ALTER HLTH	9
NUR 308L	CLINICAL	0
Term Semester Hours:		16
Semester 4		
NUR 001	NURSING TESTING BLOCK	0
NUR 401	NURS CARE CRITICALLY ILL ADULT	4
NUR 401L	CLINICAL	0
NUR 403	MATERNAL INFANT NURSING	4
NUR 403L	CLINICAL	0
NUR 404	FAMILY-CENTER NUR CARE CHILDRE	4
NUR 404L	CLINICAL	0
Term Semester Hours:		12
Semester 5		
NUR 405	COMMUNITY HEALTH NURS	4
NUR 405L	CLINICAL EXPERIENCE	0
NUR 407	PROF PRACTICE IN NURSING II	8
NUR 407L	CLINICAL EXPERIENCE	0
NUR 408	PROF PRAC IN NURS III SEMINAR	2
Term Semester Hours:		14
Total Semester Hours:		66

Nursing, RN-BSN

Lower Division Courses

Code	Title	Semester Hours
Freshman Composition		6
EH 101 or EH 101S	COLLEGE WRITING I COLLEGE WRITING I W/STUDIO	
EH 102	COLLEGE WRITING II	
EH 105	HONORS ENGLISH SEMINAR	
Humanities and Fine Arts		12
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	

ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: One required *Two sequential courses in literature or history required		3-6
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 209	HONORS SEM READINGS LIT/CUL I	
EH 210	HONORS SEM READINGS LIT/CUL 2	
Humanities: One required		3-6
CM 113	Intro to Rhetorical Communication	
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS (Preferred)	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC 100 or 200 level ¹		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	3
Mathematics and Natural Sciences		11
Mathematics: Choose one *Higher level courses accepted		3
MA 110	FINITE MATHEMATICS	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
Natural Sciences: *Higher level courses accepted		8
BYS 119	PRINCIPLES OF BIOLOGY	
CH 101	INTRO TO CHEMISTRY	
& CH 105	and INTRO CHEMISTRY LAB	
History and Social and Behavioral Sciences		12
12 hours of History and Social and Behavioral Sciences chosen from the following categories below		
History: One required *Two sequential courses in history or literature required		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
AMS 229	ANCIENT & MEDIEVAL WORLDS	
Social and Behavioral Sciences		
PY 101	GENERAL PSYCHOLOGY I (Required)	
PY 201	LIFE-SPAN DEVELOPMENT (Required)	
One required:		
GS 200	GLOBAL SYSTEMS AND CULTURES	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
SOC 100	INTRO TO SOCIOLOGY (Preferred)	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
Pre Professional		18
Additional lower division BSN requirements		
BYS 214	INFECTION & IMMUNITY	
BYS 215	HUMAN ANATOMY & PHYSIOLOGY I	
BYS 216	HUMAN ANATOMY & PHYSIOLOGY II	
GENL 101	GENERAL TRANSFER CREDIT	

Choose one (a statistics required):

PY 300	PSYCHOLOGICAL STATISTICS
SOC 303	STATISTICS/SOCIAL SCIENCES
MSC 287	BUSINESS STATISTICS I

Total Lower Division Semester Hours 59

RN-BSN Upper Division Courses (all online)

In order to be considered to the upper division nursing major, students must be accepted to the University and currently possess an unencumbered RN license.

Code	Title	Semester Hours
NUR 339	INFO MGMT IN HEALTHCARE	3
NUR 410	TRANSITION INTO PROFESS ROLES	3
NUR 413	NUR LEADERSHIP PROF PRACT	5
NUR 417	NURS CARE VUL POP	4
NUR 421	AC CARE NURS RNBSN	3
NUR 422	COMMUNITY HEALTH FOR PRCTNG RN	5
NUR 423	EVID BASED RN	3
NUR 000	NURSING-CREDIT BY VALIDATION	42

Credit received for completion of Registered Nursing degree.

Total Semester Hours 26

Plus 42 validation credit hours.

Total semester hours to graduate with a BSN: 126

Admission of RN-BSN Students

- Prospective students should refer to the program website at <https://online.uah.edu/programs/rn-to-bsn.aspx> to determine eligibility for the online program based on state residency and work location.
- Admission to the upper division nursing major for registered nurse students requires admission to the University as well as the following minimum requirements:
 - Minimum grade point average (GPA) of 2.0 for admission to the University.
 - Graduation from an accredited associate degree nursing program or a diploma program in nursing.
- Registered nurse students must submit proof of an unencumbered current license and maintain this status throughout the program. A registered nurse student will not be allowed to continue in the program if the nursing license is placed on probation, suspended, or revoked status. An unencumbered license must be maintained throughout the program.

Progression and Graduation Standards

- Outstanding prerequisite courses may be completed while taking upper division nursing courses. However, it is advised that outstanding prerequisite courses be completed prior to beginning the curriculum. Student are strongly encouraged to work closely with RN-BSN advisor to ensure transfer credits and residency requirements are met.
- A minimum grade of "C" or above must be earned in all required nursing courses and any outstanding prerequisite courses.
- An overall "C" (2.0) grade point average (GPA) is required for graduation.

Health and Other Requirements for RN-BSN students:

Student must complete and maintain currency of all health documentation requirements throughout the program for progression. Students are responsible for maintaining original health records. Some of these records will be managed by the Office of Undergraduate Programs, an external clearinghouse, or by the UAH Student Health Center. **Students who fail to complete their health requirements by the designated deadline will not be allowed to begin classes until all health requirements are completed.** The following are required as part of admission, enrollment, and progression in the nursing curriculum:

- Physical examination: The physical exam should be done within the past three (3) months prior to starting the upper division curriculum. Any medical or mental health status change from the time of enrollment in the nursing program must be shared with the Associate Dean and documentation of release from healthcare provider for program progression. If a status change is not reported in a timely manner, the student may not be allowed to progress in the program.
- Hepatitis B: Three (3) doses of vaccine or titer results demonstrating immunity. For initial enrollment a minimum of first 2 immunizations is required prior to entry to the upper division curriculum.

3. Evidence of immunity to measles, mumps, rubella (MMR), and varicella (chickenpox/VZV).
4. Evidence of negative for tuberculosis (TB/PPD). Each student is required to have a 2-step tuberculin (TB) skin test or a T-spot less than three months prior to the first day of class of upper division nursing courses. The 2-step TB/PPD skin tests must be at least 7 days apart and no more than 21 days apart. Instead of skin testing, students may provide evidence of a blood test indicating negative for tuberculosis. If the skin test or the blood test is positive, a chest x-ray is required and possible other medical evaluation may be requested. An annual one-step TB renewal test is required while enrolled in the Nursing Program.
5. Annual Influenza Vaccination (Flu): Students are required to provide evidence of influenza vaccination each year while enrolled in the Nursing Program.
6. Evidence of Tetanus, Diphtheria, Pertussis (Tdap) or TD booster required every 10 years after initial Tdap on file. May never be more than 10 years old during enrollment.
7. Current health insurance: Students are required to provide evidence of current health insurance each year while enrolled in the Nursing Program.
8. CPR certification: American Heart Association Basic Life Support for the Healthcare Provider while enrolled in the Nursing Program.
9. Drug testing and criminal background check: Students are required to submit to drug testing and criminal background checks upon admission and annually. In addition, drug testing and criminal background checks can be administered for reasonable suspicion of drug/alcohol use and as required by affiliating clinical agencies while enrolled in any Nursing Program. The College of Nursing Undergraduate and Graduate Student Handbooks provide detailed policies. Violations of the policies are serious and will result in dismissal of students from the College of Nursing.
10. Other health requirements may be implemented based on clinical requirements.

Standards of Conduct and Accountability

The nursing student shall comply with legal, moral, and legislative standards that determine unacceptable behavior of the nurse and that may be cause for denial of a license to practice as a registered nurse, in accordance with the Alabama law regulating practice of registered and nursing as provided below.

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1. Engaging in fraud, misrepresentation, deception, or concealment of a material fact in applying for or securing licensure or taking any examination required for licensure.
2. Having engaged in conduct that is inconsistent with good moral character such as having a criminal history or pattern of illegal conduct or disregard for the law.
3. Having disciplinary action pending or having had a license, registration, or certification for any health-related profession denied, conditionally issued, fined, reprimanded, censured, restricted, limited, placed on probation, suspended, revoked, voluntarily surrendered, or otherwise encumbered in any state, territory or country.
4. Having been court-martialed or administratively discharged by a branch of the United States Armed Forces for any act or conduct that would constitute grounds for discipline Alabama under Rule 610-X-8-.03.
5. Any other reasons authorized by law.

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Core Performance Standards

Core Performance Standards may also be referred to as essential functions define selected attributes and behaviors necessary for students to demonstrate in order to successfully complete their education and subsequently enter nursing practice. These essential functions are determined to be required for initial and continued enrollment in the College of Nursing. Students must be able to perform each of the following essential functions with or without reasonable accommodations.

1. Critical thinking ability for effective clinical reasoning and clinical judgment consistent with level of education preparation. Examples (not all inclusive) of necessary activities include identifying cause-effect relationships in clinical and classroom situation, use of scientific method in developing patient care plans; evaluation of effectiveness of nursing interventions.
2. Professional relationships, Interpersonal skills sufficient for professional interactions with a diverse population of individuals, families, and groups. Examples (not all inclusive) include the ability to establish rapport with patients/clients and colleagues; capacity to engage in successful conflict resolution; peer accountability.
3. Communication adeptness sufficient for verbal and written professional interaction. Examples (not all inclusive) include explaining treatment procedures, initiating health teaching, and documenting and interpreting nursing actions and patient/client responses.
4. Mobility as physical abilities sufficient to move from room to room and maneuver in small spaces. Examples (not inclusive) include moving around in clients' rooms, work spaces and treatment areas; and administering cardiopulmonary procedures.

5. Gross and fine motor abilities sufficient for providing safe, effective nursing care. Examples (not all inclusive) include completing examinations/evaluations by writing, typing or demonstration; calibrating and using equipment, and therapeutic positioning of clients.
6. Auditory ability sufficient to monitor and assess health needs. Examples (not all inclusive) include hearing basic conversation; monitoring alarms, emergency signals and auscultatory sounds; and hearing cries for help.
7. Visual abilities sufficient for observation and assessment necessary in patient care. Examples (not all inclusive) include reading documents such as patient charts and laboratory reports, reading calibrations on syringes, sphygmomanometers, and thermometers, and equipment outputs such as waves, printouts, and digital readings; and accurately observing client behaviors such as color changes and nonverbal communication and responses to treatments.
8. Tactile abilities sufficient for physical assessment. Examples (not all inclusive) include performing palpation, percussion, temperature changes, complete physical examinations and other activities related to therapeutic interventions.
9. Behavioral/Social abilities sufficient to demonstrate emotional stability, maintenance or composure under stress, development of mature, empathetic and effective nurse-patient relationships and use of sound and unimpaired judgment in classroom and clinical activities.

These core performance standards are not intended to be complete listing of all nursing behaviors, but they are a sampling of the types of abilities needed by nursing students to meet program objectives and requirements. The College or its affiliated agencies may identify additional critical behaviors or abilities. The identified core performance standards are revised and adopted from the Americans with Disabilities Act implications for Nursing Education (revised 2008).

RN-BSN (All Classes Online)

Fall		Semester Hours
NUR 410	TRANSITION INTO PROFESS ROLES (Must be first course) ^{*Offered every semester}	3
NUR 413	NUR LEADERSHIP PROF PRACT	5
NUR 417	NURS CARE VUL POP	4
NUR 000	NURSING-CREDIT BY VALIDATION (42 hours applied at no cost)	0
Term Semester Hours:		12
Spring		
NUR 422	COMMUNITY HEALTH FOR PRCTNG RN	5
NUR 423	EVID BASED RN	3
Term Semester Hours:		8
Summer		
NUR 339	INFO MGMT IN HEALTHCARE	3
NUR 421	AC CARE NURS RNBSN	3
Term Semester Hours:		6
Total Semester Hours:		26

College of Professional and Continuing Studies

148 Wilson Hall

Telephone: 256.824.6013

Email: PCSDeansOffice@uah.edu (pcsdeansoffice@uah.edu)

Dean: Dr. Karen M. Clanton, Ed.D.

Mission

The mission of the College of Professional and Continuing Studies is to increase student access, external partnerships, community outreach, and extended learning that leverage the University's areas of expertise for the mutual benefit of the community and the institution.

Degree

Bachelor of Arts in Professional Studies

Bachelor of Science in Professional Studies

The Bachelor of Arts or Science in Professional Studies (BPS) is designed for adults who have prior college and/or work experience, but have yet to obtain a four-year degree. The program offers a well-rounded education through an interdisciplinary curriculum with established concentrations areas that provide a flexible pathway for adults to complete a bachelor's degree. Concentration areas include Leadership Strategies and Dynamics; Organizational Studies; and Technology, Science and Society.

The program is structured to meet the needs of working professionals; balancing academic rigor with flexibility and value. The degree provides students the option of participating fully online, in the classroom or a combination. Students may transfer up to 75% of previously completed coursework, including

up to 34 hours of technical credits. An Academic Success Specialist will work with students to provide them with a clear pathway to success, starting with the admission process and on through to graduation.

The College of Professional and Continuing Studies provides adult learners the opportunity to expand their knowledge base across an array of academic disciplines to meet professional and personal goals. Graduates will learn how to communicate effectively, make informed decisions, and use analytical and critical thinking. For more details visit www.UAHComplete@uah.edu.

Accreditation

The University of Alabama in Huntsville has institutional accreditation from the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, masters, and doctoral degrees.

BPS degree requires 120 hours:

- 36 of 120 credit hours must be taken at the 300 level or higher; 6 credit hours must be taken at the 400 level.
- A minimum of 25% of the total requirements and 12 of the last 18 hours must be completed at UAH.
- No more than 60 credit hours from a 2-year or community college can be applied toward the BPS degree.
- A minimum GPA of 2.0 is required for all courses taken at UAH and is the minimum requirement for graduation.
- Work with the BPS academic advisor to learn how your transfer credits can apply toward this program of study.

Charger Foundations (General Education Requirements)

Code	Title	Semester Hours
Area I: Freshman Composition		
EH 101	COLLEGE WRITING I	3
or		
EH 101S	COLLEGE WRITING I W/STUDIO	3
EH 102	COLLEGE WRITING II	3
Area II: Humanities and Fine Arts		
12 hours of Humanities and Fine Arts chosen from the following categories below		
Fine Arts: Choose one		
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	3
ARH 101	ARH SURV:RENAISSANCE-MODERN	3
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	3
ARS 160	DRAWING: FOUNDATIONS	3
TH 122	THEATRE APPRECIATION	3
MU 100	INTRO TO MUSIC LITERATURE	3
Literature: Choose one or two		
Students must have a two course sequence in either Literature or History.		
EH 207	READINGS LITERATURE/CULTURE I	3
EH 208	READINGS LITERATURE/CULTURE 2	3
EH 242	MYTHOLOGY	3
Humanities and Fine Arts: Choose one or two		
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	3
ARH 101	ARH SURV:RENAISSANCE-MODERN	3
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	3
ARS 160	DRAWING: FOUNDATIONS	3
MU 100	INTRO TO MUSIC LITERATURE	3
TH 122	THEATRE APPRECIATION	3
CM 113	Intro to Rhetorical Communication	3
WLC 101S	INTRO FOREIGN LANG I: SPANISH	3
or		
WLC 101A	INTRO FOREIGN LANG I: ARABIC	3
or		
WLC 101F	INTRO FOREIGN LANG I:FRENCH	3
WLC 101G	INTRO FOREIGN LANG I:GERMAN	3

or		
WLC 101J	INTRO FOREIGN LANG I:JAPANESE	3
or		
WLC 101R	INTRO FOREIGN LANG I:RUSSIAN	3
WLC 102S	INTRO FOREIGN LANG II:SPANISH	3
WLC 102A	INTRO FOREIGN LANG II: ARABIC	3
or		
WLC 102F	INTRO FOREIGN LANG II:FRENCH	3
or		
WLC 102G	INTRO FOREIGN LANG II:GERMAN	3
or		
WLC 102J	INTRO FOREIGN LANG II:JAPANESE	3
or		
WLC 102R	INTRO FOREIGN LANG II:RUSSIAN	3
WLC 201S	INTERM FOREIGN LANG:SPANISH	3
WLC 201A	INTERM FOREIGN LANG I: ARABIC	3
or		
WLC 201F	INTERM FOREIGN LANG:FRENCH	3
or		
WLC 201G	INTERM FOREIGN LANG:GERMAN	3
or		
WLC 201J	INTERM FOREIGN LANG: JAPANESE	3
or		
WLC 201R	INTERM FOREIGN LANG:RUSSIAN	3
WLC 202S	INTERM FOREIGN LANG II:SPANISH	3
WLC 202A	INTERM FOREIGN LANG II: ARABIC	3
or		
WLC 202F	INTERM FOREIGN LANG II:FRENCH	3
or		
WLC 202G	INTERM FOREIGN LANG II:GERMAN	3
or		
WLC 202J	INTERM FORGN LANG II:JAPANESE	3
or		
WLC 202R	INTERM FOREIGN LANG II:RUSSIAN	3
WLC 204	INTERNATIONAL CINEMA	3
PHL 101	INTRODUCTION TO PHILOSOPHY	3
PHL 102	INTRO TO ETHICS	3
PHL 150	TECH, SCIENCE & HUMAN VALUES	3
WGS 200	INTRO WOMEN'S & GENDER STUDIES	3

Area III: Mathematics and Sciences

Mathematics: Choose one (For Bachelor of Science MA120 must be taken)

MA 107	ALGEBRA WITH APPLICATIONS	3
MA 110	FINITE MATHEMATICS	3
MA 112	PRECALCULUS ALGEBRA	3
MA 113	PRECALCULUS TRIGONOMETRY	3
MA 115	PRECALCULUS ALGEBRA & TRIG	4
MA 120	MATH PROFESSIONAL APPLICATIONS	3
MA 171	CALCULUS A	4

Natural Sciences (Lab): Choose 2

AST 100	SURVEY OF ASTRONOMY	4
AST 106	EXPLORING THE COSMOS I	4
AST 107	EXPLORING THE COSMOS II	4

BYS 119	PRINCIPLES OF BIOLOGY	4
BYS 120	ORGANISMAL BIOLOGY	4
CH 101	INTRO TO CHEMISTRY	3
and		
CH 105	INTRO CHEMISTRY LAB	1
CH 121	GENERAL CHEMISTRY I	3
and		
CH 125	GENERAL CHEMISTRY LAB I	1
CH 123	GENERAL CHEMISTRY II	3
and		
CH 126	GENERAL CHEMISTRY LAB II	1
ESS 103	ENVIRONMENTAL EARTH SCIENCE	4
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	4
PH 100	CONCEPTUAL PHYSICS	4
PH 102	GENERAL PHYSICS II	4
PH 111	GEN PHYSICS W/CALCULUS I	3
and		
PH 114	GENERAL PHYSICS LAB I	1
PH 112	GEN PHYSICS W/CALC II	3-4
and		
PH 115	GENERAL PHYSICS LAB II	1
PH 113	GEN PHYSICS W/CALC III	3
and		
PH 116	GENERAL PHYSICS LAB III	1

Area IV: History and Social and Behavioral Sciences

12 hours of History and Social and Behavioral Sciences chosen from the following categories below.

Students must have a two course sequence in either Literature or History.

History: Choose one or two

HY 103	WORLD HISTORY TO 1500	3
HY 104	WORLD HISTORY SINCE 1500	3
HY 221	UNITED STATES TO 1877	3
HY 222	UNITED STATES SINCE 1877	3
AMS 229	ANCIENT & MEDIEVAL WORLDS	3

Social and Behavioral Sciences: Choose two or three

ECN 142	PRINC OF MACROECONOMICS	3
ECN 143	PRINC OF MICROECONOMICS	3
GS 200	GLOBAL SYSTEMS AND CULTURES	3
GY 105	WORLD REGIONAL GEOGRAPHY	3
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	3
PSC 101	INTRO TO AMERICAN GOVERNMENT	3
PSC 102	INTRO TO COMPARATIVE POLITICS	3
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	3
PY 101	GENERAL PSYCHOLOGY I	3
PY 102	APPLICATIONS IN PSYCHOLOGY	3
SOC 100	INTRO TO SOCIOLOGY	3
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	3
SOC 105	INTRO CULTURAL ANTHROPOLOGY	3
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	3

General Electives

General electives : Choose 27-34 credit hours from the Humanities, Fine Arts, Mathematics, History, Science, or Social and Behavioral Sciences

Professional Studies Interdisciplinary Core

Code	Title	Semester Hours
PRO 301	THRY & PRAC ADULT LEARNING	3
*PRO 301 is required for students with less than 60 hours credit and/or have not been enrolled in higher education for an extended period. MUST enroll during the first semester.		
PRO 310	ACADEMIC WRITING PROFESS STUDI	3
PRO 320	INDS PERSPECT & CRITICAL THNKG	3
PRO 325	INDS RESEARCH & APPLICATIONS	3
PRO 498	INQUIRY AND LEARNING	3
PRO 499	CAPSTONE EXP: RSCH THESIS/PROJ	3

Interdisciplinary Concentrations (Students must select one of the following concentrations)

Code	Title	Semester Hours
Leadership Strategies and Dynamics Concentration (Total of 30 hours)		
MGT 301	MANAGING ORGANIZATIONS	3
MGT 410	LEADERSHIP, PERSONAL DEV & ORG	3
Leadership and Business Related Courses (Students must select an additional 12 hours in this area.)		
Arts, Humanities and Social & Behavioral Science Related Courses (Students must select 12-15 hours in this area.)		
Organizational Studies Concentration (Total of 30 hours)		
MGT 101	INTRO ENTREPRENEURSHIP	3
MGT 361	ORGANIZATIONAL BEHAVIOR	3
Business Related Courses (Students must select an additional 12 hours in this area.)		
Arts, Humanities and Social & Behavioral Science Related Courses (Students must select 12-15 hours in this area.)		
Technology, Science and Society Concentration (Total of 30 hours)		
Science, Engineering, and/or Technology Related Courses (Students must select 15-24 hours in this area.)		
Arts, Humanities and Social & Behavioral Science and Business Related Courses (Students must select 9-18 hours in this area.)		

Organizational Studies

Prepare for careers that involve finding solutions to human problems in organizations and communities. Coursework will focus on business (emphasis on management and information systems) and humanities/social sciences (emphasis on communications, philosophy, political science, psychology, education, and/or sociology). The curriculum will include organizational theory and behavior, professional ethics, management, information systems, individual and group dynamics, and communication skills. Students will acquire an understanding of human behavior in groups, organizations, and larger systems.

Leadership Strategies and Dynamics

Develop an understanding of foundational leadership theory in your chosen context. Focus on the nature of leadership in a variety of settings and prepare for leadership responsibility in the community and in your selected profession. Coursework will focus on business (emphasis on leadership and management) and social sciences/humanities (emphasis on communications, history, philosophy, political science, psychology, and/or sociology). Courses will provide an educational experience in theories of motivation, leadership styles, organizational and group behavior, professional ethics, communication, theories of cultural difference and multicultural communication, human resources, and/or budgeting.

Technology, Science and Society

Integrate the study of science, engineering, and/or technology with its social and cultural impact on humanity. Focus on developing a broad understanding of the technical, historical and social dimensions of science and technology. Curriculum options include engineering, the natural sciences, computer science, information sciences, business, the social sciences, and/or humanities. The curriculum provides an interdisciplinary approach to explore the significance, challenges, and effects that science and technology present to society. Courses allow students to incorporate technical scientific knowledge with analytical thinking from a social perspective.

B.A. or B.S. in Professional Studies Courses

PRO 301 - THRY & PRAC ADULT LEARNING

Semester Hours: 3

This course presents an overview of five foundational learning theories and related research in adult education and development. The conceptual framework is centered on discovering what motivates the adult learner and the impact social perspectives have on adult learning through analysis and discussion. Students will define competencies needed for success in academic study and professional leadership, in setting educational goals, and in planning a learning experience to achieve them. Emphasis is placed on issues unique to adult re-entry students and the university services available to support nontraditional students.

PRO 310 - ACADEMIC WRITING PROFESS STUDI

Semester Hours: 3

Students will learn academic writing skills by engaging in the process of academic inquiry and argument. The course will cover a broad perspective of writing by exploring various writing and research styles used through different academic professions. Prerequisites: EH 102 or EH 105.

PRO 320 - INDS PERSPECT & CRITICAL THNKG

Semester Hours: 3

Interdisciplinary studies fosters foundational knowledge acquisition by which individuals draw on multiple disciplinary perspectives and integrate their insights and modes of thinking to advance the studies and the fundamental development of critical and analytical thinking skills. Complex issues are addressed from multi-faceted perspectives that stimulate problem solving, problem defining and problem posing. Emphasis is placed on how to synthesize evidence drawn from multiple sources as a basis for informed decision-making.

PRO 325 - INDS RESEARCH & APPLICATIONS

Semester Hours: 3

Interdisciplinary research is a contemporary decision-making process for transcending the scope of a single discipline or program to develop insights that offer bold advances in knowledge, solutions to urgent societal problems, an edge in technological innovations, and a more integrative knowledge of multidisciplinary theories and concepts. This course introduces the primary drivers for interdisciplinary research and examines the interdisciplinary research process. Students will apply an integrated model for conducting research that draws on multiple disciplines. Prerequisites: PRO 310 and PRO 320.

PRO 498 - INQUIRY AND LEARNING

Semester Hours: 3

Inquiry-based learning accelerates understanding, fosters critical thinking skills, and facilitates self-direction and discovery. Using this method, students will identify an interdisciplinary problem related to their approved concentration area, perform the foundational research, and formulate a research proposal. This is the first of a two-semester progression to complete a Capstone research thesis/project in PRO 499. Prerequisite: PRO 325.

PRO 499 - CAPSTONE EXP: RSCH THESIS/PROJ

Semester Hours: 3

Students majoring in Professional Studies are required to complete a senior research thesis in their approved interdisciplinary concentration. This Capstone course requires the student to demonstrate his/her ability to integrate the core knowledge and skills gained in their interdisciplinary areas of study using inquiry-based learning methods. Research is conducted and a thesis-style paper is written and orally presented. Prerequisite: PRO 498 with minimum grade of C-.

Specialized Credit Courses

UAH offers specialized credit courses that support various educational partnerships. The following courses have distinct admission and registration requirements. For details, email CPCS.Programs@uah.edu, phone 256-824-2808, or visit www.PCS.uah.edu/USSRC.

ESS 100 - INTRODUCTION TO SPACE SCIENCE

Semester Hour: 1

Covers physiology in space, computer systems, and materials in space, robotics, thermodynamics, astrophysics, and solar physics. Laboratory experiments and simulated missions. Offered in cooperation with the U.S. Space & Rocket Center. Prerequisite: Available only to high school students with U.S. citizenship enrolled in Advanced Space Academy.

ENG 105 - INTRODUCTION TO AERONAUTICS

Semester Hour: 1

Introduction to a variety of aviation subjects, including flight physiology, computer systems, aerodynamics, aeronautics, jet propulsion, thermodynamics, navigation, and survival skills. Lectures and simulated missions. Offered in cooperation with U.S. Space & Rocket Center. Prerequisite: Available only to high-school students with U.S. citizenship enrolled in Aviation Challenge Mach III.

SCI 199 - INTRODUCTION TO PHYSICAL SCIENCE AND RESEARCH METHODS

Semester Hours: 3

Understand the segmentation of research through concepts such as heat transfer, Newtonian mechanics, chemical propulsion, computer modeling and simulation, biology in space, research ethics, technical writing, and data analysis. Students will be equipped with skills critical to contributing to scientific research projects. Prerequisite: Available online to high school students that have previously participated in the U.S. Space & Rocket Center - Aviation Challenge Mach III or Advanced Space Academy.

Graduate Level Course:

ED/SPA 532 - SPACE ORIENTATION FOR EDUCATORS

Semester Hours: 3

An online course for pre-service and in-service teachers that builds on the knowledge and experience gained for participation in Space Academy for Educators at the U.S. Space & Rocket Center (USSRC). The USSRC week-long program provides inquiry based workshops designed around the theme of space exploration and hands-on activities across various curriculum. Course activities are correlated with STEM related curricula. Topics include moon, Mars, rocketry, propulsion, hydroponics, math, biology, history, and literature. This follow-on course provides a formal framework for reflection, weekly discussions, and the development of lesson plans to adapt educators' new expertise in space science into effective and exciting methods for classroom implementation and discovery. Prerequisite: Previous participation in Space Academy for Educators.

Non-Credit Programs

UAH College of Professional and Continuing Studies (CPCS) provides access to quality education and training for individuals; partners with businesses and government for workforce development; enhances public awareness of the instructional and research strengths of the University; promotes lifelong learning fostering continued growth, human fulfillment, and positive social change; and supports economic development throughout North Alabama. These objectives are carried out through the following programming departments: Professional Development Solutions, Conferences and Special Programs, Osher Lifelong Learning Institute, and Testing and Certification Services. For more information about any of the CPCS programs please visit www.uah.edu/pcs.

PCS Registration Services

103 Wilson Hall

Telephone: (256) 824-6010 or 800-448-4031

FAX: (256) 824-6760

Email: Kathy.Hosch@uah.edu (Rita.Campbell@uah.edu)

Kathy Hosch, Senior Associate Director

UAH College of Professional and Continuing Studies (CPCS) Registration Office provides registration services for non-credit programs and select credit courses. Registration options include online, phone, fax, or in person. There is no formal application process for non-credit courses and enrollments are taken throughout the year. Transcripts for continuing education units (CEUs) are available upon written request for a \$5 fee per transcript. Visit www.uah.edu/pcs for registration information and related policies.

Professional Development Solutions

139 Wilson Hall

Telephone: (256) 824-4430

Email: pdsolutions@uah.edu**Mission**

Professional Development Solutions develops and presents professional training and educational activities in areas including leadership, management, engineering, cybersecurity, information technology, and certification exam preps. Programs are designed to allow a participant the choice of attending individual courses of interest or completing a more structured certificate program leading to a Certificate of Professional Achievement. Programs are offered in an atmosphere conducive for meeting professional training needs, and available in various classroom and online formats. CPCS maintains state-of-the-art computer labs and classrooms, and its instructors are known and respected industry practitioners and researchers in their respective fields.

Visit uah.edu/PDSolutions for the most up-to-date schedule of course offerings.

Exam Preps

A+ Exam Prep

Certified Authorization Professional (CAP®) Exam Prep

Certified Ethical Hacker (CEH™) Exam Prep

Certified Information Systems Security Professional (CISSP®) Exam Prep

Certified Modeling and Simulation Professional (CMSP) Certification Exam Prep

Certified Network Defender (CND) Exam Prep

Certified Systems Engineering Professional (CSEP) Exam Bootcamp

CompTIA® Advanced Security Practitioner (CASP) Exam Bootcamp

Linux+ Exam Prep

Network+ Exam Prep

PHR®/SPHR® and SHRM-CP/SCP Exam Prep
PMP® Certification Bootcamp
Private Pilot Ground School
Security+ Exam Prep

Certificate Programs

MANAGEMENT

Earned Value Management
Federal Contract Management Essentials
Federal Contract Management Specialization
Management of Engineering and Technology
Project Management
Integrated Supply Chain Management
Interior Design

ENGINEERING

Aegis Combat System
Applied Systems Engineering
Modeling and Simulation
Rocket Propulsion
Test and Evaluation

INFORMATION TECHNOLOGY

C++ Developer
Java Developer
Master Programmer
Microsoft Excel
Microsoft Project
Microsoft Word
Oracle Applications Developer
Python Developer

Customized Training & Facilitation

UAH's customized training solutions offer organizations ways to seize new opportunities and systematically address key problems. Professional Development specialists work directly with corporate, government, and professional organizations to develop high quality certificate programs and short courses that meet specific training goals. These programs can be offered on site, on campus, or via online learning. Through targeted learning experiences, the individual or team can bring new tools and competencies back into the organization, providing an immediate on-the-job impact.

Conferences and Special Programs

149 Wilson Hall
Telephone: (256) 824-2808
Email: Fathia.Hardy@uah.edu
Fathia Hardy, Assistant Director of Outreach and Event Management

The Outreach and Event Management unit embodies collaborative projects and mutually beneficial partnerships among The University of Alabama in Huntsville and external groups that enrich both our academic and research missions and the communities we serve. Our management team hosts and co-hosts various conferences, training sessions, symposiums, continuing education, special events, meetings, and workshops. Visit www.PCS.uah.edu/conferences-special-programs for the most up-to-date information.

Osher Lifelong Learning Institute (OLLI)

113 Wilson Hall
Telephone: (256) 824-6183
Email: Rebecca.Duke@uah.edu (rebecca.duke@uah.edu)
Rebecca Duke, OLLI Director

Mission

The Osher Lifelong Learning Institute (OLLI) and the College of Professional and Continuing Studies partner to provide lifelong learning courses and enrichment activities designed to fulfill the educational needs of adults 50 and above. OLLI at UAH is a member-led, non-profit, volunteer-based organization that advances the educational, cultural, and social interests of its members by sponsoring courses, socials, bonus presentations, industrial

tours, and travel opportunities designed to fit the interests and needs of its members. CPCS supports OLLI's efforts by providing support services and a safe, comfortable, and intellectually stimulating on-campus environment that supports adult lifelong learning and enhances community outreach.

Curriculum

Courses offered in a wide range of subject areas:

- Arts and Music
- Finance and Economics
- Foreign Languages
- Health and Fitness
- History and Government
- Information Technology
- Literature and Writing
- Psychology, Philosophy and Religion
- Science and Mathematics
- Skills and Hobbies

We offer three terms a year with a mini-term in the summer. Most courses meet 1.5 hours per class, once a week, for six to eight weeks. We also offer courses in our popular "OLLI After Five" format. OLLI courses are taught by qualified volunteer instructors. Courses are not graded, and no tests are administered.

Testing and Certification Services

214 Wilson Hall

Telephone: (256) 824-6373

Email: TaCS@uah.edu

Maria Bricker, Assistant Director

Mission

The University of Alabama in Huntsville Testing and Certification Services (TaCS) unit is committed to providing exceptional, accessible, and comprehensive testing services for students, graduates, professionals, and individuals from our surrounding communities. We are dedicated to upholding high standards of security and academic integrity by maintaining and adhering to the National College Testing Association (NCTA) Standards and Guidelines.

Tests

The TaCS office offers numerous testing opportunities to include:

- ACT
- Alabama State Dept of Insurance Exam
- BASF/DDI
- Castle Worldwide
- CLEP/DANTES
- GRE
- HESI
- MAT
- National Center for Competency Testing
- Pearson VUE Testing
- Proctored Exams
- PROV
- Residual ACT
- SAT
- SSAT

Visit PCS.uah.edu/TaCS for a full list of available tests, test schedule, policy and guidelines, and ways to register.

College of Science

C 207 and C 206 Materials Science Building

Telephone: 256.824.6605

Mission

The College of Science provides quality education with leading-edge research opportunities through interdisciplinary programs administered by seven departments and vibrant collaborations across campus and community. Faculty bring their innovative research into the classroom, equipping students with advanced knowledge, skills and abilities, and preparing leaders for this generation and beyond.

College of Science offers undergraduate degrees in the following disciplines:

- Atmospheric Science (<http://catalog.uah.edu/undergrad/colleges-departments/science/atmospheric-science/#majorstext>)
- Biology (p. 430)
- Chemistry (p. 471)
- Computer Science (p. 528)
- Earth System Science (<http://catalog.uah.edu/undergrad/colleges-departments/science/atmospheric-science/#majorstext>)
- Mathematics (p. 564)
- Physics (p. 581)

College of Science Academic Advising

To schedule an appointment with a College of Science academic advisor, click here (<http://www.uah.edu/academic-advising>).

Morgan Lewis, B.S., M.S.

C 206 Materials Science Building

256.824.2505

Email: scienceadvising@uah.edu (lewism@uah.edu)

Jennifer Bradley, B.S., M.S.

C 206 Materials Science Building

256.824.2505

Email: scienceadvising@uah.edu (jennifer.bradley@uah.edu)

Biological Sciences

369A Shelby Center

Telephone: 256.824.6260

Email: biology@uah.edu

The Biological Sciences department offers the following undergraduate degrees:

- Biological Sciences, BS (p. 437)
- Biological Sciences, BS - Biochemistry Concentration (p. 441)
- Biological Sciences, BS - Pre-Professional Health Careers Concentration (p. 460)
- Biological Sciences, BS - Ecology and Evolution Concentration (p. 446)
- Biological Sciences, BS - Microbiology Concentration (p. 456)
- Biological Sciences, BS - Secondary Education Concentration (p. 466)
- Biological Sciences, BS - Exercise Physiology Concentration (p. 450)

Program Objectives

The UAH Department of Biological Sciences aspires to provide one of the best programs in the southeastern U.S. for both undergraduate and graduate students in terms of both quality and efficacy. Our goal is to provide forward-looking, comprehensive curricula that includes both instruction and laboratory experience for our undergraduates and meets the highest national standards.

Learning Outcomes

Biological Sciences graduates will demonstrate the ability to

- Correctly use and apply key words, concepts, and theories from the biological sciences
- Write in a scholarly manner
- Engage in effective oral presentation of scientific topics or research results

Majors in Biological Sciences

- Biological Sciences, BS (p. 437)
- Biological Sciences, BS - Biochemistry Concentration (p. 441)
- Biological Sciences, BS - Pre-Professional Health Careers Concentration (p. 460)
- Biological Sciences, BS - Ecology and Evolution Concentration (p. 446)
- Biological Sciences, BS - Microbiology Concentration (p. 456)
- Biological Sciences, BS - Secondary Education Concentration (p. 466)
- Biological Sciences, BS - Exercise Physiology Concentration (p. 450)

For more information about the department of biology, visit uah.edu/biology.

Minor in Biological Sciences

- Biological Sciences (p. 471)

UAH's Joint Undergraduate Master's Program (JUMP) allows undergraduate students to study at the graduate level. By taking graduate courses in your senior year you could reduce the time taken to get a graduate (MS) degree. Please visit JUMP (p. 14) page for general information.

Requirements For Admissions

1. Cumulative Overall 3.3 GPA
2. Major GPA of 3.5
3. Student shall complete BYS 120, BYS 219, BYS 300, BYS 361 + BYS 362, CH 121 + CH 125, CH 123 + CH 126, CH 331 + CH 335, CH 332 + CH 336 by Junior year

Additional Information

- Maximum of 12 credit hours count toward both degrees

Designated Faculty Contact/Advisor

Dr. Bruce Stallsmith stallsb@uah.edu 256.824.6992

BYS 100 - INTRO HEALTH PROFESSIONS

Semester Hour: 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 freshman and sophomores.

BYS 109 - FUNDAMENTALS OF BIOLOGY

Semester Hours: 4

Introduction to biological principles of cell structure, function, metabolism, and reproduction. Discussion of biological function with emphasis on strategies employed by organisms in meeting similar biological needs. Principles of ecology and evolution. Not intended for biology majors. Co-requisite: BYS 109L.

BYS 109L - LABORATORY

Semester Hours: 0

Students will get hands-on experience with topics covered in the lecture, including light microscopy, properties of macromolecules, properties of plants and animals, and introduction to genetics. Every other week will be a recitation and online lab assignment. Co-requisite: BYS 109.

BYS 119 - PRINCIPLES OF BIOLOGY

Semester Hours: 4

Lecture/Lab/Recitation. Introduction to biological principles of cell structure, function, metabolism and reproduction. One two hour lab and a one hour recitation per week.

BYS 119L - LABORATORY

Semester Hours: 0

Laboratory exercised to introduce students to accurate measurement techniques, observation, and the development of relevant hypotheses. Several formal lab reports are required as an introduction to scientific writing.

BYS 119R - RECITATION

Semester Hours: 0

Homework turned in and discussed; exams discussed and further assistance with course material available.

BYS 120 - ORGANISMAL BIOLOGY

Semester Hours: 4

Lecture/Lab/Recitation. Discussion of biological function with special emphasis on contrasting strategies employed by organisms in meeting similar biological needs. One two-hour lab and a one hour recitation per week. Prerequisite: BYS 119.

BYS 120L - ORGANISMAL BIOLOGY LAB

Semester Hours: 0

Introduction to the basic concepts of natural selection, population biology, and the biodiversity of animals and plants. Several formal lab reports are required as a further introduction to scientific writing, along with a lab practical on the biodiversity of animals and plants.

BYS 120R - RECITATION

Semester Hours: 0

Homework turned in and discussed; exams discussed and further assistance with course material available.

BYS 200 - DINOSAUR BIOLOGY

Semester 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 202 - HUMAN ANAT & PHYS II/CALHOUN

Semester Hours: 4

BYS 205 - CODING ALGORITHMS FOR BIOLOGY

Semester Hours: 3

Prerequisites: BYS 119, BYS 120, MA 112.

BYS 214 - INFECTION & IMMUNITY

Semester 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 and either CH 101 or 121.

BYS 214L - LABORATORY

Semester Hours: 0

BYS 215 - HUMAN ANATOMY & PHYSIOLOGY I

Semester Hours: 4

Structure and function of the human body with emphasis on their relationship to disease. Part 1 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 215L - HA&P I LABORATORY

Semester Hours: 0

An introduction to anatomical terminology; basic histology of normal tissues versus common pathologies. Focus on the human skeletal and muscular systems. Students are engaged in recognition of individual bones, surface markings and major muscles through dissection and use of muscular models.

BYS 216 - HUMAN ANATOMY & PHYSIOLOGY II

Semester 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.

Prerequisite: BYS 215.

BYS 216L - HA&P II LABORATORY

Semester Hours: 0

Study of the anatomy of the nervous, cardiovascular, respiratory, renal and digestive systems. Dissections of eye, brain, heart, lung and kidney. Basic EKG/ECG reading and a study of factors affecting blood pressure. Enzymatic action of the digestive system; basic urinalysis determinations.

BYS 219 - GENETICS AND EVOLUTION

Semester Hours: 4

Lecture/Lab/Recitation. Two labs and one recitation per week. Hereditary basis of organisms; genes as the discrete units of inheritance and genes in organisms and populations. Medelian principles and evolutionary processes. Replication, transcription and translation of DNA, RNA, and proteins. Prerequisites: BYS 120 and (CH 101 or CH 121) and (MA 107 or 112).

BYS 219L - LABORATORY

Semester Hours: 0

Laboratory activities include experiments to further students understanding in Mendelian genetics, molecular biology and Human genetic diseases. Counted as part of the overall grade for BYS 219.

BYS 219R - RECITATION

Semester Hours: 0

Homework turned in and discussed; exams discussed and further assistance with course material available.

BYS 292 - INTRO TO BIOLOGICAL RESEARCH

Semester Hours: 3

Introduction to the principles and practices of biological research. Covers experimental design, statistical analysis, critical review of journal articles, responsible conduct of research, and writing for the biological sciences. Recommended for students planning to do undergraduate research. Prerequisites: BYS 119, MA 112, EH 101.

BYS 300 - CELL & DEVELOPMENTAL BIOLOGY

Semester 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 either CH 123 or 201.

BYS 300L - CELL & DEVELOPMENT BIO LAB

Semester Hours: 0

BYS 301 - ELEMENTARY BIOCHEMISTRY

Semester 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. Same as CH 301. Prerequisites: BYS 120 and either CH 201 or 331.

BYS 302 - PEOPLE, PLANTS & ENVIRONMENT

Semester Hours: 3

This course is designed to introduce students from multiple departments to the vital roles that plants have in our ecosystems through the study of basic plant and soil science. Special attention is placed on the impact that plants have on our technology-based society.

BYS 311 - INTRO MOLECULAR UNDST BIO SYST

Semester 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. Prerequisite: CH 331.

BYS 312 - PRINCIPLES OF ECOLOGY

Semester 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. Prerequisites: BYS 120, and BYS 219.

BYS 313 - ANATOMY & PHYSIOLOGY I

Semester Hours: 4

Lecture/Lab. One lab a week. Structure and function of the human body. Anatomy of the skeletal and muscular systems, physiology of membranes, cellular and epithelial transport and nervous system function. Appropriate preparation for professional schools/graduate study in biological sciences. Prerequisite: BYS 119. Prerequisites with concurrency: BYS 300, and either CH 201 or 331.

BYS 313L - LABORATORY

Semester Hours: 0

Laboratory activities on the basic concept of system physiology including a rat dissection. Focuses on membrane transport and histology, and include gross anatomy and a study of the muscles and bones of the human body. Capstone student research project on electromyography of muscles.

BYS 314 - ANATOMY & PHYSIOLOGY II

Semester Hours: 4

Lecture and one lab a week. Continuation of BYS 313 stressing structural and functional relationships of major organ systems, focusing on heart, brain, lungs, kidney and the gastrointestinal tract. Appropriate for students preparing for professional schools or graduate study in biological sciences. Prerequisite: BYS 313.

BYS 314L - ANATOMY/PHYSIOLOGY II LAB

Semester Hours: 0

Research-intensive system based laboratory course. Includes brain dissection and student EEG project and a heart dissection and a cardiovascular physiology project. This is followed by a pulmonary function lab and a renal function lab where students calculate their own glomerular filtration rate.

BYS 315 - ICHTHYOLOGY

Semester Hours: 4

Classification, anatomy, physiology, and ecology of freshwater and marine fishes. Emphasis fishes of north Alabama. Laboratory and field trips required. Prerequisites: BYS 120 and BYS 219. Prerequisite with concurrency: BYS 300.

BYS 317 - VERTEBRATE ZOOLOGY

Semester 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 and BYS 219. Prerequisite with concurrency: BYS 300.

BYS 318 - VERTEBRATE REPRODUCTION

Semester 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 and BYS 219. Prerequisite with concurrency: BYS 300.

BYS 320 - MEDICAL TERMINOLOGY

Semester Hours: 3

The meaning, spelling, etymology and pronunciation of major medical terms related to anatomy, pathology, medical professions, procedures and pharmaceuticals; body systems, their associated diseases and disorders. Correct usage of terms and interpretation of documents containing these terms. Hybrid course with online and in-class portions. Prerequisites: BYS 300 or BYS 215 and BYS 216.

BYS 321 - GENERAL MICROBIOLOGY I

Semester Hours: 4

Structure, biochemistry, and genetics of microorganisms, control of microbial growth, and microorganisms as pathogens. Lab covers basic and diagnostic methods in microbiology, environmental factors controlling microbial growth and survival, and characteristics of medically important microorganisms. Prerequisites: BYS 120, BYS 219. Prerequisite with concurrency: BYS 300.

BYS 321L - LABORATORY

Semester Hours: 0

BYS 322 - GENERAL MICROBIOLOGY II

Semester Hours: 4

Emphasizes diversity of microorganisms with respect to ecology, physiology, and phylogeny. Prerequisite: BYS 321.

BYS 322L - GENERAL MICROBIOLOGY II LAB

Semester Hours: 0

BYS 347 - BIOPHYSICAL CHEMISTRY I

Semester 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. Same as CH 347. Prerequisites: CH 332, PH 112, PH 115 and MA 172.

BYS 348 - BIOPHYSICAL CHEMISTRY II

Semester 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. Same as CH 348. Prerequisites: BYS 347 or CH 347.

BYS 361 - GENERAL BIOCHEMISTRY

Semester Hours: 3

Biochemical structure and function of amino acids, proteins, carbohydrates, lipids, and nucleic acids; Enzyme catalysis and kinetics; major catabolic pathways, their integration and control mechanisms: Glycolysis, Citric Acid Cycle, Fatty Acid Oxidation and Oxidative Phosphorylation. Same as CH 361
Prerequisites: BYS 120, CH 332 and CH 335 or BYS 311, CH 332 and CH 335.

BYS 362 - GENERAL BIOCHEMISTRY LAB

Semester Hour: 1

One 3-hour lab a week. Practical experience in isolation, qualitative identification, and quantitative estimation of biomolecules. Same as CH 362.

Prerequisites: CH 335 and CH 336. Prerequisite with concurrency: CH 361.

BYS 363 - GEN BIOCHEMISTRY II

Semester Hours: 3

A continuation of BYS 361 to include amino acid oxidation, biosynthesis of biomolecules, integration of metabolism, DNA and RNA metabolism, protein biosynthesis, and gene structure. Same as CH 363. Prerequisites: BYS 361.

BYS 364 - BIOGEOGRAPHY

Semester 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. Strongly recommended: BYS 312. Prerequisites: BYS 120, BYS 219. Prerequisite with concurrency: BYS 300.

BYS 365 - GEN BIOCHEMISTRY LAB II

Semester Hour: 1

Experimental course illustrating the topics in BYS 363. Prerequisites: BYS 361 and BYS 362. Prerequisite with concurrency: BYS 363.

BYS 401 - EXERCISE PHYSIOLOGY

Semester 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. Strongly recommended: BYS 301 or CH 301. Prerequisites: BYS 215 & BYS 216 OR BYS 313 & BYS 314.

BYS 401L - LABORATORY

Semester Hours: 0

BYS 402 - KINESIOLOGY & BIOMECHANICS

Semester 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 215 & BYS 216 OR BYS 313 & BYS 314.

BYS 402L - LABORATORY

Semester Hours: 0

BYS 403 - ADV EXERCISE PHYSIOLOGY

Semester Hours: 4

Lecture/Lab. One lab per week. Human physiology, addressing the effects of environmental variables such as altitude, thermal stress and terrain on the major physiological systems of the body; in-depth analysis of resistance training, aerobic and anaerobic training; integration of multiple systems. Prerequisites: BYS 401, and (BYS 301 or CH 301) or (BYS 361 or CH 361).

BYS 405 - PSYCHOPHARMACOLOGY

Semester Hours: 3

Introduction to drug classification and action with emphasis on physiological and psychological interactions.

BYS 419 - MICROBIAL GENETICS

Semester Hours: 3

Transmission, expression, and evolution of genes in microorganisms. Studies of chromosomes, plasmids, transposons, bacteriophages, and other genetic elements. Prerequisites: BYS 219, BYS 300 and BYS 321.

BYS 430 - IMMUNOLOGY

Semester Hours: 4

Lecture/Lab. One 3-hour lab per week. Innate, humoral and cell-mediated immunity. Immune deficiencies and hypersensitivities. Autoimmunity, transplantation, and tumor immunology. Prerequisites: BYS 219, BYS 300 and BYS 321. Prerequisite with concurrency: CH 361.

BYS 436 - BIOLOGICAL PSYCHOLOGY

Semester Hours: 3

Functional analysis of neural and endocrine systems underlying behavior. Same as PY 436. Prerequisites: (either a or b): (a) 15 hours of PY or approval of instructor; (b) BYS 120 or BYS 313, and 6 hours of PY.

BYS 437 - PSYCHOBIOLOGY STRESS & ILLNESS

Semester Hours: 3

Overview of psychological stress responses and their influence on health, behavior and illness. Same as PY 437. Prerequisites: approval of instructor.

BYS 464 - EVOLUTION

Semester Hours: 3

Principles of evolution and speciation. Nature of species, selection and adaptation, divergence and cladogenesis, isolation, hybridization, and phylogeny. Prerequisites: BYS 120, 219. Prerequisites with concurrency: BYS 300.

BYS 465 - MOLECULAR MTHDS ECLGY & EVOLU

Semester Hours: 4

This lecture and laboratory course is intended as an intense introduction to modern molecular methods in biological research. Topics include: genetic variation, evolutionary genetics, ecological genetics, genomics, gene expression, phylogenetics, and bioinformatics. Prerequisites: BYS 464.

BYS 490 - SENIOR CAPSTONE

Semester Hours: 2

Discussions, readings, and presentations of topical biological subjects using scientific literature. Capstone course emphasizing refinement of oral and written communication skills and critical thinking. All students will take ETS Major Field Test in Biology as part of the course grade. Prerequisites: BYS 119, 120, 219, and 300. Senior standing.

BYS 491 - SP TOPICS BIOLOGICAL SCI

Semester 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

Semester 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 499 - UNGRAD HONORS RES & THESIS

Semester 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.

Marine Sciences

Select courses in marine sciences, available through the Marine Sciences Consortium at The Dauphin Island Sea Lab (<http://www.disl.org>), may be taken for credit at UAH toward a biological sciences major or minor, a minor in marine sciences, or a Master of Science degree in biological sciences. Marine sciences coursework must be approved by the Marine Sciences Consortium UAH liaison officer in the Biological Sciences Department prior to enrollment in the courses.

MS 202 - MARINE BIOLOGY

Semester Hours: 4

Survey of invertebrates, vertebrates, and marine plants as communities with local examples. Examination of marshland, estuarine, beach, dune, inlet and neritic habitats, and niches. Lecture/Lab/field work. Offered only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, AL. Prerequisites: BYS 119 and BYS 120.

MS 204 - COM MARINE FISHERIES/ALA

Semester Hours: 2

Biology, harvesting technology, and processing of commercially valuable fish and shellfish species of Alabama. Offered only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama. No credit for biological sciences major or minor; can be used for marine science minor.

MS 301 - MARINE TECH METHODS I

Semester Hours: 2

Marine science research equipment, methods, and techniques. Operation and field maintenance of major sampling gear. Only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama. No credit for biological sciences major or minor; can be used for a marine science minor. Prerequisites: BYS 119 and BYS 120.

MS 303 - COASTAL CLIMATOLOGY

Semester Hours: 2

Physical factors resulting in climactic conditions in and near coastal region. Emphasis on northern Gulf of Mexico. Only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama. No credit toward a biological sciences major or minor; can be used for a marine science minor.

MS 304 - COASTAL ZONE MANAGEMENT

Semester 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. Only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama.

MS 491 - SPECIAL TOPICS IN MARINE SCIEN

Semester Hours: 1-4

Biological Sciences, BS

Biological Sciences, BS Requirements:

- Biological Sciences, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3

CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		11-12
Mathematics: Choose one ²		3-4
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose one sequence in Physics		8
PH 101 & PH 102	GENERAL PHYSICS I and GENERAL PHYSICS II	
or		
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		6
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3

EH 301	TECHNICAL WRITING	
Chemistry Requirements: Choose one option		8-12

Option 1:

CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
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or

CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
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and

CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB	
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Option 2:

CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
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CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
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CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	
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Option 3:

CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
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CH 123 & CH 205	GENERAL CHEMISTRY II and ELEM ORGANIC CHEMISTRY LAB	
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CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB	
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Code	Title	Semester Hours
Biology Core ⁵		18

BYS 119	PRINCIPLES OF BIOLOGY	
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BYS 120	ORGANISMAL BIOLOGY	
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BYS 219	GENETICS AND EVOLUTION	
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BYS 300	CELL & DEVELOPMENTAL BIOLOGY	
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BYS 490	SENIOR CAPSTONE	
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Biology Elective Course Requirements		18
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Choose BYC classes, Ex: BYC 321, BYC 312, etc. Enough credits to reach 18 credit hours.

Elective Courses		36-37
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Elective courses 300+ level. If 18 credits of BYC electives and CH 331/CH 335 is chosen, take an additional 8 credits at 300+level. If 18 credits of BYC electives and CH 201/CH 205 is chosen take an additional 12 credits at the 300+ level.

Additional Elective courses 100+ level to reach 128 credit hours. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.

Total Semester Hours		128
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- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required. If the student intends to pursue a course of study requiring more advanced mathematics background, MA 171 is recommended. Otherwise, MA 120 may be used to meet this requirement.
- ³ No more than 6 credit hours can be taken in a single discipline.
- ⁴ For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.
- ⁵ Biology pre requisites require a minimum grade of D- or higher. BYC 301 and BYC 314 pre requisites require a minimum grade of C- or higher.

Sample four year plan for Biological Sciences, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
BYS 120 & 120L	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
Fine art		3
See Requirements tab for approved list.		
Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Year 2		
Fall		
BYS 219 & 219L	GENETICS AND EVOLUTION and LABORATORY	4
CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB	4
Literature Course		3
See Requirements tab for approved list.		
Social and Behavioral science		3
See Requirements tab for approved list.		
Term Semester Hours:		14
Spring		
BYS 300 & 300L	CELL & DEVELOPMENTAL BIOLOGY and CELL & DEVELOPMENT BIO LAB	4
CM 113	Intro to Rhetorical Communication	3
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
Social and Behavioral science		3
See Requirements tab for approved list.		
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Year 3		
Fall		
BYS 300+ level or higher course		4

PH 101 & 101L	GENERAL PHYSICS I and GENERAL PHYSICS I LAB	4
History		3
See Requirements tab for approved list.		
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		17
Spring		
BYS 300+ level or higher course		4
PH 102 & 102L	GENERAL PHYSICS II and GENERAL PHYSICS LAB II	4
2nd History or 3rd Social and Behavioral Science		3
See Requirements tab for approved list.		
CS 100 or CS 102 or CS 103	INTRO COMPUTERS PROGRAM or INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA	3
Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Year 4		
Fall		
BYS 300+ level or higher course		3
BYS 300+ level or higher course		4
EH 301	TECHNICAL WRITING	3
Elective 300+ level or higher course		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
BYS 490	SENIOR CAPSTONE	2
BYS 300+ level or higher course		3
Elective 300+ level or higher course		3
Elective 300+ level or higher course		3
Elective 300+ level or higher course		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		17
Total Semester Hours:		128

Biological Sciences, BS - Biochemistry Concentration

Biological Sciences, Biochemistry Concentration, BS Requirements:

- Biological Sciences, Biochemistry concentration BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshmen Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		12
Mathematics ²		4
MA 171	CALCULUS A	
Natural Science sequence		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	

Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		10
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
or CS 102	INTRO TO C PROGRAMMING	
or CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Required Mathematics		4
MA 172	CALCULUS B	
Biology Core ⁵		18
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
BYS 219	GENETICS AND EVOLUTION	
BYS 300	CELL & DEVELOPMENTAL BIOLOGY	
BYS 490	SENIOR CAPSTONE	
Biochemistry Concentration Requirements		18
BYS 321	GENERAL MICROBIOLOGY I	
BYS 361	GENERAL BIOCHEMISTRY	
BYS 363 & BYS 365	GEN BIOCHEMISTRY II and GEN BIOCHEMISTRY LAB II	
Biology Elective courses 300+ level		
Chemistry Minor Requirements		21
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	
CH 362	GENERAL BIOCHEMISTRY LAB	
Elective Courses		19
Elective course 300+ level or higher, 3 credits		

Additional elective courses, 100+ level, 16 credits. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.

Total Semester Hours 128

- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)+ HY 222)
- 2 Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required.
- 3 No more than 6 credit hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.
- 5 Biology pre requisites require a minimum grade of D- or higher. BYS 301 (<http://catalog.uah.edu/search/?P=BYS%20301>) and BYS 314 (<http://catalog.uah.edu/search/?P=BYS%20314>) pre requisites require a minimum grade of C- or higher.

Sample four year plan for Biological Sciences, Biochemistry Concentration BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
BYS 120 & 120L	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
MA 172	CALCULUS B	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall		
BYS 219 & 219L	GENETICS AND EVOLUTION and LABORATORY	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
Literature		3
See Requirements tab for approved list.		
Fine art		3
See Requirements tab for approved list.		
Social/Behavioral science		3
See Requirements tab for approved list.		
Term Semester Hours:		17

Spring

BYS 300 & 300L	CELL & DEVELOPMENTAL BIOLOGY and CELL & DEVELOPMENT BIO LAB	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		15
Year 3		
Fall		
BYS 321 & 321L	GENERAL MICROBIOLOGY I and LABORATORY	4
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
BYS 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
CS 100 or CS 102 or CS 103	INTRO COMPUTERS PROGRAM or INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA	3
CM 113	Intro to Rhetorical Communication	3
History		3
See Requirements tab for approved list.		
Elective 300+ level or higher course		3
Electives can be taken from any department and do not have to be taken in your major or minor.		
Term Semester Hours:		16
Year 4		
Fall		
BYS 300+ level or higher course		4
EH 301	TECHNICAL WRITING	3
2nd History or 3rd Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Spring

BYS 363 & BYS 365	GEN BIOCHEMISTRY II and GEN BIOCHEMISTRY LAB II	4
BYS 300+ level or higher course		3
BYS 490	SENIOR CAPSTONE	2
Elective		3
Elective		3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Total Semester Hours:		128

Biological Sciences, BS - Ecology and Evolution Concentration

Biological Sciences, Ecology and Evolution Concentration, BS Requirements:

- Biological Sciences, Ecology and Evolution concentration BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207 or EH 242	READINGS LITERATURE/CULTURE I MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	

2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		11-12
Mathematics: Choose one ²		3-4
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose one Physics sequence		8
PH 101 & PH 102	GENERAL PHYSICS I and GENERAL PHYSICS II	
or		
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		9
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Required Mathematics		3
MA 281	ELEMENTS OF STATISTICAL ANALYS	
Code	Title	Semester Hours
Chemistry Requirements: Choose one option		8-12
Option 1:		8

CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
or		
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
and		
CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB	
Option 2:		12
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	
Option 3:		12
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB	

Code	Title	Semester Hours
Biology Core ⁵		18
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
BYS 219	GENETICS AND EVOLUTION	
BYS 300	CELL & DEVELOPMENTAL BIOLOGY	
BYS 490	SENIOR CAPSTONE	
Ecology and Evolution Concentration Requirements		18
BYS 312	PRINCIPLES OF ECOLOGY	
BYS 321	GENERAL MICROBIOLOGY I	
BYS 364	BIOGEOGRAPHY	
BYS 464	EVOLUTION	
BYS 465	MOLECULAR MTHDS ECLGY & EVOLU	
Elective Courses		29-34
Elective courses 300+ level. 8 credits at 300+level if CH 331/CH 335 chosen. 12 credits at 300+ level if CH 201/CH 205 is chosen.		
Additional Elective courses 100+ level to reach 128 credit hours. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.		
Total Semester Hours		128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)+ HY 222)
- ² Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required. If the student intends to pursue a course of study requiring more advanced mathematics background, MA 171 is recommended. Otherwise, MA 120 may be used to meet this requirement.
- ³ No more than 6 credit hours can be taken in a single discipline.
- ⁴ For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.
- ⁵ Biology pre requisites require a minimum grade of D- or higher. BYS 301 (<http://catalog.uah.edu/search/?P=BYS%20301>) and BYS 314 (<http://catalog.uah.edu/search/?P=BYS%20314>) pre requisites require a minimum grade of C- or higher.

Sample four year plan for Biological Sciences, Ecology and Evolution Concentration, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16

Spring

EH 102	COLLEGE WRITING II	3
BYS 120 & 120L	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
Fine Art		3
See Requirements tab for approved list.		
Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		17

Year 2

Fall		
BYS 219 & 219L	GENETICS AND EVOLUTION and LABORATORY	4
ST 281	ELEMENTS OF STAT ANALYSIS	3
CM 113	Intro to Rhetorical Communication	3
Literature		3
See Requirements tab for approved list.		
Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		16

Spring

BYS 300 & 300L	CELL & DEVELOPMENTAL BIOLOGY and CELL & DEVELOPMENT BIO LAB	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		
Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Year 3**Fall**

BYS 312	PRINCIPLES OF ECOLOGY	4
BYS 321 & 321L	GENERAL MICROBIOLOGY I and LABORATORY	4
PH 101 & 101L	GENERAL PHYSICS I and GENERAL PHYSICS I LAB	4
2nd History or 3rd Social/Behavioral science		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
BYS 364	BIOGEOGRAPHY	3
CS 100	INTRO COMPUTERS PROGRAM	3
or CS 102	or INTRO TO C PROGRAMMING	
or CS 103	or INTRO PROGRAMMING USING JAVA	
PH 102 & 102L	GENERAL PHYSICS II and GENERAL PHYSICS LAB II	4
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Year 4		
Fall		
BYS 464	EVOLUTION	3
EH 301	TECHNICAL WRITING	3
Elective 300+ level or higher course		3
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		15
Spring		
BYS 465	MOLECULAR MTHDS ECLGY EVOLU	4
BYS 490	SENIOR CAPSTONE	2
Elective 300+ level or higher course		4
Elective 300+ level or higher course		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Total Semester Hours:		128

Biological Sciences, BS - Exercise Physiology Concentration

The concentration emphasizes sports health to prepare for Professional schools such as Athletic training or Physical therapy. Additional coursework may be required for entry into such programs. See the Pre professional Advising office (<http://www.uah.edu/ppa>) for additional information.

Biological Sciences, Exercise Physiology Concentration, BS Requirements:

- Biological Sciences, Exercise Physiology concentration BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshmen Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		11-12
Mathematics: Choose one ²		3-4
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose one Physics sequence		8
PH 101 & PH 102	GENERAL PHYSICS I and GENERAL PHYSICS II	
or		
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	

History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		6
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
or CS 102	INTRO TO C PROGRAMMING	
or CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Biology Core ⁵		18
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
BYS 219	GENETICS AND EVOLUTION	
BYS 300	CELL & DEVELOPMENTAL BIOLOGY	
BYS 490	SENIOR CAPSTONE	
Code	Title	Semester Hours
Exercise Physiology Concentration Requirements		18
BYS 313	ANATOMY & PHYSIOLOGY I	
BYS 314	ANATOMY & PHYSIOLOGY II	
BYS 401	EXERCISE PHYSIOLOGY	
BYS 402	KINESIOLOGY & BIOMECHANICS	
BYS elective course 300+ level or higher, 2 credits or more		
Exercise Physiology Minor Requirements		25-29
Chemistry Requirement: Select one option		11-15
Option 1:		11
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	

or

CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
and		
CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB	
CH 301	ELEMENTARY BIOCHEMISTRY	
Option 2:		15
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	
CH 301	ELEMENTARY BIOCHEMISTRY	
Option 3:		15
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB	
CH 301	ELEMENTARY BIOCHEMISTRY	
Kinesiology Requirements		14
KIN 210	ATHLC INJURY PREVENTION & CARE	
KIN 240	HEALTH & WELLNESS CONCEPTS	
KIN 300	NUTRITION FOR FITNESS & SPORT	
KIN 351	EXER TEST & PRECR HEALTHY POP	
KIN 352	EXER TEST & PRECR SPECIAL POP	
or KIN 363	TEACHING FITNESS & WELLNESS	
or KIN 370	ADAPTED PHYSICAL EDUCATION	
or Any 400 + level KIN course		
Elective Courses		15-20
Additional Elective courses 100+ level to reach 128 credit hours. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.		
Total Semester Hours		128

- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- 2 Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 (<http://catalog.uah.edu/search/?P=MA%20112>) and/or MA 113 (<http://catalog.uah.edu/search/?P=MA%20113>) Mathematics courses may be required. If the student intends to pursue a course of study requiring more advanced mathematics background, MA 171 (<http://catalog.uah.edu/search/?P=MA%20171>) is recommended. Otherwise, MA 120 (<http://catalog.uah.edu/search/?P=MA%20120>) may be used to meet this requirement.
- 3 No more than 6 credit hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.
- 5 Biology pre requisites require a minimum grade of D- or higher. BYS 301 (<http://catalog.uah.edu/search/?P=BYS%20301>) and BYS 314 (<http://catalog.uah.edu/search/?P=BYS%20314>) pre requisites require a minimum grade of C- or higher.

Sample four year plan for Biological Sciences, Exercise Physiology Concentration, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
BYS 120 & 120L	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
Fine Art		3
See Requirements tab for approved list.		
BYS 100	INTRO HEALTH PROFESSIONS	1
Term Semester Hours:		15

Year 2

Fall		
BYS 219 & 219L	GENETICS AND EVOLUTION and LABORATORY	4
CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB	4
Literature		3
See Requirements tab for approved list.		
Social/Behavioral science		3
See Requirements tab for approved list.		
KIN 240	HEALTH WELLNESS CONCEPTS	3
Term Semester Hours:		17
Spring		
BYS 300 & 300L	CELL & DEVELOPMENTAL BIOLOGY and CELL & DEVELOPMENT BIO LAB	4
CH 301	ELEMENTARY BIOCHEMISTRY	3
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		
Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		16

Year 3

Fall		
BYS 313 & 313L	ANATOMY & PHYSIOLOGY I and LABORATORY	4
PH 101 & 101L	GENERAL PHYSICS I and GENERAL PHYSICS I LAB	4
CM 113	Intro to Rhetorical Communication	3

2nd History or 3rd Social/Behavioral science 3

See Requirements tab for approved list.

Elective 2

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.

	Term Semester Hours:	16
Spring		
BYS 314 & 314L	ANATOMY & PHYSIOLOGY II and ANATOMY/PHYSIOLOGY II LAB	4
PH 102 & 102L	GENERAL PHYSICS II and GENERAL PHYSICS LAB II	4
KIN 210	ATHLC INJURY PREVENTION CARE	3
KIN 300	NUTRITION FOR FITNESS SPORT	3
Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.		

	Term Semester Hours:	16
Year 4		
Fall		
BYS 401 & 401L	EXERCISE PHYSIOLOGY and LABORATORY	4
BYS 402	KINESIOLOGY BIOMECHANICS	4
KIN 351	EXER TEST PRECR HEALTHY POP	3
EH 301	TECHNICAL WRITING	3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.		

	Term Semester Hours:	17
Spring		
BYS 403	ADV EXERCISE PHYSIOLOGY	4
Or BYS 300+ elective course, 3 or 4 credits		
BYS 490	SENIOR CAPSTONE	2
CS 100	INTRO COMPUTERS PROGRAM	3
or CS 102	or INTRO TO C PROGRAMMING	
or CS 103	or INTRO PROGRAMMING USING JAVA	
Elective-PY 300/300L strongly recommended		4
KIN 352	EXER TEST PRECR SPECIAL POP	3
or KIN 363	or TEACHING FITNESS & WELLNESS	
or KIN 370	or ADAPTED PHYSICAL EDUCATION	
or Any 400 + level KIN Course		

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.

Term Semester Hours:	16
Total Semester Hours:	129

Biological Sciences, BS - Microbiology Concentration

Biological Sciences, Microbiology Concentration, BS Requirements:

- Biological Sciences, Microbiology concentration BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshmen Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		11-12
Mathematics: Choose one ²		3-4
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Science: Choose one sequence in Physics		8

PH 101 & PH 102	GENERAL PHYSICS I and GENERAL PHYSICS II	
or		
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		6
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
or CS 102	INTRO TO C PROGRAMMING	
or CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Biology Core ⁵		18
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
BYS 219	GENETICS AND EVOLUTION	
BYS 300	CELL & DEVELOPMENTAL BIOLOGY	
BYS 490	SENIOR CAPSTONE	
Microbiology Concentration Requirements		18
BYS 321	GENERAL MICROBIOLOGY I	
BYS 322	GENERAL MICROBIOLOGY II	
BYS 361	GENERAL BIOCHEMISTRY	
BYS 430	IMMUNOLOGY	
Biology Elective course 300+ level or higher, 3 credits		
Chemistry Minor Requirements		21
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	

CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II
CH 362	GENERAL BIOCHEMISTRY LAB

Elective Courses	24-25
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Elective course 300+ level or higher, 3 credits

Additional elective courses, 100+ level, 21-22 credits. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.

Total Semester Hours	128
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- Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)+ HY 222)
- Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required. If the student intends to pursue a course of study requiring more advanced mathematics background, MA 171 is recommended. Otherwise, MA 120 may be used to meet this requirement.
- No more than 6 credit hours can be taken in a single discipline.
- For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.
- Biology pre requisites require a minimum grade of D- or higher. BYS 301 (<http://catalog.uah.edu/search/?P=BYS%20301>) and BYS 314 (<http://catalog.uah.edu/search/?P=BYS%20314>) pre requisites require a minimum grade of C- or higher.

Sample four year plan for Biological Sciences, Microbiology Concentration BS degree:

Note: This is only an example and variations are possible.

Year 1

		Semester Hours
Fall		
EH 101	COLLEGE WRITING I	3
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
BYS 120 & 120L	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
Fine Art		3
See Requirements tab for approved list.		
Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		17

Year 2

Fall		
BYS 219 & 219L	GENETICS AND EVOLUTION and LABORATORY	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4

Literature		3
See Requirements tab for approved list.		
Social/Behavioral science		3
See Requirements tab for approved list.		
Term Semester Hours:		14
Spring		
BYS 300 & 300L	CELL & DEVELOPMENTAL BIOLOGY and CELL & DEVELOPMENT BIO LAB	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		
Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Year 3		
Fall		
BYS 321 & 321L	GENERAL MICROBIOLOGY I and LABORATORY	4
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 101 & 101L	GENERAL PHYSICS I and GENERAL PHYSICS I LAB	4
2nd History or 3rd Social/Behavioral science		3
See Requirements tab for approved list.		
Term Semester Hours:		15
Spring		
BYS 322 & 322L	GENERAL MICROBIOLOGY II and GENERAL MICROBIOLOGY II LAB	4
BYS 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
PH 102 & 102L	GENERAL PHYSICS II and GENERAL PHYSICS LAB II	4
CM 113	Intro to Rhetorical Communication	3
Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		17
Year 4		
Fall		
EH 301	TECHNICAL WRITING	3
CS 100 or CS 102	INTRO COMPUTERS PROGRAM or INTRO TO C PROGRAMMING	3

or CS 103	or INTRO PROGRAMMING USING JAVA	
BYS 490	SENIOR CAPSTONE	2
BYS 300 + level or higher course		3
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		17
Spring		
BYS 430	IMMUNOLOGY	4
Elective 300+ level course or higher		4
Elective		3
Elective		3
Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Total Semester Hours:		128

Biological Sciences, BS - Pre-Professional Health Careers Concentration

Biological Sciences, Pre Professional Health Careers Concentration, BS Requirements:

- Biological Sciences, Pre Health concentration BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).
- See the Pre Professional Advising office (<http://www.uah.edu/ppa>) for additional information.

Degree Requirements:

Code	Title	Semester Hours
Freshmen Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	

EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		12
Mathematics ²		4
MA 171	CALCULUS A	
Natural Sciences: Choose one Physics sequence		8
PH 101 & PH 102	GENERAL PHYSICS I and GENERAL PHYSICS II	
or		
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		6
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
or CS 102	INTRO TO C PROGRAMMING	
or CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3

EH 301	TECHNICAL WRITING	
Biology Core ⁵		18
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
BYS 219	GENETICS AND EVOLUTION	
BYS 300	CELL & DEVELOPMENTAL BIOLOGY	
BYS 490	SENIOR CAPSTONE	
Pre Professional Health Concentration Requirements		18
BYS 321	GENERAL MICROBIOLOGY I	
BYS 361	GENERAL BIOCHEMISTRY	
Choose one sequence:		
BYS 313 & BYS 314	ANATOMY & PHYSIOLOGY I and ANATOMY & PHYSIOLOGY II	
or		
BYS 317 & BYS 532	VERTEBRATE ZOOLOGY and MEDICAL PHYSIOLOGY	
BYS Elective course 300+ level or higher, 3 credits		
Chemistry Minor Requirements		21
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	
CH 362	GENERAL BIOCHEMISTRY LAB	
Elective Courses		23
Elective course 300+ level or higher, 3 credits		
Additional elective courses, 100+ level or higher, 20 credits. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.		
Total Semester Hours		128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required.
- ³ No more than 6 credit hours can be taken in a single discipline.
- ⁴ For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.
- ⁵ Biology pre requisites require a minimum grade of D- or higher. BYS 301 (<http://catalog.uah.edu/search/?P=BYS%20301>) and BYS 314 (<http://catalog.uah.edu/search/?P=BYS%20314>) pre requisites require a minimum grade of C- or higher.

Sample four year plan for Biological Sciences, Pre Professional Health Careers Concentration, BS degree:

Note: This is only an example and variations are possible.

Plan of study based on Calculus A MA 171, Calculus B MA 172 and General Physics w/ Calculus I & II PH 111 & PH 112.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	4

CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
BYS 120 & 120L	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
MA 172	CALCULUS B	4
BYS 100	INTRO HEALTH PROFESSIONS	1
Term Semester Hours:		16
Year 2		
Fall		
BYS 219 & 219L	GENETICS AND EVOLUTION and LABORATORY	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
Fine Art		3
See Requirements tab for approved list.		
Literature		3
See Requirements tab for approved list.		
CM 113	Intro to Rhetorical Communication	3
Term Semester Hours:		17
Spring		
BYS 300 & 300L	CELL & DEVELOPMENTAL BIOLOGY and CELL & DEVELOPMENT BIO LAB	4
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
PY 101	GENERAL PSYCHOLOGY I	3
Term Semester Hours:		15
Year 3		
Fall		
BYS 321 & 321L	GENERAL MICROBIOLOGY I and LABORATORY	4
BYS 313 & 313L	ANATOMY & PHYSIOLOGY I and LABORATORY	4
BYS 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
Term Semester Hours:		16
Spring		
BYS 314 & 314L	ANATOMY & PHYSIOLOGY II and ANATOMY/PHYSIOLOGY II LAB	4
SOC 100	INTRO TO SOCIOLOGY	3
ST 281	ELEMENTS OF STAT ANALYSIS	3

Humanities, 2nd Fine art or 2nd Literature		3
PHL 102 Strongly recommended-See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		
Term Semester Hours:		16
Year 4		
Fall		
BYS 300+ level or higher course		4
EH 301	TECHNICAL WRITING	3
2nd History or 3rd Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
BYS 300+ level or higher course		3
BYS 490	SENIOR CAPSTONE	2
CS 100	INTRO COMPUTERS PROGRAM	3
or CS 102	or INTRO TO C PROGRAMMING	
or CS 103	or INTRO PROGRAMMING USING JAVA	
Elective 300+ level or higher course		3
Elective		3
Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Total Semester Hours:		128

Sample four year plan for Biological Sciences, Pre Professional Health Careers concentration, BS degree:

Note: This is only an example and variations are possible.

Plan of study based on Calculus A MA 171 and General Physics PH 101 & PH 102.

Year 1

		Semester Hours
Fall		
EH 101	COLLEGE WRITING I	3
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
BYS 120 & 120L	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB	4

CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
Fine art		3
See Requirements tab for approved list		
BYS 100	INTRO HEALTH PROFESSIONS	1
Term Semester Hours:		15
Year 2		
Fall		
BYS 219 & 219L	GENETICS AND EVOLUTION and LABORATORY	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
PH 101 & 101L	GENERAL PHYSICS I and GENERAL PHYSICS I LAB	4
Literature		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
BYS 300 & 300L	CELL & DEVELOPMENTAL BIOLOGY and CELL & DEVELOPMENT BIO LAB	4
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 102 & 102L	GENERAL PHYSICS II and GENERAL PHYSICS LAB II	4
PY 101	GENERAL PSYCHOLOGY I	3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Year 3		
Fall		
BYS 313 & 313L	ANATOMY & PHYSIOLOGY I and LABORATORY	4
BYS 321 & 321L	GENERAL MICROBIOLOGY I and LABORATORY	4
SOC 100	INTRO TO SOCIOLOGY	3
Humanities, 2nd Fine art or 2nd Literature		3
PHL 102 Strongly recommended-See Requirements tab for approved list.		
Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		

BYS 314 & 314L	ANATOMY & PHYSIOLOGY II and ANATOMY/PHYSIOLOGY II LAB	4
BYS 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
CM 113	Intro to Rhetorical Communication	3
History		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		15
Year 4		
Fall		
BYS 300+ level or higher course		4
EH 301 & CH 224	TECHNICAL WRITING and QUANTITATIVE ANALYSIS LAB	4
CH 223	QUANTITATIVE ANALYSIS	3
ST 281	ELEMENTS OF STAT ANALYSIS	3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		17
Spring		
BYS 490	SENIOR CAPSTONE	2
CS 100 or CS 102 or CS 103	INTRO COMPUTERS PROGRAM or INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA	3
Elective 300+ level or higher course		3
Elective		3
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		17
Total Semester Hours:		128

Biological Sciences, BS - Secondary Education Concentration

Biological Sciences, Secondary Education Concentration, BS Requirements:

- Biological Sciences, Secondary Education Concentration BS degree requires a minimum of 136 credit hours.
- 39 of 131 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshmen Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		11-12
Mathematics: Choose one ²		3-4
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Science: Choose one sequence in Physics		8
PH 101	GENERAL PHYSICS I	
& PH 102	and GENERAL PHYSICS II	
or		
PH 111	GEN PHYSICS W/CALCULUS I	
& PH 114	and GENERAL PHYSICS LAB I	
PH 112	GEN PHYSICS W/CALC II	
& PH 115	and GENERAL PHYSICS LAB II	
History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences, required for Education program:		6
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		

Pre Professional	14-18
Computer Science: Choose one	3
CS 100	INTRO COMPUTERS & PROGRAM
or CS 102	INTRO TO C PROGRAMMING
or CS 103	INTRO PROGRAMMING USING JAVA
Technical Writing	3
EH 301	TECHNICAL WRITING
Chemistry Requirement: Choose one option	8-12
Option 1:	8
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
or	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I
and	
CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB
Option 2:	12
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I
Option 3:	12
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB
Biology Core ⁵	18
BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY
BYS 219	GENETICS AND EVOLUTION
BYS 300	CELL & DEVELOPMENTAL BIOLOGY
BYS 490	SENIOR CAPSTONE
Biology Secondary Ed Concentration Requirements	18
BYS 312	PRINCIPLES OF ECOLOGY
BYS 321	GENERAL MICROBIOLOGY I
BYS 301	ELEMENTARY BIOCHEMISTRY
BYS elective courses, 7 credits	

Code	Title	Semester Hours
Secondary Education Courses		40
ED 301	INTRO TO EDUCATION PRACTICUM	
ED 307	MULTICULTURAL FND EDUCATION	
ED 308	EDUCATIONAL PSYCHOLOGY	
EDC 301	TCHG THE EXCEPTIONAL CHILD	
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	
ED 410	FOUNDATIONS EDUC EVALUAT	
ED 423	TCHG SC MID & SEC SCHOOLS	
ED 350	TECHNOLOGY IN CLASSROOM	

ED 408	TCHG READING/CONTENT AREA	
ED 309	CLASSROOM & BEHAVIOR MGMT	
ED 497	HIGH SCHOOL INTERNSHIP	
Total Semester Hours		131-136

- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- 2 Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required. If the student intends to pursue a course of study requiring more advanced mathematics background, MA 171 is recommended. Otherwise, MA 120 may be used to meet this requirement.
- 3 No more than 6 credit hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.
- 5 Biology pre requisites require a minimum grade of D- or higher. BYS 301 (<http://catalog.uah.edu/search/?P=BYS%20301>) and BYS 314 (<http://catalog.uah.edu/search/?P=BYS%20314>) pre requisites require a minimum grade of C- or higher.

Sample four year plan for Biological Sciences, Secondary Education Concentration, BS degree:

Note: This is only an example and variations are possible.

Year 1

		Semester Hours
Fall		
EH 101	COLLEGE WRITING I	3
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
BYS 120 & 120L	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
Fine Art		3
See Requirements tab for approved list.		
PY 101	GENERAL PSYCHOLOGY I	3
Term Semester Hours:		17

Year 2

Fall		
BYS 219 & 219L	GENETICS AND EVOLUTION and LABORATORY	4
CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB	4
Literature		3
See Requirements tab for approved list.		
PY 201	LIFE-SPAN DEVELOPMENT	3
Term Semester Hours:		14
Spring		
BYS 300 & 300L	CELL & DEVELOPMENTAL BIOLOGY and CELL & DEVELOPMENT BIO LAB	4
BYS 301	ELEMENTARY BIOCHEMISTRY	3

Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		
CM 113	Intro to Rhetorical Communication	3
Term Semester Hours:		16
Year 3		
Fall		
BYS 312	PRINCIPLES OF ECOLOGY	4
BYS 321 & 321L	GENERAL MICROBIOLOGY I and LABORATORY	4
PH 101 & 101L	GENERAL PHYSICS I and GENERAL PHYSICS I LAB	4
2nd History or 3rd Social/Behavioral science		3
See Requirements tab for approved list.		
Term Semester Hours:		15
Spring		
BYS 300+ level or higher course		3
BYS 300+ level or higher course		4
PH 102 & 102L	GENERAL PHYSICS II and GENERAL PHYSICS LAB II	4
CS 100 or CS 102 or CS 103	INTRO COMPUTERS PROGRAM or INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA	3
Term Semester Hours:		14
Year 4		
Fall		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
Term Semester Hours:		13
Spring		
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 423	TCHG SC MID SEC SCHOOLS	3
ED 350	TECHNOLOGY IN CLASSROOM	3
EH 301	TECHNICAL WRITING	3
Term Semester Hours:		12
Fifth Year		
Fall		
ED 309	CLASSROOM BEHAVIOR MGMT	3
ED 408	TCHG READING/CONTENT AREA	3
Term Semester Hours:		6
Spring		

ED 497	HIGH SCHOOL INTERNSHIP	12
	Term Semester Hours:	12
	Total Semester Hours:	135

Biological Sciences Minor

A minor in Biological Sciences consists of:

Code	Title	Semester Hours
Chemistry Requirement		4
CH 201 & CH 205	ELEM ORGANIC CHEMISTRY and ELEM ORGANIC CHEMISTRY LAB	
or		
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	
Biology Requirements		21
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
BYS 219	GENETICS AND EVOLUTION	
BYS 300	CELL & DEVELOPMENTAL BIOLOGY	
BYS Elective courses, 300+ level, 5 credits		
Total Semester Hours		25

Chemistry

203-C Materials Science Building

Telephone: 256.824.6153

Email: chem.admin@uah.edu (chem@uah.edu)

The Chemistry department approved by the American Chemical Society offers a Chemistry degree in the following concentrations:

- Chemistry, BS - Biochemistry Concentration (p. 482) (Leading to an ACS-certified degree, includes Biology minor, possible double major)
- Chemistry, BS - Pure Chemistry Concentration (p. 521) (Leading to an ACS-certified degree)
- Chemistry, BS - Chemical Physics Concentration (p. 497) (Leading to an ACS-certified degree)
- Chemistry, BS - Chemical Education Concentration (p. 493) (Leading to an ACS-certified degree)
- Chemistry, BS - Environmental Chemistry Concentration (p. 501) (Leading to an ACS-certified degree)
- Chemistry, BS - Chemical Business Concentration (p. 488) (includes Business minor)
- Chemistry, BS - Basic Chemistry Concentration (p. 477)

Program Objectives

The mission of the Department of Chemistry is to provide high quality undergraduate and graduate education in all aspects of chemistry, with a special emphasis in materials science and biotechnology. Our goal is to educate our students in chemistry, and to provide them with life-long learning skills allowing them to adapt to an ever-changing environment. Our faculty and students strive to generate new knowledge through research and other creative activities that will benefit the residents of Huntsville, the state of Alabama, the nation, and the world.

Learning Outcomes

Graduates in Chemistry will demonstrate:

- Sound conceptual understanding of basic concepts, methods, terminology, and theories of modern chemistry
- Ability to operate a suite of modern chemical instrumentation
- Ability to effectively present chemical knowledge

Majors in Chemistry

- Chemistry, BS - Biochemistry Concentration (p. 482) (Leading to an ACS-certified degree, includes Biology minor, possible double major)
- Chemistry, BS - Pure Chemistry Concentration (p. 521) (Leading to an ACS-certified degree)
- Chemistry, BS - Chemical Physics Concentration (p. 497) (Leading to an ACS-certified degree)

- Chemistry, BS - Chemical Education Concentration (p. 493) (Leading to an ACS-certified degree)
- Chemistry, BS - Environmental Chemistry Concentration (p. 501) (Leading to an ACS-certified degree)
- Chemistry, BS - Chemical Business Concentration (p. 488) (includes Business minor)
- Chemistry, BS - Basic Chemistry Concentration (p. 477)

Minors in Chemistry

- Chemistry Minor (p. 526)
- Chemistry Minor for Chemical Engineering Majors (<http://catalog.uah.edu/undergrad/colleges-departments/science/chemistry/chemistry-minor-eng>)

UAH's Joint Undergraduate Master's Program (JUMP) allows undergraduate students to study at the graduate level. Taking graduate courses during the senior year reduces the time to get a graduate (MS) degree. Please visit JUMP (p. 14) page for general information.

Requirements For Admissions

1. Cumulative overall 3.5 GPA
2. Major GPA of 3.5
3. Student shall complete CH 121 + CH 125, CH 123 + CH 126, CH 223 + CH 224, CH 331 + CH 335, CH 332 + CH 336 by Junior year

Additional Information

- Maximum of 12 credit hours count toward both degrees

Designated Faculty Contact/Advisor

Dr. James Baird MSB 115 256.824.6441
james.baird@uah.edu (james.baird@uah.edu)

CH 101 - INTRO TO CHEMISTRY

Semester Hours: 3

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. No placement examination is required. Prerequisite: MA 110 or prerequisites with concurrency MA 112 or higher and CH 105.

CH 101R - RECITATION

Semester Hours: 0

CH 105 - INTRO CHEMISTRY LAB

Semester Hour: 1

Complements the lecture material for CH 101. Laboratory fundamentals and basic chemical principles. Prerequisite with concurrency: CH 101.

CH 121 - GENERAL CHEMISTRY I

Semester Hours: 3

For science and engineering majors. Chemical properties of elements, their periodic groups, and their compounds. Reactions and stoichiometry. Nature of the chemical bond, molecular structure, thermochemistry. Properties of gases, liquids, and solids. Prerequisite: CH 101 or placement test. Prerequisites with concurrency: MA 113 or higher, and CH 125.

CH 121R - RECITATION

Semester Hours: 0

CH 122 - GENERAL CHEMISTRY ENGINEERS

Semester Hours: 3

This course is designed as a one semester presentation of key aspects in general chemistry and is recommended for all engineering majors except chemical engineers. Covers topic 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 equilibrium; and electrochemistry. Substitutes for CH 121 when transferred to any other curriculum.

CH 123 - GENERAL CHEMISTRY II

Semester Hours: 3

Continuation of CH 121 with in-depth study of topics listed. To be taken concurrently with CH 126. Prerequisite: CH 121.

CH 123R - RECITATION

Semester Hours: 0

CH 125 - GENERAL CHEMISTRY LAB I

Semester Hour: 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 LAB II

Semester Hour: 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 RES

Semester Hour: 1

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 RES

Semester Hours: 2

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 RES

Semester Hours: 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 - ELEM ORGANIC CHEMISTRY

Semester Hours: 3

Survey of nomenclature, structure, functional groups, properties and reactions of organic compounds. Prerequisites: CH 101 and 105 OR CH 121 and 125. Prerequisite with concurrency: CH 205.

CH 205 - ELEM ORGANIC CHEMISTRY LAB

Semester Hour: 1

Laboratory component of CH 201. Includes reactions of organic compounds and functional group modifications. Prerequisite with concurrency: CH 201. Prerequisites: (CH 101 and CH 105) or CH 201 and CH 205).

CH 223 - QUANTITATIVE ANALYSIS

Semester Hours: 3

Introduction to quantitative analytical chemistry including instrumentation. Data treatment, ionic equilibria, elementary electrochemical, spectrochemical, gravimetric, and volumetric techniques. Prerequisite: CH 126. Prerequisite with concurrency: CH 224.

CH 224 - QUANTITATIVE ANALYSIS LAB

Semester Hour: 1

Introduction to quantitative analytical chemistry laboratory. Experiments include pH measurements, spectrochemical, gravimetric, and volumetric titrations. Prerequisite: CH 126. Prerequisite with concurrency: CH 223.

CH 301 - ELEMENTARY BIOCHEMISTRY

Semester Hours: 3

Survey of structure and function of carbohydrates, lipids, proteins and nucleic acids. Enzyme properties and functions. Major metabolic pathways, interactions, and regulation. No credit given to chemistry majors or minors. Credit in CH 361 precludes credit in CH 301. Same as BYS 301. Prerequisites: BYS 120 and either CH 201 or 331.

CH 311L - ORGANIC CHEM I LAB/OAKWOOD

Semester Hour: 1

CH 315 - CHEMISTRY TEACHING METHODS

Semester 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. Permission of instructor.

CH 331 - ORGANIC CHEMISTRY I

Semester Hours: 3

Lecture/Lab includes one two-hour recitation per week. Chemistry of organic compounds. Synthetic methods, theory, and reaction mechanisms. Prerequisite: CH 123.

CH 331R - ORGANIC CHEM I RECITATION

Semester Hours: 0

To be taken as a co-requisite with CH 331. Organic chemistry problem solving, including nomenclature, reactions, mechanisms, spectroscopy, and test-taking strategy.

CH 332 - ORGANIC CHEMISTRY II

Semester Hours: 3

Lecture/Lab Includes one two-hour recitation per week. Continuation of CH 331. Prerequisite: CH 331.

CH 332R - ORGANIC CHEM II RECITATION

Semester Hours: 0

To be taken as a co-requisite with CH 332. Organic chemistry problem solving, including nomenclature, reactions, mechanisms, spectroscopy, and test-taking strategy.

CH 335 - ORGANIC CHEMISTRY LAB I

Semester Hour: 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. Prerequisite: CH 126.

CH 336 - ORGANIC CHEMISTRY LAB II

Semester Hour: 1

Continuation of CH 335. Prerequisite: CH 335. Prerequisite with concurrency: CH 332.

CH 337 - ORGANIC CHEMISTRY LAB III

Semester 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. Prerequisite: CH 336 and approval of instructor.

CH 341 - PHYSICAL CHEMISTRY I

Semester Hours: 3

An introduction to physical chemistry encompassing: the kinetic theory of gases, the laws of thermodynamics, chemical equilibrium, phase equilibria, electrolyte solutions, electrochemistry and elementary theories of statistical thermodynamics. Credit in CH 341 precludes credit in CH 347. Prerequisites: CH 123, PH 112, MA 201, PH 115.

CH 342 - PHYSICAL CHEMISTRY II

Semester Hours: 3

A survey of additional fundamental concepts of physical chemistry including: chemical kinetics, quantum chemistry, atomic structure, group theory, spectroscopy (i.e. IR, Raman, NMR, EMR, etc.), and surface and colloid chemistry. Credit in 342 precludes credit in CH 348. Prerequisite: CH 341.

CH 343 - INTRO TO QUANTUM CHEM

Semester Hours: 3

Quantum mechanical treatment of atoms, molecules, and spectroscopy. Prerequisites: CH 341 and MA 238.

CH 345 - EXPERIMENTAL PHYSICAL CHEM I

Semester Hour: 1

Laboratory and computer investigation into topics covered in physical chemistry CH 341. Includes thermodynamics, chemical equilibria and electrochemistry. The lab involves report writing, data and error analysis, error propagation and linear and nonlinear regression using appropriate software. Prerequisites: CH 223 and 224. Prerequisite with concurrency: CH 341 or 347.

CH 346 - EXPERIMENTAL PHYSICAL CHEM II

Semester Hour: 1

Laboratory and computer investigations into topics covered in physical chemistry CH 342. Includes kinetics, quantum mechanics and spectroscopy. The lab involves report writing, data and error analysis, error propagation and linear and nonlinear regression using appropriate software. Prerequisite: CH 345. Prerequisite with concurrency: CH 342 or 348.

CH 347 - BIOPHYSICAL CHEMISTRY I

Semester 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. Biochemical reaction kinetics. Enzyme catalysis. Same as BYS 347. Prerequisites: CH 332, PH 112 and MA 172, PH 115.

CH 348 - BIOPHYSICAL CHEMISTRY II

Semester Hours: 3

Quantum mechanics. Statistical thermodynamics. Spectroscopy, including UV-VIS, Fluorescence. Circular dichroism, NMR. Structure determinations. Same as BYS 348. Prerequisite: CH 347.

CH 361 - GENERAL BIOCHEMISTRY

Semester Hours: 3

Nomenclature, structure, function, properties, and metabolism of amino acids, carbohydrates, lipids, and nucleic acids. Enzyme function, major catabolic pathways, their interrelations and control mechanisms. Glycolysis, Citric Acid Cycle, and oxidative phosphorylation. Same as BYS 361. Prerequisites: BYS 120, CH 223, CH 224, CH 332, CH 335 OR BYS 311, CH 332, CH 335.

CH 362 - GENERAL BIOCHEMISTRY LAB

Semester Hour: 1

Lecture/Lab One 3-hour lab a week. Practical experience in isolation, qualitative identification, and quantitative estimation of biomolecules. Same as BYS 362. Prerequisites: CH 335 and 336. Prerequisite with concurrency: CH 361.

CH 363 - GEN BIOCHEMISTRY II

Semester Hours: 3

A continuation of CH 361 to include fatty acid and amino acid oxidation, enzymatic synthesis of biomolecules, integration of metabolic processes, DNA and RNA metabolism including replication and transcription, translation and protein synthesis, and regulation of gene expression. Same as BYS 363. Prerequisite: CH 361.

CH 364 - GEN BIOCHEMISTRY LAB II

Semester Hour: 1

Experimental course illustrating the topics in CH 363. Prerequisites: CH 361 and 362. Prerequisite with concurrency: CH 363.

CH 401 - INORGANIC CHEMISTRY

Semester 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. Prerequisite: CH 332.

CH 402 - INORGANIC CHEMISTRY LAB

Semester Hour: 1

Laboratory techniques of inorganic chemistry including synthesis, purification, isolation, and identification of inorganic compounds. Prerequisite with concurrency: CH 401.

CH 421 - INSTRUMENTAL ANALYSIS

Semester 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 347, or BYS 347, or CH 341.

CH 435 - CHEMICAL TOXICOLOGY

Semester Hours: 3

An introduction to the principles of chemical toxicology, including the effects of drugs, environmental pollutants, natural toxins and venoms, and other potentially hazardous chemicals, at the physiological, cellular, and molecular level. Prerequisites: CH 332 and CH 361.

CH 440 - POLYMER SYNTHESIS & CHARACTERI

Semester 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. Prerequisites: CH 331 and CH 332.

CH 480 - SELECTED TOPICS IN CHEM

Semester 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 - INTRO TO CHEMICAL RESEARCH

Semester Hour: 1

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. Prerequisites: Senior standing. Approval of supervising faculty member and chemistry chair required.

CH 492 - INTRO TO CHEMICAL RESEARCH

Semester Hours: 2

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. Prerequisites: Senior standing. Approval of supervising faculty member and chemistry chair required.

CH 493 - INTRO TO CHEMICAL RESEARCH

Semester Hours: 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. Prerequisites: Senior standing. Approval of supervising faculty member and chemistry chair required.

Chemistry, BS

The BS degree in Chemistry consists of the University Charger Foundation requirements, the major core courses, the major elective courses, and ancillary requirements. Beyond these the student may elect other course work to attain 128 semester hours with at least 39 semester hours at the level of 300 or above. The student may also elect a particular concentration. The concentration may require more than 128 semester hours of course work.

The B.S. in Chemistry consists of:

- Major core
- Major electives
- BS General Education Requirements (GER)
- Ancillary requirements
- General electives

Overview of Degree Requirements

See: Academic Policies and Procedures (p. 772).

Code	Title	Semester Hours
Charger Foundations		
College General Education Requirements		41
Major Core Courses		
CH 121	GENERAL CHEMISTRY I	3
CH 123	GENERAL CHEMISTRY II	3
CH 125	GENERAL CHEMISTRY LAB I	1
CH 126	GENERAL CHEMISTRY LAB II	1
CH 223	QUANTITATIVE ANALYSIS	3
CH 224	QUANTITATIVE ANALYSIS LAB	1
CH 331	ORGANIC CHEMISTRY I	3
CH 332	ORGANIC CHEMISTRY II	3
CH 335	ORGANIC CHEMISTRY LAB I	1
CH 361	GENERAL BIOCHEMISTRY	3
CH 401	INORGANIC CHEMISTRY	3
Additional Requirements used in Various Concentrations		
CH 315	CHEMISTRY TEACHING METHODS	3

CH 336	ORGANIC CHEMISTRY LAB II	1
CH 337	ORGANIC CHEMISTRY LAB III	2
CH 341	PHYSICAL CHEMISTRY I	3
CH 342	PHYSICAL CHEMISTRY II	3
CH 345	EXPERIMENTAL PHYSICAL CHEM I	1
CH 346	EXPERIMENTAL PHYSICAL CHEM II	1
CH 347	BIOPHYSICAL CHEMISTRY I	3
CH 348	BIOPHYSICAL CHEMISTRY II	3
CH 362	GENERAL BIOCHEMISTRY LAB	1
CH 363	GEN BIOCHEMISTRY II	3
CH 364	GEN BIOCHEMISTRY LAB II	1
CH 402	INORGANIC CHEMISTRY LAB	1
CH 421	INSTRUMENTAL ANALYSIS	4
CH 435	CHEMICAL TOXICOLOGY	3
CH 440	POLYMER SYNTHESIS & CHARACTERI	3
CH 480	SELECTED TOPICS IN CHEM	1-3
Select one of the following:		
CH 491	INTRO TO CHEMICAL RESEARCH	
CH 492	INTRO TO CHEMICAL RESEARCH	
CH 493	INTRO TO CHEMICAL RESEARCH	

Required Ancillary Courses

Ancillary course work required for the major. These courses may also satisfy Charger Foundation requirements or requirements for a minor if desired.

BYS 119	PRINCIPLES OF BIOLOGY	4
BYS 120	ORGANISMAL BIOLOGY	4
MA 171	CALCULUS A	4
MA 172	CALCULUS B	4
PH 111	GEN PHYSICS W/CALCULUS I	3
PH 112	GEN PHYSICS W/CALC II	3
PH 114	GENERAL PHYSICS LAB I	1
PH 115	GENERAL PHYSICS LAB II	1
EH 301	TECHNICAL WRITING	3
Select one of the following:		
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
CS 121	COMPUTER SCIENCE I	

Total Semester Hours

130-132

Chemistry, BS - Basic Chemistry Concentration

This curriculum meets the minimum university requirements for a major in chemistry.

Chemistry: Basic Chemistry Concentration, BS Requirements:

- Chemistry, Basic Chemistry Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Courses in organic chemistry completed at the junior college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities/2nd Fine Art/2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics: ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	

GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		18
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Required Biology		8
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
Additional Required Mathematics		4
MA 172	CALCULUS B	
Code	Title	Semester Hours
Chemistry		25
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I ⁵	
CH 332	ORGANIC CHEMISTRY II ⁵	
CH 361	GENERAL BIOCHEMISTRY	
CH 401	INORGANIC CHEMISTRY	
Basic Chemistry Courses		12
CH 336	ORGANIC CHEMISTRY LAB II ⁵	
CH 345	EXPERIMENTAL PHYSICAL CHEM I	
CH 421	INSTRUMENTAL ANALYSIS	
Choose one option:		
CH 341 & CH 342	PHYSICAL CHEMISTRY I and PHYSICAL CHEMISTRY II	
OR		
CH 347 & CH 348	BIOPHYSICAL CHEMISTRY I and BIOPHYSICAL CHEMISTRY II	
Elective Courses		31
Elective Courses 300+ level, 11 credits		

Additional elective courses, 100+ level, 20 credits. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.

Total Semester Hours

128

- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- 2 Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- 3 No more than 6 hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (p. 177) department.
- 5 Courses in organic chemistry completed at the 2-year college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Sample four year plan for Chemistry, Basic Chemistry Concentration BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
BYS 119	PRINCIPLES OF BIOLOGY	4
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
BYS 120	ORGANISMAL BIOLOGY	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall		
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CM 113	Intro to Rhetorical Communication	3
Literature		3
See Requirements tab for approved list.		
Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4

CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
Fine Art		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Year 3		
Fall		
CH 341 or CH 347	PHYSICAL CHEMISTRY I or BIOPHYSICAL CHEMISTRY I	3
CH 345	EXPERIMENTAL PHYSICAL CHEM I	1
History		3
Social/Behavioral Science		3
Humanities/Fine Arts/Literature		3
See Requirements tab for approved list		
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
CH 342 or CH 348	PHYSICAL CHEMISTRY II or BIOPHYSICAL CHEMISTRY II	3
CH 361	GENERAL BIOCHEMISTRY	3
CS 100 or CS 102 or CS 103	INTRO COMPUTERS PROGRAM or INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA	3
Social Science		3
See Requirements tab for approved list.		
Elective 300+ level (for example CH 362 or CH 346)		1
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Year 4		
Fall		
CH 401	INORGANIC CHEMISTRY	3
CH 421	INSTRUMENTAL ANALYSIS	4
Elective 300 level or higher		3
Elective 300 level or higher		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
EH 301	TECHNICAL WRITING	3

Social Science	3
See Requirements tab for approved list.	
Elective 300 Level or higher	3
Elective 300 Level or higher (for example CH 402)	1
Elective	3
Elective	3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.	
Term Semester Hours:	16
Total Semester Hours:	128

Chemistry, BS - Biochemistry Concentration

This concentration meets the requirements of the American Chemical Society for certification and serves as preparation for medical school, dental school, veterinary school, pharmacy school, graduate study in biochemistry or employment as a clinical chemist.

Chemistry: Biochemistry Concentration, BS Requirements:

- Chemistry, Biochemistry Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).
- Please see the Pre-Professional Advising Office (<http://www.uah.edu/ppa>) for information about requirements for admission to specific professional schools.

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities or 2nd Fine Art or 2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	

PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics: ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		10
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Required Mathematics		4
MA 172	CALCULUS B	
Code	Title	Semester Hours
Chemistry Core		25
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	

CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I ⁵
CH 332	ORGANIC CHEMISTRY II ⁵
CH 361	GENERAL BIOCHEMISTRY
CH 401	INORGANIC CHEMISTRY

Biochemistry Concentration Requirements	20-22
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CH 336	ORGANIC CHEMISTRY LAB II ⁵
CH 347 & CH 345	BIOPHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I
CH 348 & CH 346	BIOPHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II
CH 362	GENERAL BIOCHEMISTRY LAB
CH 363 & CH 364	GEN BIOCHEMISTRY II and GEN BIOCHEMISTRY LAB II
CH 402	INORGANIC CHEMISTRY LAB
CH 421	INSTRUMENTAL ANALYSIS
CH 491 or CH 492 or CH 493	INTRO TO CHEMICAL RESEARCH INTRO TO CHEMICAL RESEARCH INTRO TO CHEMICAL RESEARCH

Biology Minor Requirements	23
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BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY
BYS 219	GENETICS AND EVOLUTION
BYS 300	CELL & DEVELOPMENTAL BIOLOGY
BYS 321	GENERAL MICROBIOLOGY I

Choose one	3-4
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BYS 430	IMMUNOLOGY
BYS 464	EVOLUTION

(Immunology is required for admission to many Pharmacy schools)

For a double major with Biology, count Biochemistry I and lab as Biology and add BYS 490 and 8 hours of Biology credit (BYS 313+ BYS 314 for example).

Elective Courses	5-8
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Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements

Total Semester Hours	128
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- Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- No more than 6 hours can be taken in a single discipline.
- For choices see the World Languages and Cultures (p. 177) department.
- Courses in organic chemistry completed at the 2-year college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the major.

Sample four year plans for Chemistry, Biochemistry Concentration BS degree:

Note: These are only examples and variations are possible.

Example 1: Chemistry major with Biology minor

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
BYS 119	PRINCIPLES OF BIOLOGY	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
BYS 120	ORGANISMAL BIOLOGY	4
MA 172	CALCULUS B	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		

Term Semester Hours: 16

Year 2

Fall		
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
Fine Art		3
See Requirements tab for approved list.		

Term Semester Hours: 15

Spring		
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
BYS 219	GENETICS AND EVOLUTION	4
CM 113	Intro to Rhetorical Communication	3

Term Semester Hours: 15

Year 3

Fall		
CH 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
CH 347 & CH 345	BIOPHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	4
BYS 300	CELL DEVELOPMENTAL BIOLOGY	4
Literature		3
See Requirements tab for approved list.		
Elective		1

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.

	Term Semester Hours:	16
Spring		
CH 363 & CH 364	GEN BIOCHEMISTRY II and GEN BIOCHEMISTRY LAB II	4
CH 348 & CH 346	BIOPHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	4
BYS 321	GENERAL MICROBIOLOGY I	4
Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
	Term Semester Hours:	18
Year 4		
Fall		
CH 401	INORGANIC CHEMISTRY	3
CH 421	INSTRUMENTAL ANALYSIS	4
BYS 543	MOLECULAR BIOLOGY OF THE CELL (or Social/Behavioral Science)	3
or BYS 430	or IMMUNOLOGY	
CS 100	INTRO COMPUTERS PROGRAM	3
or CS 102	or INTRO TO C PROGRAMMING	
or CS 103	or INTRO PROGRAMMING USING JAVA	
History		3
See Requirements tab for approved list.		
	Term Semester Hours:	16
Spring		
CH 402	INORGANIC CHEMISTRY LAB	1
BYS 519	GENE STRUCTURE FUNCTION (or Social/Behavioral Science)	3
CH 493	INTRO TO CHEMICAL RESEARCH	3
or CH 491	or INTRO TO CHEMICAL RESEARCH	
or CH 492	or INTRO TO CHEMICAL RESEARCH	
May be one, two or three credits per agreement of student and department.		
EH 301	TECHNICAL WRITING	3
History or Social/Behavioral Science		3
Humanities/Fine Art/Literature		3
See Requirements tab for approved list.		
	Term Semester Hours:	16
	Total Semester Hours:	128

Example 2: Chemistry major with double major in Biology

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
BYS 119	PRINCIPLES OF BIOLOGY	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
MA 172	CALCULUS B	4
BYS 120	ORGANISMAL BIOLOGY	4
Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		18

Year 2

Fall		
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
BYS 219	GENETICS AND EVOLUTION	4
Term Semester Hours:		16
Spring		
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
BYS 300	CELL DEVELOPMENTAL BIOLOGY	4
BYS 321	GENERAL MICROBIOLOGY I	4
Term Semester Hours:		16

Year 3

Fall		
CH 347 & CH 345	BIOPHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	4
BYS 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
CH 401	INORGANIC CHEMISTRY	3
Literature		3
History or Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		17
Spring		
CH 348 & CH 346	BIOPHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	4
CS 102	INTRO TO C PROGRAMMING	3

or CS 100	or INTRO COMPUTERS & PROGRAM	
or CS 103	or INTRO PROGRAMMING USING JAVA	
BYS 363 & CH 364	GEN BIOCHEMISTRY II and GEN BIOCHEMISTRY LAB II	4
CM 113	Intro to Rhetorical Communication	3
CH 402	INORGANIC CHEMISTRY LAB	1
CH 491	INTRO TO CHEMICAL RESEARCH	1
May be one, two or three credits per agreement of student and department.		
Term Semester Hours:		16
Year 4		
Fall		
BYS 313	ANATOMY PHYSIOLOGY I	4
CH 421	INSTRUMENTAL ANALYSIS	4
BYS 490	SENIOR CAPSTONE	2
BYS 430	IMMUNOLOGY	4
History		3
See Requirements tab for approved list.		
Term Semester Hours:		17
Spring		
EH 301	TECHNICAL WRITING	3
BYS 314	ANATOMY PHYSIOLOGY II	4
Fine Art		3
Social/Behavioral Science		3
Humanities/Fine Art/Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		16
Total Semester Hours:		132

Chemistry, BS - Chemical Business Concentration

This curriculum is designed to prepare a student to perform business functions in the chemical or pharmaceutical industry.

Chemistry: Chemical Business Concentration, BS Requirements:

- Chemistry, Chemical Business Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3

ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities/2nd Fine Art/2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics: ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		6
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences, counted in Business Minor		
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
OR		
3rd Social and Behavioral Science from below: ³		
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	

SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
Pre Professional		18
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Required Biology		8
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
Additional Required Mathematics		4
MA 172	CALCULUS B	
Code	Title	Semester Hours
Chemistry		25
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I ⁵	
CH 332	ORGANIC CHEMISTRY II ⁵	
CH 361	GENERAL BIOCHEMISTRY	
CH 401	INORGANIC CHEMISTRY	
Chemical Business Courses		15
CH 336	ORGANIC CHEMISTRY LAB II ⁵	
CH 362	GENERAL BIOCHEMISTRY LAB	
CH 341 or CH 347	PHYSICAL CHEMISTRY I BIOPHYSICAL CHEMISTRY I	
CH 345	EXPERIMENTAL PHYSICAL CHEM I	
CH 402	INORGANIC CHEMISTRY LAB	
CH 421	INSTRUMENTAL ANALYSIS	
Business Minor		21
Note: ECN 142 + ECN 143 may be used to fulfill Charger Foundations Social and Behavioral Science requirements.		
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
ACC 211	PRINC OF FINANCIAL ACCOUNTING	
MSC 287	BUSINESS STATISTICS I	
FIN 375	FINANCIAL INSTITUTIONS	
MGT 301	MANAGING ORGANIZATIONS	
MKT 301	PRINCIPLES OF MARKETING	
Elective Courses		13
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.		
Total Semester Hours		128

1

Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)

- 2 Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- 3 No more than 6 hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (p. 177) department.
- 5 Courses in organic chemistry completed at the 2-year college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Sample four year plan for Chemistry, Chemical Business Concentration BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
BYS 119	PRINCIPLES OF BIOLOGY	4
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
BYS 120	ORGANISMAL BIOLOGY	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall		
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
MA 201	CALCULUS C (Required if taking CH 341, can be replaced with an elective if taking CH 347)	4
ECN 142	PRINC OF MACROECONOMICS	3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
ECN 143	PRINC OF MICROECONOMICS	3
Elective		1

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.

Term Semester Hours:		16
Year 3		
Fall		
CH 341 & CH 345	PHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	4
ACC 211	PRINC OF FINANCIAL ACCOUNTING	3
MSC 287	BUSINESS STATISTICS I	3
Literature		3
Fine Art		3
See Requirements tab for approved list.		
Term Semester Hours:		16
Spring		
CH 342 & CH 345	PHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM I	4
CH 361	GENERAL BIOCHEMISTRY	3
CM 113	Intro to Rhetorical Communication	3
Literature/Fine Art/Humanities		3
History		3
See Requirements tab for approved list.		
Term Semester Hours:		16
Year 4		
Fall		
CH 401	INORGANIC CHEMISTRY	3
CH 421	INSTRUMENTAL ANALYSIS	4
EH 301	TECHNICAL WRITING	3
MKT 301	PRINCIPLES OF MARKETING	3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
CH 402	INORGANIC CHEMISTRY LAB	1
MGT 301	MANAGING ORGANIZATIONS	3
FIN 375	FINANCIAL INSTITUTIONS	3
CS 100	INTRO COMPUTERS PROGRAM	3
or CS 102	or INTRO TO C PROGRAMMING	
or CS 103	or INTRO PROGRAMMING USING JAVA	
History or Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Total Semester Hours:		128

Chemistry, BS - Chemical Education Concentration

This concentration meets the requirements of the American Chemical Society for certification and meets the requirements for an Alabama Class B High School Teacher's Certificate.

Chemistry: Chemical Education Concentration, BS Requirements:

- Chemistry, Chemical Education Concentration, BS degree requires 140 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities or 2nd Fine Art or 2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics: ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics		8
PH 111 & PH 114 and	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	

History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences, required for Education program:		6
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
OR		
3rd Social and Behavioral Science from list below: ³		
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
Pre Professional		18
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Biology Requirements		8
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
Additional Required Mathematics		4
MA 172	CALCULUS B	
Code	Title	Semester Hours
Chemistry		25
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I ⁵	
CH 332	ORGANIC CHEMISTRY II	
CH 361	GENERAL BIOCHEMISTRY	
CH 401	INORGANIC CHEMISTRY	
Chemical Education Courses		13-14
CH 315	CHEMISTRY TEACHING METHODS	
CH 341	PHYSICAL CHEMISTRY I	

or CH 347	BIOPHYSICAL CHEMISTRY I	
CH 345	EXPERIMENTAL PHYSICAL CHEM I	
Choose one:		3
CH 342	PHYSICAL CHEMISTRY II	
CH 348	BIOPHYSICAL CHEMISTRY II	
CH 363	GEN BIOCHEMISTRY II	
CH 421	INSTRUMENTAL ANALYSIS	
Choose at least 3 credits from:		3
CH 336	ORGANIC CHEMISTRY LAB II ⁵	
CH 346	EXPERIMENTAL PHYSICAL CHEM II	
CH 362	GENERAL BIOCHEMISTRY LAB	
CH 364	GEN BIOCHEMISTRY LAB II	
CH 402	INORGANIC CHEMISTRY LAB	
CH 421	INSTRUMENTAL ANALYSIS	
Education Courses		40
ED 301	INTRO TO EDUCATION PRACTICUM	
ED 307	MULTICULTURAL FND EDUCATION	
ED 308	EDUCATIONAL PSYCHOLOGY	
EDC 301	TCHG THE EXCEPTIONAL CHILD	
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	
ED 410	FOUNDATIONS EDUC EVALUAT	
ED 423	TCHG SC MID & SEC SCHOOLS	
ED 350	TECHNOLOGY IN CLASSROOM	
ED 309	CLASSROOM & BEHAVIOR MGMT	
ED 408	TCHG READING/CONTENT AREA	
ED 497	HIGH SCHOOL INTERNSHIP	
Total Semester Hours		139-140

- Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- No more than 6 hours can be taken in a single discipline.
- For choices see the World Languages and Cultures (p. 177) department.
- Courses in organic chemistry completed at the 2-year college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Sample four year plan for Chemistry, Chemical Education Concentration BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
FYE 101	CHARGER SUCCESS	1
MA 171	CALCULUS A	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	4
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4

BYS 120 & 120L	ORGANISMAL BIOLOGY and ORGANISMAL BIOLOGY LAB	4
Term Semester Hours:		15
Year 2		
Fall		
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
PY 101	GENERAL PSYCHOLOGY I	3
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		14
Spring		
CH 332	ORGANIC CHEMISTRY II	3
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
PY 201	LIFE-SPAN DEVELOPMENT	3
CH Elective (For example CH 336)		1
Term Semester Hours:		15
Year 3		
Fall		
CH 341 or CH 348	PHYSICAL CHEMISTRY I or BIOPHYSICAL CHEMISTRY II	3
CH 345	EXPERIMENTAL PHYSICAL CHEM I	1
History		3
Fine Art		3
Humanities/Literature/Fine Art		3
See Requirements tab for approved list.		
Term Semester Hours:		13
Spring		
CH 361	GENERAL BIOCHEMISTRY	3
CH Elective (For example CH 362)		1
CM 113	Intro to Rhetorical Communication	3
CS 100 or CS 102 or CS 103	INTRO COMPUTERS PROGRAM or INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA	3
History/Social Science		3
See Requirements tab for approved list.		
Term Semester Hours:		13
Year 4		
Fall		
CH 401	INORGANIC CHEMISTRY	3
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3

EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
Term Semester Hours:		16
Spring		
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 423	TCHG SC MID SEC SCHOOLS	3
ED 350 or ED 309	TECHNOLOGY IN CLASSROOM or CLASSROOM & BEHAVIOR MGMT	3
Chemistry Elective (For example CH 363, CH 342, or CH 348)		3
Chemistry Elective (For example CH 364, CH 464, or CH 402)		1
Term Semester Hours:		13
Fifth Year		
Fall		
ED 408	TCHG READING/CONTENT AREA	3
ED 350 or ED 309	TECHNOLOGY IN CLASSROOM or CLASSROOM & BEHAVIOR MGMT	3
CH 315	CHEMISTRY TEACHING METHODS	3
EH 301	TECHNICAL WRITING	3
Term Semester Hours:		12
Spring		
ED 497	HIGH SCHOOL INTERNSHIP	12
Term Semester Hours:		12
Total Semester Hours:		139

Chemistry, BS - Chemical Physics Concentration

This concentration meets the requirements of the American Chemical Society for certification and is designed for students interested in physicochemical phenomena of atoms, molecules, and condensed matter.

Chemistry: Chemical Physics Concentration, BS Requirements:

- Chemistry, Chemical Physics Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	

ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities or 2nd Fine Art or 2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics: ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		38

Computer Science: Choose one	3
CS 100	INTRO COMPUTERS & PROGRAM
CS 102	INTRO TO C PROGRAMMING
CS 103	INTRO PROGRAMMING USING JAVA
Technical Writing	3
EH 301	TECHNICAL WRITING
Additional Required Biology	8
BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY
Additional Required Mathematics	14
MA 172	CALCULUS B
MA 201	CALCULUS C
MA 238	APPL DIFFERENTIAL EQUATIONS
MA 244	INTRO TO LINEAR ALGEBRA
Additional Required Physics (Note: take one additional 300+ Physics course (3 cr.) if a PH minor is desired.)	10
PH 110	FRONTIERS IN SCIENCE
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III
PH 499	PHYSICS PRACTICUM

Code	Title	Semester Hours
Chemistry		25
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I ⁵	
CH 332	ORGANIC CHEMISTRY II ⁵	
CH 361	GENERAL BIOCHEMISTRY	
CH 401	INORGANIC CHEMISTRY	
Chemical Physics Courses		16-18
CH 336	ORGANIC CHEMISTRY LAB II ⁵	
CH 341 & CH 345	PHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	
CH 342 & CH 346	PHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	
CH 362	GENERAL BIOCHEMISTRY LAB	
CH 402	INORGANIC CHEMISTRY LAB	
CH 421	INSTRUMENTAL ANALYSIS	
CH 491 or CH 492 or CH 493	INTRO TO CHEMICAL RESEARCH INTRO TO CHEMICAL RESEARCH INTRO TO CHEMICAL RESEARCH	

Elective Courses	5-7
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Elective course 300+ level, 2-4 credits

Additional elective courses, 100+ level, 3 credits. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.

Total Semester Hours	128
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¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)

² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.

³ No more than 6 hours can be taken in a single discipline.

⁴ For choices see the World Languages and Cultures (p. 177) department.

⁵ Courses in organic chemistry completed at the 2-year college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Sample four year plan for Chemistry, Chemical Physics Concentration BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
PH 110	FRONTIERS IN SCIENCE	3
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		15
Spring		
EH 102	COLLEGE WRITING II	3
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
MA 172	CALCULUS B	4
BYS 119	PRINCIPLES OF BIOLOGY	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall		
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
MA 201	CALCULUS C	4
BYS 120	ORGANISMAL BIOLOGY	4
Term Semester Hours:		16
Spring		
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
Term Semester Hours:		15

Year 3

Fall		
CH 341 & CH 345	PHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	4
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4

Fine Art		3
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		17
Spring		
CH 342 & CH 346	PHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	4
CH 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
CM 113	Intro to Rhetorical Communication	3
Humanities/Fine Art/Literature		3
Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		17
Year 4		
Fall		
CH 401	INORGANIC CHEMISTRY	3
CH 421	INSTRUMENTAL ANALYSIS	4
EH 301	TECHNICAL WRITING	3
CS 100	INTRO COMPUTERS PROGRAM	3
or CS 102	or INTRO TO C PROGRAMMING	
or CS 103	or INTRO PROGRAMMING USING JAVA	
History		3
See Requirements tab for approved list.		
Term Semester Hours:		16
Spring		
CH 402	INORGANIC CHEMISTRY LAB	1
CH 493	INTRO TO CHEMICAL RESEARCH	3
or CH 491	or INTRO TO CHEMICAL RESEARCH	
or CH 492	or INTRO TO CHEMICAL RESEARCH	
May be one, two or three credits per agreement of student and department.		
PH 499	PHYSICS PRACTICUM	3
History/Social/Behavioral Science		3
Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective 300 level or higher		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Total Semester Hours:		128

Chemistry, BS - Environmental Chemistry Concentration

This concentration meets the requirements of the American Chemical Society for certification and is designed for students interested in the sources, transport, reactions, effects, and fates of chemicals in the atmospheric, soil, and aquatic environments.

Chemistry: Environmental Chemistry Concentration, BS Requirements:

- Chemistry, Environmental Chemistry Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities/2nd Fine Art/2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics: ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics		8
PH 111 & PH 114 and	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	

HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		42
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Required Biology:		8
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
Additional Required Earth System Science		20
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
ESS 301	INTRO TO EARTH & ATMOSPHERIC PHYS	
ESS 305	HYDROLOGY	
ESS 321	POLLUTION PROBLEMS	
ESS 420	INTRO ATMOSPHERIC CHEM & AIR POLLU	
Additional Required Mathematics		8
MA 172	CALCULUS B	
MA 201	CALCULUS C	

Code	Title	Semester Hours
Chemistry		25
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I ⁵	
CH 332	ORGANIC CHEMISTRY II ⁵	
CH 361	GENERAL BIOCHEMISTRY	

CH 401	INORGANIC CHEMISTRY	
Environmental Chemistry Courses		16-18
CH 336	ORGANIC CHEMISTRY LAB II ⁵	
CH 341 & CH 345	PHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	
CH 342 & CH 346	PHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	
CH 362	GENERAL BIOCHEMISTRY LAB	
CH 402	INORGANIC CHEMISTRY LAB	
CH 421	INSTRUMENTAL ANALYSIS	
CH 491 or CH 492 or CH 493	INTRO TO CHEMICAL RESEARCH INTRO TO CHEMICAL RESEARCH INTRO TO CHEMICAL RESEARCH	
Electives		1-3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Total Semester Hours		128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- ³ No more than 6 hours can be taken in a single discipline.
- ⁴ For choices see the World Languages and Cultures (p. 177) department.
- ⁵ Courses in organic chemistry completed at the 2-year college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Year 1

		Semester Hours
Fall		
EH 101	COLLEGE WRITING I	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
BYS 119	PRINCIPLES OF BIOLOGY	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
MA 172	CALCULUS B	4
BYS 120	ORGANISMAL BIOLOGY	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall		
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
ESS 103	ENVIRONMENTAL EARTH SCIENCE	4

MA 201	CALCULUS C	4
Term Semester Hours:		16
Spring		
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
ESS 111	WEATHER, CLIMATE GLOBAL CHNG	4
Term Semester Hours:		16
Year 3		
Fall		
CH 341 & CH 345	PHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	4
CH 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
ESS 301	INTRO TO EARTH ATMOSPHERIC PHYS	3
CM 113	Intro to Rhetorical Communication	3
History		3
See Requirements tab for approved list.		
Term Semester Hours:		17
Spring		
CH 342 & CH 346	PHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	4
ESS 305	HYDROLOGY	3
Fine Art		3
Literature		3
Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		16
Year 4		
Fall		
CH 401	INORGANIC CHEMISTRY	3
CH 421	INSTRUMENTAL ANALYSIS	4
ESS 321	POLLUTION PROBLEMS	3
Computer Science		3
Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		16
Spring		
CH 402	INORGANIC CHEMISTRY LAB	1
May be one, two or three credits per agreement of student and department.		
CH 492 or CH 491	INTRO TO CHEMICAL RESEARCH or INTRO TO CHEMICAL RESEARCH	2
or CH 493	or INTRO TO CHEMICAL RESEARCH	

ESS 420	INTRO ATMOSP CHEM AIR POLLU	3
EH 301	TECHNICAL WRITING	3
Humanities, Fine Art, or Literature		3
History or Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		15
Total Semester Hours:		128

Chemistry, BS - Forensics Chemistry Concentration

This concentration meets the requirements of the American Chemical Society for certification and is designed for a student who plans to do graduate work in forensics chemistry or a related science or desires a forensics science position.

Chemistry: Forensics Chemistry Concentration, BS Requirements:

- Chemistry, Forensics Chemistry Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major--or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
TH 122	THEATRE APPRECIATION	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities or 2nd Fine Art or 2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
PHL 103	INTRODUCTION TO LOGIC	
Any 100 or 200 level Foreign Language ⁴		
WLC 204	INTERNATIONAL CINEMA	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics: ²		4

MA 171	CALCULUS A	
Natural Sciences: Physics		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		10
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Required Mathematics		4
MA 172	CALCULUS B	
Code	Title	Semester Hours
Chemistry		25
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	
CH 332	ORGANIC CHEMISTRY II	
CH 361	GENERAL BIOCHEMISTRY	

CH 401	INORGANIC CHEMISTRY	
Forensics Courses		20-22
CH 336	ORGANIC CHEMISTRY LAB II	
CH 347 & CH 345	BIOPHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	
CH 348 & CH 346	BIOPHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	
CH 362	GENERAL BIOCHEMISTRY LAB	
CH 363 & CH 364	GEN BIOCHEMISTRY II and GEN BIOCHEMISTRY LAB II	
CH 402	INORGANIC CHEMISTRY LAB	
CH 421	INSTRUMENTAL ANALYSIS	
CH 491	INTRO TO CHEMICAL RESEARCH	
or CH 492	INTRO TO CHEMICAL RESEARCH	
or CH 493	INTRO TO CHEMICAL RESEARCH	
Biology Minor		23-24
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
BYS 219	GENETICS AND EVOLUTION	
BYS 300	CELL & DEVELOPMENTAL BIOLOGY	
BYS 321	GENERAL MICROBIOLOGY I	
BYS 430 or BYS 543	IMMUNOLOGY MOLECULAR BIOLOGY OF THE CELL	
Elective Courses		5-7
Additional Elective courses 100+ level to reach 128 credit hours. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count towards degree requirements.		
Total Semester Hours		128

- Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- No more than 6 hours can be taken in a single discipline.
- For choices see the World Languages and Cultures (p. 177) department.

Sample four year plan for Chemistry, Forensics Concentration BS degree:

Note: This is only an example and variations are possible.

Year 1

		Semester Hours
Fall		
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
BYS 119	PRINCIPLES OF BIOLOGY	4
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
BYS 120	ORGANISMAL BIOLOGY	4
Elective		1

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.

Term Semester Hours:		16
Year 2		
Fall		
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		15
Spring		
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
BYS 219	GENETICS AND EVOLUTION	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CM 113	Intro to Rhetorical Communication	3
Term Semester Hours:		15
Year 3		
Fall		
CH 347 & CH 345	BIOPHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	4
CH 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
BYS 300	CELL DEVELOPMENTAL BIOLOGY	4
History		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
CH 348 & CH 346	BIOPHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	4
CH 363 & CH 364	GEN BIOCHEMISTRY II and GEN BIOCHEMISTRY LAB II	4
BYS 321	GENERAL MICROBIOLOGY I	4
Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Year 4		
Fall		

CH 401	INORGANIC CHEMISTRY	3
CH 421	INSTRUMENTAL ANALYSIS	4
CS 100	INTRO COMPUTERS PROGRAM	3
or CS 102	or INTRO TO C PROGRAMMING	
or CS 103	or INTRO PROGRAMMING USING JAVA	
BYS 430	IMMUNOLOGY (or Fine Art)	4
Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		17
Spring		
CH 402	INORGANIC CHEMISTRY LAB	1
EH 301	TECHNICAL WRITING	3
CH 493	INTRO TO CHEMICAL RESEARCH	3
or CH 491	or INTRO TO CHEMICAL RESEARCH	
or CH 492	or INTRO TO CHEMICAL RESEARCH	
BYS 543	MOLECULAR BIOLOGY OF THE CELL (or Fine Art)	3
Literature/Humanities/Fine Art		3
History or Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		17
Total Semester Hours:		128

Chemistry, BS - Materials Chemistry Concentration

This concentration meets the requirements of the American Chemical Society for certification and is designed for students who want to pursue graduate studies or employment in materials chemistry.

Chemistry: Materials Chemistry Concentration, BS Requirements:

- Chemistry, Materials Chemistry Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major--or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	

ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
TH 122	THEATRE APPRECIATION	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities or 2nd Fine Art or 2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ⁴		
WLC 204	INTERNATIONAL CINEMA	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics: ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		

Pre Professional		39
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Required Biology		8
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
Additional Required Mathematics		14
MA 172	CALCULUS B	
MA 201	CALCULUS C	
MA 238	APPL DIFFERENTIAL EQUATIONS	
MA 244	INTRO TO LINEAR ALGEBRA	
Additional Required Physics		4
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
Additional Required Chemical Engineering		
CHE 294 & CHE 295	NATURE & PROPERTIES OF MATLS and NATURE & PROPERTIES MATLS LAB	
CHE 494	APPLIED MATERIALS ENGINEERING	

Code	Title	Semester Hours
Chemistry		25
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	
CH 332	ORGANIC CHEMISTRY II	
CH 361	GENERAL BIOCHEMISTRY	
CH 401	INORGANIC CHEMISTRY	
Materials Chemistry Courses		
CH 336	ORGANIC CHEMISTRY LAB II	
CH 341 & CH 345	PHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	
CH 342 & CH 346	PHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	
CH 362	GENERAL BIOCHEMISTRY LAB	
CH 402	INORGANIC CHEMISTRY LAB	
CH 421	INSTRUMENTAL ANALYSIS	
CH 440	POLYMER SYNTHESIS & CHARACTERI	
CH 491	INTRO TO CHEMICAL RESEARCH	
or CH 492	INTRO TO CHEMICAL RESEARCH	
or CH 493	INTRO TO CHEMICAL RESEARCH	

Elective Courses	1-3
Elective course 300+ level, 0-1 credit	

Additional elective courses, 100+ level, 0-2 credits. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.

Total Semester Hours

128

- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- 2 Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- 3 No more than 6 hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (p. 177) department.

Chemistry, BS - Pre-Pharmacy Concentration

Chemistry-biological sciences program designed to prepare students for admission to pharmacy doctorate or pharmacology Ph.D. graduate programs. This major meets all of the requirements for admission to Auburn or Samford pharmacy schools.

Chemistry: Prepharmacy Concentration, BS Requirements:

- Chemistry, Prepharmacy Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major--or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
TH 122	THEATRE APPRECIATION	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities/2nd Fine Art/2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ⁴		
WLC 204	INTERNATIONAL CINEMA	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		

Mathematics and Sciences		12
Mathematics: ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		13
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Required Mathematics		7
ST/MA 281	ELEMENTS OF STAT ANALYSIS	
MA 172	CALCULUS B	
Code	Title	Semester Hours
Chemistry		25
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	

CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I ⁵
CH 332	ORGANIC CHEMISTRY II ⁵
CH 361	GENERAL BIOCHEMISTRY
CH 401	INORGANIC CHEMISTRY

Pre-Pharmacy Courses 13

CH 336	ORGANIC CHEMISTRY LAB II ⁵
CH 347 & CH 345	BIOPHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I
CH 348 & CH 346	BIOPHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II
CH 362	GENERAL BIOCHEMISTRY LAB
CH 402	INORGANIC CHEMISTRY LAB
CH 421	INSTRUMENTAL ANALYSIS

Biology Double Major 34

BYS/CH 361 will fulfill requirements for both majors

BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY
BYS 219	GENETICS AND EVOLUTION
BYS 300	CELL & DEVELOPMENTAL BIOLOGY
BYS 490	SENIOR CAPSTONE
BYS 313	ANATOMY & PHYSIOLOGY I
BYS 314	ANATOMY & PHYSIOLOGY II
BYS 321	GENERAL MICROBIOLOGY I
BYS/CH 361	GENERAL BIOCHEMISTRY
BYS 430	IMMUNOLOGY

Electives

Additional Elective courses 100+ level, 1 credit to reach 128 credit hours. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count towards degree requirements.

Total Semester Hours 128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- ³ No more than 6 hours can be taken in a single discipline.
- ⁴ For choices see the World Languages and Cultures (p. 177) department.
- ⁵ Courses in organic chemistry completed at the junior college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Sample four year plan for Chemistry, Pre-Pharmacy Concentration BS degree:

Note: This is only an example and variations are possible.

Year 1

		Semester Hours
Fall		
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
BYS 119	PRINCIPLES OF BIOLOGY	4
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4

CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
BYS 120	ORGANISMAL BIOLOGY	4
Term Semester Hours:		15
Year 2		
Fall		
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
Fine Art		3
See Requirements tab for approved list.		
Term Semester Hours:		15
Spring		
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
BYS 219	GENETICS AND EVOLUTION	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
ST 281	ELEMENTS OF STAT ANALYSIS	3
CM 113	Intro to Rhetorical Communication	3
Term Semester Hours:		18
Year 3		
Fall		
CH 347 & CH 345	BIOPHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	4
BYS 300	CELL DEVELOPMENTAL BIOLOGY	4
BYS 313	ANATOMY PHYSIOLOGY I	4
Literature		3
History		3
See Requirements tab for approved list.		
Term Semester Hours:		18
Spring		
CH 348 & CH 346	BIOPHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	4
CH 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
BYS 321	GENERAL MICROBIOLOGY I	4
BYS 314	ANATOMY PHYSIOLOGY II	4
Term Semester Hours:		16
Year 4		
Fall		
CH 401	INORGANIC CHEMISTRY	3
CH 421	INSTRUMENTAL ANALYSIS	4
BYS 430	IMMUNOLOGY	4
Literature/Fine Art/Humanities		3
Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		17

Spring

CH 402	INORGANIC CHEMISTRY LAB	1
BYS 490	SENIOR CAPSTONE	2
EH 301	TECHNICAL WRITING	3
CS 100	INTRO COMPUTERS PROGRAM	3
or CS 102	or INTRO TO C PROGRAMMING	
or CS 103	or INTRO PROGRAMMING USING JAVA	
Social/Behavioral Science		3
History or Social/Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		15
Total Semester Hours:		130

Chemistry, BS - Pre-Professional Concentration

The reduced course requirement for the major in chemistry in this curriculum permits the student to prepare for medical or dental school and to sample courses and subjects outside of the major.

Chemistry: Preprofessional Concentration, BS Requirements:

- Chemistry, Preprofessional Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major--or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
TH 122	THEATRE APPRECIATION	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities/2nd Fine Art/2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language ⁴		

WLC 204	INTERNATIONAL CINEMA	
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics: ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		18
Computer Science: Choose one		3
CS 100	INTRO COMPUTERS & PROGRAM	
CS 102	INTRO TO C PROGRAMMING	
CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Required Biology		8
BYS 119	PRINCIPLES OF BIOLOGY	
BYS 120	ORGANISMAL BIOLOGY	
Additional Required Mathematics		4
MA 172	CALCULUS B	

Code	Title	Semester Hours
Chemistry		25
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I ⁵	
CH 332	ORGANIC CHEMISTRY II ⁵	
CH 361	GENERAL BIOCHEMISTRY	
CH 401	INORGANIC CHEMISTRY	
Pre-Professional Chemistry Courses		18
CH 336	ORGANIC CHEMISTRY LAB II ⁵	
CH 347 & CH 345	BIOPHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	
CH 348 & CH 346	BIOPHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	
CH 362	GENERAL BIOCHEMISTRY LAB	
CH 402	INORGANIC CHEMISTRY LAB	
CH 421	INSTRUMENTAL ANALYSIS	
CH 300+		
Elective Courses		25
Elective courses 300+ level, 5 credits		
Additional elective courses, 100+ level, 20 credits. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.		
Total Semester Hours		128
1	Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)	
2	Based on Math placement (http://www.uah.edu/science/departments/math/undergraduate-students/placement), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.	
3	No more than 6 hours can be taken in a single discipline.	
4	For choices see the World Languages and Cultures (p. 177) department.	
5	Courses in organic chemistry completed at the junior college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.	

Sample four year plan for Chemistry, Pre-Professional Concentration BS degree:

Note: This is only an example and variations are possible.

Year 1

		Semester Hours
Fall		
FYE 101	CHARGER SUCCESS	1
EH 101	COLLEGE WRITING I	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
BYS 119	PRINCIPLES OF BIOLOGY	4
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
CH 123 & CH 125	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB I	4
MA 172	CALCULUS B	4

BYS 120	ORGANISMAL BIOLOGY	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Year 2		
Fall		
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		15
Spring		
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CM 113	Intro to Rhetorical Communication	3
Fine Art		3
See Requirements tab for approved list.		
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		17
Year 3		
Fall		
CH 347 & CH 345	BIOPHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	4
CS 100 or CS 102 or CS 103	INTRO COMPUTERS PROGRAM or INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA	3
Social/Behavioral Science		3
History		3
See Requirements tab for approved list.		
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
CH 348 & CH 346	BIOPHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	4
CH 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
Literature/Humanities/Fine Art		3

Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Year 4		
Fall		
CH 401	INORGANIC CHEMISTRY	3
CH 421	INSTRUMENTAL ANALYSIS	4
History or Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective 300+ level		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
CH 402	INORGANIC CHEMISTRY LAB	1
EH 301	TECHNICAL WRITING	3
Elective 300+ level		3
Elective 300+ level		3
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Total Semester Hours:		128

Chemistry, BS - Pure Chemistry Concentration

This concentration meets the requirements of the American Chemical Society for certification and is designed for a student who plans to do graduate work in chemistry or a related science or desires an industrial position that requires a strong chemical background.

Chemistry: Pure Chemistry Concentration, BS Requirements:

- Chemistry, Pure Chemistry Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12

Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities or 2nd Fine Art or 2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics: ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	

2nd History or 3rd Social and Behavioral Science: Choose one ³	3
2nd History ¹	
3rd Social and Behavioral Science ³	

Pre Professional	22
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Computer Science: Choose one	3
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CS 100	INTRO COMPUTERS & PROGRAM
CS 102	INTRO TO C PROGRAMMING
CS 103	INTRO PROGRAMMING USING JAVA

Technical Writing	3
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EH 301	TECHNICAL WRITING
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Additional Required Biology	8
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BYS 119	PRINCIPLES OF BIOLOGY
BYS 120	ORGANISMAL BIOLOGY

Additional Required Mathematics	8
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MA 172	CALCULUS B
MA 201	CALCULUS C

Code	Title	Semester Hours
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Chemistry Core	25
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CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I ⁵
CH 332	ORGANIC CHEMISTRY II ⁵
CH 361	GENERAL BIOCHEMISTRY
CH 401	INORGANIC CHEMISTRY

Pure Chemistry Concentration Requirements	18-20
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CH 336	ORGANIC CHEMISTRY LAB II ⁵
CH 337	ORGANIC CHEMISTRY LAB III
CH 341 & CH 345	PHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I
CH 342 & CH 346	PHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II
CH 362	GENERAL BIOCHEMISTRY LAB
CH 402	INORGANIC CHEMISTRY LAB
CH 421	INSTRUMENTAL ANALYSIS
CH 491	INTRO TO CHEMICAL RESEARCH
or CH 492	INTRO TO CHEMICAL RESEARCH
or CH 493	INTRO TO CHEMICAL RESEARCH

Elective Courses	19-21
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Elective courses 300+ level: 3-5 credits.

Additional Elective courses: 16 credits. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements

Total Semester Hours	128
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¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)

² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.

- ³ No more than 6 hours can be taken in a single discipline.
- ⁴ For choices see the World Languages and Cultures (p. 177) department.
- ⁵ Courses in organic chemistry completed at the 2-year college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the major.

Sample four year plan for Chemistry, Pure Chemistry Concentration BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 171	CALCULUS A	4
BYS 119	PRINCIPLES OF BIOLOGY	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
MA 172	CALCULUS B	4
BYS 120	ORGANISMAL BIOLOGY	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall		
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
MA 201	CALCULUS C	4
Fine Art		3
See Requirements tab for approved list		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
CH 332 & CH 336	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
Literature		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		
Term Semester Hours:		16

Year 3**Fall**

CH 341 & CH 345	PHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I	4
CH 337	ORGANIC CHEMISTRY LAB III	2
Humanities/Fine Art/Literature		3
See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		
CS 100 or CS 102 or CS 103	INTRO COMPUTERS PROGRAM or INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA	3

Term Semester Hours: 15

Spring

CH 342 & CH 346	PHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II	4
CH 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
CM 113	Intro to Rhetorical Communication	3
Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		

Term Semester Hours: 17

Year 4**Fall**

CH 401	INORGANIC CHEMISTRY	3
CH 421	INSTRUMENTAL ANALYSIS	4
EH 301	TECHNICAL WRITING	3
Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.		

Term Semester Hours: 16

Spring

CH 402	INORGANIC CHEMISTRY LAB	1
CH 493 or CH 491 or CH 492	INTRO TO CHEMICAL RESEARCH or INTRO TO CHEMICAL RESEARCH or INTRO TO CHEMICAL RESEARCH	3
May be one, two or three credits per agreement of student and department.		
History or Social/Behavioral Science		3
See Requirements tab for approved list.		
Elective 300 level or higher		3

Elective	3
Elective	3

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 HPE 100 level courses can count toward degree requirements.

Term Semester Hours:	16
Total Semester Hours:	128

Chemistry Minor for Biology Majors Taking BYS 361 and BYS 362

Course sequences for students wishing to minor in chemistry require at least 21 semester hours of chemistry including 6 or more semester hours numbered 300 or above. Courses in organic chemistry completed at the junior college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Code	Title	Semester Hours
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CH 332	ORGANIC CHEMISTRY II	3
CH 347	BIOPHYSICAL CHEMISTRY I	3
Total Semester Hours		22

Chemistry Minor for Physics and Mathematics Majors

Course sequences for students wishing to minor in chemistry require at least 21 semester hours of chemistry including 6 or more semester hours numbered 300 or above. Courses in organic chemistry completed at the junior college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Code	Title	Semester Hours
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CH 332	ORGANIC CHEMISTRY II	3
CH 341	PHYSICAL CHEMISTRY I	3
CH 342	PHYSICAL CHEMISTRY II	3
Total Semester Hours		21

Chemistry Minor

Course sequences for students wishing to minor in chemistry require at least 21 semester hours of chemistry including 6 or more semester hours numbered 300 or above. Courses in organic chemistry completed at the junior college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Code	Title	Semester Hours
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4

CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CH 332	ORGANIC CHEMISTRY II	3
CH 361	GENERAL BIOCHEMISTRY ¹	1-3
or CH 341	PHYSICAL CHEMISTRY I	
or CH 347	BIOPHYSICAL CHEMISTRY I	
or CH 362	GENERAL BIOCHEMISTRY LAB	
or CH 440	POLYMER SYNTHESIS & CHARACTERI	
Additional credits to reach 21 ¹		0-1
Total Credits		21-22

¹ Additional prerequisites may exist for courses numbered higher than CH 332.

Chemistry Minor for Some Biology Majors

Course sequences for students wishing to minor in chemistry require at least 21 semester hours of chemistry including 6 or more semester hours numbered 300 or above. Courses in organic chemistry completed at the junior college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Code	Title	Semester Hours
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
CH 223 & CH 224	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
CH 332	ORGANIC CHEMISTRY II	3
CH 361 & CH 362	GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB	4
Total Semester Hours		23

Computer Science

300 Technology Hall

Telephone: 256.824.6088

Email: info@cs.uah.edu

The Computer Science department offers the following undergraduate degrees:

- Computer Science, BS (p. 533)
- Computer Science, BS - Entertainment Computing Concentration (<http://catalog.uah.edu/undergrad/colleges-departments/science/computer-science/computer-science-computing>)

Program Objectives

The Computer Science Department, with commitment to excellence in teaching, research, service, and overall development of students, has two primary objectives. First to be nationally and internationally recognized as an institution to which government, industry, and academic leaders turn for opinions on societal issues, especially those involving technology. Second, to ensure an environment where curiosity, discovery, innovation, and entrepreneurship are valued.

Learning Outcomes

Computer Science graduates will be

- Proficient in developing software using modern programming languages
- Proficient in applying mathematical and algorithmic foundations to computing problems
- Effective in team environments to accomplish common goals

Majors in Computer Science

- Computer Science, BS (p. 533)
- Computer Science, BS - Entertainment Computing Concentration (<http://catalog.uah.edu/undergrad/colleges-departments/science/computer-science/computer-science-computing>)

For more information about the Computer Science department, please visit cs.uah.edu.

Minors in Computer Science

- Computer Science (p. 542)
- Computer Languages and Systems (p. 542)
- Entertainment Computing (<http://catalog.uah.edu/undergrad/colleges-departments/science/computer-science/entertainment-computing>)

UAH's Joint Undergraduate Master's Program (JUMP) allows undergraduate students to study at the graduate level. By taking graduate courses in your senior year you could reduce the time taken to get a graduate (MS) degree. Please visit JUMP (p. 14) page for general information.

Requirements For Admission

1. Cumulative overall 3.25 GPA
2. Major GPA of 3.5
3. Must complete CS 317 and CS 321 before applying to program

Additional Information

1. Maximum of 12 credit hours count toward both degrees
2. Many students will take CS 524 instead of CS 424 and up to three additional graduate courses to be chosen in conjunction with the JUMP advisor

Designated Faculty Contact/Advisor

Dr. Weisskopf weisskopf@cs.uah.edu
256.824.6306

CS 100 - INTRO COMPUTERS & PROGRAM

Semester Hours: 3

Introduction to program design and implementation in the Visual Basic programming language, using hands-on programming assignments, class demonstrations and lectures. Problem analysis and some testing techniques. Basic program structure, data types, control structures, and file organization.

CS 102 - INTRO TO C PROGRAMMING

Semester Hours: 3

Introduction to program design and implementation in the C programming language, using hands-on programming assignments, class demonstrations and lectures. Problem analysis and some testing techniques. Basic program structure, and file organization.

CS 103 - INTRO PROGRAMMING USING JAVA

Semester Hours: 3

Introduction to 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 program structure, data types, control structures, methods and file organization.

CS 104 - INTRO TO CS USING PYTHON

Semester Hours: 3

Introduction to program design and implementation in the Python programming language, using hands-on programming assignments, class demonstrations and lectures. Problem analysis and some testing techniques. Basic program structure, and file organization.

CS 105 - COMP SCI SEM:ETH/PROFESS

Semester Hour: 1

Issues associated with the ethical use of computers in the 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

Semester Hours: 3

Review of problem solving techniques, algorithm development, and fundamental language features; e.g., loops, decisions. In depth coverage of functions, arrays, I/O. Principles of software design, implementation, and testing. Introduction to object oriented design and the C++ programming language. Prerequisites: CS 102 or 103, and either MA 113, 115, 120, 171, 172, 201, 238, or 244.

CS 143 - INTRO TECH MULTIMEDIA & GAMING

Semester Hours: 3

Introduction to terminology, technologies and tools for multimedia and gaming. Elements such as text, sound, images, animation, video, and how they are represented, captured, edited, stored, and published. Overview of multimedia and gaming technologies, multimedia authoring, publishing on the web.

CS 214 - INTRO DISCRETE STRUCTURE

Semester 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: MA 171 and either CS 121 or CPE 211.

CS 217 - ANALYTIC TECH GAMING

Semester Hours: 3

Mathematics for understanding & implementing 3-dimensional graphics & interactive physical modeling in computer games. Topics: coordinate systems, vectors, matrices, transformations, kinematics, dynamics, automata, and probability. Focused on practical mathematics rather than theoretical derivations. Prerequisites: MA 120 or MA 171.

CS 221 - COMP SCI II: DATA STRUCTURES

Semester Hours: 3

Advanced features of the C++ programming language, including pointers, recursion, classes, and inheritance. Fundamental data structures including linked lists, stacks, queues, binary search trees. Basic sort and search algorithms. Design, development, and documentation of object-oriented programs. Prerequisites: CS 121 and either MA 113, or 115. Prerequisites with concurrency: MA 171 or CS 217.

CS 307 - OBJECT ORIENT/PROG C++

Semester Hours: 3

Emphasis on principles of software engineering and object-oriented design. Practical experience using the standard C++ library, the standard template library, and design patterns. Introduction to and experience with graphical user interface applications. Prerequisite: CS 221.

CS 308 - ASSEMBLY LANGUAGE PROGRAMMING

Semester Hours: 3

Programming in a representative assembly language, including floating point programming. Overview of software systems: loaders, assemblers, compiler, interpreters, operating systems. Prerequisite: CS 309.

CS 309 - COMPUTER ORG & SWTCHNG THRY

Semester Hours: 3

Boolean algebra, Boolean function minimization techniques, design and analysis of combinational circuits, design and analysis of sequential circuits. Computer hardware organization, including CPU, instruction representation and executive. Programing in a representative assembly language, including floating point programming. Overview of software systems: loaders, assembler, compiler, interpreters, operating systems. A lab section must be scheduled for this course. Prerequisite: CS 214.

CS 309L - LABORATORY

Semester Hours: 0

Lecture/Lab 3. Students enrolling in CS 309L must enroll concurrently in CS 309.

CS 317 - INTRO DESIGN/ANALYSIS OF ALG

Semester Hours: 3

Introduction to complexity analysis of algorithms; emphasis on searching, sorting, finding spanning trees and shortest paths in graphs. Design techniques such as divide & conquer, dynamic programming, and backtracking. Introduction to problem classification; i.e. NP, intractable, and unsolvable. Prerequisites: MA 244 and CS 214, and either CS 221 or CPE 212.

CS 321 - INTRO OBJECT-ORIENTED PROG JAV

Semester Hours: 3

Writing substantial object-oriented programs in Java, including 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++. Prerequisite: CS 221.

CS 325 - PROFESSIONAL & COMPUTG ETHICS

Semester 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.

CS 330 - ARTFCL INTEL & GAME DEV

Semester Hours: 3

Techniques and concepts of artificial intelligence applied game development and production. Topics: path planning, decision making, tactics, and non-rational behaviors. Prerequisite: CS 221.

CS 347 - INTRO VIDEO GAME DESGN & PROGM

Semester Hours: 3

Provides students with an overview of the video game production process. Covers both theory and practice of game design and programming. Students produce 2D and 3D games from beginning to end using existing game engines. Hands-on focus and project-oriented. CS 143 is highly recommended. Prerequisite: CS 221.

CS 371 - MOBILE COMPUTING APP INCT & D

Semester Hours: 3

Considers application design for the mobile space with emphasis on mobile computer interfaces, including GUI for mobile environments, entertainment computing, and cross-platform development. This course is also a component of the Entertainment Computing Track. Prerequisites: CS 221 or CPE 212.

CS 390 - UNIX PROGRAMMING

Semester Hours: 3

Design and development of systems and programs in the UNIX environment. File and terminal I/O, processes, inter-process communication, signals. Pattern searching, filters, pipes. Shell programming. Program and system development tools such as awk, C, make, sed, and yacc. Prerequisite: CS 221.

CS 391 - INT NETWORK ADMIN PRINC WINDOW

Semester Hours: 3

Network administration principles for installing and administrating Windows networks. OS installation, general network topologies and protocols, and Windows client-server architecture. User management, network file and security systems, and disaster-recovery are also covered. Prerequisite: CS 221.

CS 392 - INT NETWORK ADMIN PRINC FOR UN

Semester Hours: 3

Linux OS installation, network topologies and protocols, and UNIX client-server architecture. User management, network file and security systems, kernel configuration, print servers, domain name service, mail servers, Web and ftp servers are included. Design and implementation of a UNIX domain. Prerequisite: CS 390.

CS 396 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Must have approval of instructor.

CS 397 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Must have approval of instructor.

CS 398 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Must have approval of instructor.

CS 403 - INT FORML LANG AUTO THRY

Semester 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. Prerequisite: CS 317.

CS 413 - INTRO DIGITAL COMP ARCHITECTUR

Semester Hours: 3

Design of computer systems and subsystems, including register transfer, bus structure, timing and control. Pipelining, memory systems including cache and cache coherence, arithmetic, and I/O units. Interrupt handling. A lab section must be scheduled for this course. Prerequisite: CS 309.

CS 413L - LABORATORY

Semester Hours: 0

Lecture/Lab 3. Students enrolling in CS 413L must enroll concurrently in CS 413.

CS 424 - PROGRAMMING LANGUAGES

Semester Hours: 3

Principles of modern programming language features and design. Comparative study of language paradigms. Overview of language implementation, including lexical, syntax, and semantic analysis. Formal grammars, BNF notation. Brief history of programming languages. Prerequisite: CS 317.

CS 443 - INTRO TO MULTIMEDIA SYSTEMS

Semester Hours: 3

Multimedia authoring, color models for image and video, introduction to image and video compression, digital audio, multimedia networks, multimedia synchronization, multimedia retrieval. Taught as CS 443, 543. Prerequisite: CS 317.

CS 445 - INTRO COMPUTER GRAPHICS

Semester Hours: 3

Introduces underlying theory and mechanics of interactive computer graphics. Basic modeling, rasterization, 2D/3D transformations, and viewing. 3D graphics rudiments. Some hardware and historical perspectives. Many programs. Same as CS 545; take only one! Prerequisites: CS 221 and MA 244 or CS 217.

CS 446 - ADVANCED COMPUTER GRAPHICS

Semester Hours: 3

High resolution 3D graphics. Advanced topics in viewing, vertex &, fragment processing, illumination & shading, 3D modeling (curve & surface representation, texture mapping. Some coverage of solid modeling and color theory. Game production pipeline. Many programming projects. Taught as CS 446, 546. Prerequisites: CS 445 and at least junior standing.

CS 447 - GAME ENGINES & LEVEL DEVELOPMNT

Semester Hours: 3

Students produce fully functional games from beginning to end with team members. Focused on engineering development and art asset generation and management. Examines the design, development, and distribution of computer games using game engines for cross-platform implementation. Taught as CS 447, 547. Prerequisites: CS 330 and CS 445.

CS 453 - CLIENT/SERVER ARCHITECTURES

Semester Hours: 3

Aspects of client/server distributed computing, a paradigm that includes technologies addressing web services (such as AJAX using JavaScript/PHP, ASP.NET) as well as distributed objects (such as .NET remoting, CORBA). Students will apply the concepts in practical distributed programs. Prerequisites: CS 307 or CS 321. CS 470 is recommended.

CS 454 - INTRO TO CLOUD COMPUTING

Semester Hours: 3

Different cloud computing paradigms: IaaS, SaaS, PaaS. Open Source cloud software (for ex., OpenStack, CloudStack). RESTful interfaces, AWS interface. Cloud Security. Taught as CS 454, 554. Prerequisites: CS 307 or CS 321.

CS 465 - NETWORK SECURITY

Semester Hours: 3

Introduction to Network Security: Fundamentals of network security and cryptography. Examines security at different network layers. Wireless security. Firewalls. Intrusion detection and penetration analysis. Prerequisites: CS 121, CS 221 or CPE 221.

CS 470 - INTRO TO COMPUTER NETWORKS

Semester 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. Prerequisite: CS 413.

CS 480 - MOBILE DIGITAL FORENSICS

Semester Hours: 3

This course examines digital forensics of mobile devices such as smart phones and tablets in a law enforcement context. Mobile device characteristics that make forensics examinations difficult are discussed. Various forensic tools are critically examined with an eye toward improved tool development. Prerequisites: CS 413 or CPE 323.

CS 485 - COMPUTER & SOFTWARE SECURITY

Semester Hours: 3

This course examines the issues related to security policies, models and mechanisms applicable to providing security for computer-based systems including operating systems, database management systems, and networks. Corequisite: CS 490.

CS 487 - DATABASE SYSTEMS

Semester Hours: 3

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. Senior standing required.

CS 488 - INTRO TO BIG DATA COMPUTING

Semester Hours: 3

Provides big data concepts and characteristics; big data architectural concepts; big data ecosystem. Includes MapReduce framework and programming and coverage of big data applications. Prerequisite: CS 317.

CS 490 - INTRO TO OPERATING SYSTEMS

Semester Hours: 3

Principles of operating systems. Process management, memory management, I/O management, and file systems. Specific topics include process states, threads, CPU scheduling, concurrent processing, virtual memory. Contemporary operating systems will be used as examples. Prerequisite: CS 413.

CS 495 - SEL TOPICS:UNDERGRAD CS

Semester Hours: 3

Individual directed study under the supervision of an instructor. Instructor approval required.

CS 496 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Instructor approval required.

CS 497 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Instructor approval required.

CS 498 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Instructor approval required.

CS 499 - SR PROJ:TEAM SOFTWARE DESIGN

Semester 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. Prerequisite: CS 317.

Computer Science, BS

Computer Science, BS Requirements:

- Computer Science, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- A transfer student must complete a minimum of 18 hours of CS courses at UAH in order to obtain a degree in Computer Science.
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics ²		4
MA 171	CALCULUS A	
Natural Sciences: Choose one sequence in Biology, Chemistry, or Physics		8
BYS 119 & BYS 120	PRINCIPLES OF BIOLOGY and ORGANISMAL BIOLOGY	
or		
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
and		
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	

or

PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
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and

PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
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History and Social and Behavioral Sciences 12

History: Choose one ¹ 3

HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877

Social and Behavioral Sciences: Choose two 6

ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
GS 200	GLOBAL SYSTEMS AND CULTURES
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT

2nd History or 3rd Social and Behavioral Science: Choose one ³ 3

2nd History ¹

3rd Social and Behavioral Science ³

Pre Professional 23-24

Computer Science: Choose one 3

CS 102	INTRO TO C PROGRAMMING
or CS 103	INTRO PROGRAMMING USING JAVA

Technical Writing 3

EH 301	TECHNICAL WRITING
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Code	Title	Semester Hours
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Additional Lab Science: Choose one option 4

AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III

Additional Required Mathematics 13-14

MA 172	CALCULUS B
MA 244	INTRO TO LINEAR ALGEBRA
MA 385	INTRO TO PROBABILITY & STATIST
MA 200+ level or higher course. For a Math minor, choose MA 201 to fulfill this requirement. ⁵	

Computer Science Major Requirements 46

CS 105	COMP SCI SEM:ETH/PROFESS
CS 121	COMPUTER SCIENCE I
CS 214	INTRO DISCRETE STRUCTURE
CS 221	COMP SCI II: DATA STRUCTURES
CS 309 & 309L	COMPUTER ORG & SWITCHNG THRY and LABORATORY
CS 317	INTRO DESIGN/ANALYSIS OF ALG
CS 321	INTRO OBJECT-ORIENTED PROG JAV
CS 413 & 413L	INTRO DIGITAL COMP ARCHITECTUR and LABORATORY
CS 424	PROGRAMMING LANGUAGES
CS 490	INTRO TO OPERATING SYSTEMS
CS 499	SR PROJ:TEAM SOFTWARE DESIGN

CS 300+ or 400+ elective courses. 9

CS 300+ or 400+ level course
CS 300+ or 400+ level course
CS 300+ or 400+ level course
Choose CS courses at the 300 or 400 level not listed in required courses above, Ex: CS 330, CS 347, CS 371, CS 390, CS 445

CS 400+ elective courses. 6

CS 400+ level course
CS 400+ level course
Choose CS courses at the 400 level not listed in required courses above, Ex: CS 403, CS 443, CS 445, CS 453, CS 454, CS 465, CS 487

Technical Elective: Choose one 3

Any College of Science Course 300+ or 400+ level. Example, MA 433 or an additional CS 300+ or 400+ course.	
CPE 412	INTRO TO PARALLEL PROGRAMMING
CPE 436	INTERNALS OF MODERN OPER SYS
PHL 317	PHILOSOPHY OF MIND
PHL 320	SYMBOLIC LOGIC
IS 422	SUPPLY CHAIN MANAGEMENT SYSTEM
IS 460	TELECOMMUNICATIONS & NETWORK'G
IS 463	COMPUTER FORENSICS
IS 471	BUSINESS INTELLIGENCE & ANALYT
IS 477	NETWORK DEFENSE/OPERATING SYS

Elective Courses 13-14

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credits of 100 level HPE courses can count toward degree requirements.

Total Semester Hours 128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.
- ³ No more than 6 hours can be taken in a single discipline.
- ⁴ For choices see the World Languages and Cultures (p. 177) department.
- ⁵ To complete Math minor, choose MA 201 and take one additional MA 300+ course.

Sample four year plan for Computer Science, starting in MA 171, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
CS 102	INTRO TO C PROGRAMMING	3
or CS 103	or INTRO PROGRAMMING USING JAVA	
CS 105	COMP SCI SEM:ETH/PROFESS	1
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Lab Science (See Requirements tab for approved list)		4
Term Semester Hours:		16

Spring

EH 102	COLLEGE WRITING II	3
CS 121	COMPUTER SCIENCE I	3
MA 172	CALCULUS B	4
Lab Science (See Requirements tab for approved list)		4
Fine Art (See Requirements tab for approved list)		3
Term Semester Hours:		17

Year 2

Fall		
CS 221	COMP SCI II: DATA STRUCTURES	3
CS 214	INTRO DISCRETE STRUCTURE	3
MA 200+ level or higher course		3 or 4
If interested in a Math minor, take MA 201, Calculus C		
Lab Science (See Requirements tab for approved list)		4
Literature (See Requirements tab for approved list)		3
Term Semester Hours:		16-17

Spring

CS 309	COMPUTER ORG SWITCHNG THRY	3
CS 321	INTRO OBJECT-ORIENTED PROG JAV	3
MA 244	INTRO TO LINEAR ALGEBRA	3
Humanities, 2nd Fine art or 2nd Literature (See Requirements tab for approved list)		3
Social and Behavioral Science (See Requirements tab for approved list)		3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor.		
No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Year 3**Fall**

CS 317	INTRO DESIGN/ANALYSIS OF ALG	3
MA 385	INTRO TO PROBABILITY STATIST	3
History (See Requirements tab for approved list)		3
Social and Behavioral Science (See Requirements tab for approved list)		3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor.		
No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		13
Spring		
CS 413	INTRO DIGITAL COMP ARCHITECTUR	3
CS 300+ Elective course		3
Choose CS courses at the 300 level not listed in required courses, Ex: CS 330, CS 347, CS 371, CS 390		
MA 300+ level or higher course or Elective		3
For a Math minor take MA 300+ level or higher course or choose an Elective.		
Electives can be taken from any department and do not have to be taken in your major or minor.		
2nd History or 3rd Social and Behavioral Science (See Requirements tab for approved list)		3
CM 113	Intro to Rhetorical Communication	3
Term Semester Hours:		15
Year 4		
Fall		
CS 490	INTRO TO OPERATING SYSTEMS	3
CS 424	PROGRAMMING LANGUAGES	3
CS 300+ Elective course		3
Choose CS courses at the 300 level not listed in required courses, Ex: CS 330, CS 347, CS 371, CS 390		
Technical Elective		3
Choose any 300+ level or higher course in the College of Science, IS 400+ course, CPE 412, CPE 436, or PHL 320		
EH 301	TECHNICAL WRITING	3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor.		
No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
CS 499	SR PROJ:TEAM SOFTWARE DESIGN	3
CS 400+ Elective course		3
CS 400+ Elective course		3
Choose CS courses at the 400 level not listed in required courses.		
Ex: CS 403, CS 443, CS 445, CS 453, CS 454, CS 465, CS 487		
Elective		3

Elective 4

Electives can be taken from any department and do not have to be taken in your major or minor.

No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

Term Semester Hours:	16
Total Semester Hours:	125-126

Sample four year plan for Computer Science, starting in MA 113, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
CS 102	INTRO TO C PROGRAMMING	3
CS 105	COMP SCI SEM:ETH/PROFESS	1
MA 113	PRECALCULUS TRIGONOMETRY	3
FYE 101	CHARGER SUCCESS	1
Lab Science		4
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		

Term Semester Hours: 16

Spring

EH 102	COLLEGE WRITING II	3
CS 121	COMPUTER SCIENCE I	3
MA 171	CALCULUS A	4
Fine art		3
See Requirements tab for approved list.		
Social and Behavioral science		3
See Requirements tab for approved list.		

Term Semester Hours: 16

Year 2

Fall		
CS 221	COMP SCI II: DATA STRUCTURES	3
CS 214	INTRO DISCRETE STRUCTURE	3
MA 172	CALCULUS B	4
Literature		3
See Requirements tab for approved list.		
Social and Behavioral science		3
See Requirements tab for approved list.		

Term Semester Hours: 16

Spring

CS 309 & 309L	COMPUTER ORG & SWITCHNG THRY and LABORATORY	3
CS 321	INTRO OBJECT-ORIENTED PROG JAV	3
MA 244	INTRO TO LINEAR ALGEBRA	3
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		

Lab Science		4
See Requirements tab for approved list.		
Term Semester Hours:		16
Year 3		
Fall		
CS 300+ elective		
CS 317	INTRO DESIGN/ANALYSIS OF ALG	3
MA 200+ level or higher course		3 or 4
If interested in a Math minor, take MA 201, Calculus C		
CM 113	Intro to Rhetorical Communication	3
Lab Science		4
See Requirements tab for approved list.		
Term Semester Hours:		13-14
Spring		
CS 413	INTRO DIGITAL COMP	3
& 413L	ARCHITECTUR and LABORATORY	
CS 424	PROGRAMMING LANGUAGES	3
CS 300+ Elective course		3
Choose CS courses at the 300 level not listed in required courses, Ex: CS 330, CS 347, CS 371, CS 390		
MA 385	INTRO TO PROBABILITY STATIST	3
History		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Year 4		
Fall		
CS 300+ Elective course		3
Choose CS courses at the 300 level not listed in required courses, Ex: CS 330, CS 347, CS 371, CS 390		
CS 400+ Elective course		3
Choose CS courses at the 400 level not listed in required courses, Ex: CS 403, CS 443, CS 445, CS 453, CS 454, CS 465, CS 487		
History		3
See Requirements tab for approved list.		
EH 301	TECHNICAL WRITING	3
MA 300+ level or higher course or		3
Elective		
For a Math minor take MA 300+ level or higher course or choose an Elective. Electives can be taken from any department and do not have to be taken in your major or minor.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
CS 499	SR PROJ:TEAM SOFTWARE DESIGN	3
CS 490	INTRO TO OPERATING SYSTEMS	3

CS 400+ Elective course	3
Choose CS courses at the 400 level not listed in required courses, Ex: CS 403, CS 443, CS 445, CS 453, CS 454, CS 465, CS 487	
Technical elective	3
Choose any 300+ level or higher course in the College of Science, IS 400+ course, CPE 412, CPE 436, or PHL 320	
Elective	3
Elective	1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.	
Term Semester Hours:	16
Total Semester Hours:	125-126

Sample four year plan for Computer Science, starting in MA 112, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
CS 102	INTRO TO C PROGRAMMING	3
CS 105	COMP SCI SEM:ETH/PROFESS	1
MA 112	PRECALCULUS ALGEBRA	3
FYE 101	CHARGER SUCCESS	1
Lab Science		4
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor.		
No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Spring

EH 102	COLLEGE WRITING II	3
CS 121	COMPUTER SCIENCE I	3
MA 113	PRECALCULUS TRIGONOMETRY	3
Fine art		3
See Requirements tab for approved list.		
Social and Behavioral Science		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor.		
No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall		
CS 221	COMP SCI II: DATA STRUCTURES	3
MA 171	CALCULUS A	4
CM 113	Intro to Rhetorical Communication	3
Literature		3
See Requirements tab for approved list.		
Social and Behavioral Science		3

See Requirements tab for approved list.

	Term Semester Hours:	16
Spring		
CS 309 & 309L	COMPUTER ORG & SWITCHNG THRY and LABORATORY	3
CS 321	INTRO OBJECT-ORIENTED PROG JAV	3
MA 172	CALCULUS B	4
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
Lab Science		4
See Requirements tab for approved list.		
	Term Semester Hours:	17
Year 3		
Fall		
CS 300+ elective		
CS 214	INTRO DISCRETE STRUCTURE	3
MA 244	INTRO TO LINEAR ALGEBRA	3
History		3
See Requirements tab for approved list.		
Lab Science		4
See Requirements tab for approved list.		
	Term Semester Hours:	13
Spring		
CS 317	INTRO DESIGN/ANALYSIS OF ALG	3
CS 413 & 413L	INTRO DIGITAL COMP ARCHITECTUR and LABORATORY	3
CS 300+ Elective course		3
Choose CS courses at the 300 level not listed in required courses, Ex: CS 330, CS 347, CS 371, CS 390		
MA 200+ level or higher course		3 or 4
If interested in a Math minor, take MA 201, Calculus C		
History		3
See Requirements tab for approved list.		
	Term Semester Hours:	15-16
Year 4		
Fall		
CS 424	PROGRAMMING LANGUAGES	3
CS 300+ Elective course		3
Choose CS courses at the 300 level not listed in required courses, Ex: CS 330, CS 347, CS 371, CS 390		
CS 400+ Elective course		3
Choose CS courses at the 400 level not listed in required courses, Ex: CS 403, CS 443, CS 445, CS 453, CS 454, CS 465, CS 487		
MA 385	INTRO TO PROBABILITY STATIST	3
EH 301	TECHNICAL WRITING	3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor.		

No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

	Term Semester Hours:	16
Spring		
CS 490	INTRO TO OPERATING SYSTEMS	3
CS 499	SR PROJ:TEAM SOFTWARE DESIGN	3
CS 400+ Elective course		3
Choose CS courses at the 400 level not listed in required courses, Ex: CS 403, CS 443, CS 445, CS 453, CS 454, CS 465, CS 487		
Technical elective		3
Choose any 300+ level or higher course in the College of Science, IS 400+ course, CPE 412, CPE 436, or PHL 320		
MA 300+ level or higher course or Elective		3
For a Math minor take MA 300+ level or higher course or choose an Elective.		
Electives can be taken from any department and do not have to be taken in your major or minor.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor.		
No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
	Term Semester Hours:	16
	Total Semester Hours:	125-126

Computer Languages and Systems Minor

Requirements for a Computer Languages and Systems minor. This minor is suitable for non-technical majors and minimal mathematics background.

Code	Title	Semester Hours
CS 102	INTRO TO C PROGRAMMING	3
CS 105	COMP SCI SEM:ETH/PROFESS	1
CS 121	COMPUTER SCIENCE I	3
CS 221	COMP SCI II: DATA STRUCTURES	3
CS 321	INTRO OBJECT-ORIENTED PROG JAV	3
CS 300+ elective course		3
CS 300+ elective course		3
Choose CS courses at the 300 level not listed in required courses above, For Ex: CS 307, CS 347, CS 371, CS 390		
CS 400+ elective course		3
Choose CS courses at the 400 level not listed in required courses above, For Ex: CS 424, CS 454, CS 465, CS 487		
Total Semester Hours		22

MA 112, Precalculus Algebra or higher math is required. MA 171, Calculus A is strongly recommended.

Computer Science Minor

Requirements for a Computer Science minor. Useful for students with a major in a technical field.

Code	Title	Semester Hours
CS 105	COMP SCI SEM:ETH/PROFESS	1
CS 121	COMPUTER SCIENCE I	3

CS 214	INTRO DISCRETE STRUCTURE	3
CS 221	COMP SCI II: DATA STRUCTURES	3
CS 317	INTRO DESIGN/ANALYSIS OF ALG	3
CS 321	INTRO OBJECT-ORIENTED PROG JAV	3
CS 300+ level elective		3
CS 309 is recommended if considering a MS in Computer Science		
CS 400+ level elective		3
CS 413 and CS 490 are recommended if considering a MS in Computer Science		
Total Semester Hours		22

Additional courses required for a CS minor are: MA 171 Calculus A, MA 172 Calculus B, and MA 244 Intro to Linear Algebra.

Earth System Science

NSSTC - Cramer Hall, Room 4044

Telephone: 256.961.7877

Email: ats@uah.edu

Note: The Earth System Science degree programs are administered by the Atmospheric Science department.

The Atmospheric Science department offers the following undergraduate degrees:

- Earth System Science, BS - Atmospheric Science/Meteorology Concentration (p. 548)
- Earth System Science, BS - Geographic Information Systems (GIS) & Remote Sensing Concentration (p. 553)
- Earth System Science, BS - Human Dimensions - Societal Impacts Concentration (p. 558)

Program Objectives

The two primary objectives of the ESS program are to meet important national, regional and statewide needs for highly technically-educated professionals who understand the Earth as a system, and to produce graduates who will be able to perform a variety of functions in research centers and industry centered in our impact on the Earth system.

Learning Outcomes

Earth System Science BS Graduates will:

- Demonstrate the ability to deal quantitatively with real-world problems
- Integrate knowledge from multiple disciplines to scientifically address Earth system issues quantitatively
- Work collaboratively in interdisciplinary teams
- Successfully carry out research projects to completion

Majors in Earth System Science

- Earth System Science, BS - Atmospheric Science/Meteorology Concentration (p. 548)
- Earth System Science, BS - Geographic Information Systems (GIS) & Remote Sensing Concentration (p. 553)
- Earth System Science, BS - Human Dimensions - Societal Impacts Concentration (p. 558)

Minors in Earth System Science:

- Atmospheric Science
- Earth Ecosystems (p. 548)
- Geographic Information Systems/Remote Sensing (p. 562)
- Natural Disaster Impacts and Policy (p. 563)

UAH's Joint Undergraduate Master's Program (JUMP) allows undergraduate students to study at the graduate level. By taking graduate courses in your senior year you could reduce the time taken to get a graduate (MS) degree. Please visit JUMP (p. 14) page for general information.

GIS Track * JUMPs to MS in Earth System Science

Requirements For Admissions

1. Cumulative Overall 3.5 GPA
2. Major GPA of 3.5
3. ESS 301, PH 112/ PH 115, MA 172, and CS 102 must be taken in Sophomore and Junior years

Additional Information

1. Maximum of 12 credit hours count toward both degrees
2. JUMP students may take ESS 507, ESS 508, ESS 509, ESS 514, ESS 515 in place of the undergraduate versions of these courses (ESS 407, ESS 408, ESS 409, ESS 414, ESS 415)

* HDSI Track can JUMP into MS in Earth System Science if Physics with Calculus courses through PH 112 are taken as an option and an extra calculus course, MA 172 is added.

ATS Track JUMPs to MS in Atmospheric Science

Requirements For Admissions

1. Cumulative Overall 3.5 GPA
2. Major GPA of 3.5
3. ESS 301, PH 112/PH 115, MA 172, and CS 102 must be taken in Sophomore and Junior years

Additional Information

1. Maximum of 12 credit hours count toward both degrees
2. JUMP students may take ATS 509, ATS 510, ATS 520, ATS 541, ATS 551, ATS 554, ATS 561, ATS 571 in place of the undergraduate versions of these courses (ESS 409, ESS 410, ESS 420, ESS 441, ESS 451, ESS 454, ESS 461, ESS 471)

Designated Faculty Contact/Advisor

Dr. Lawrence Carey lawrence.carey@uah.edu 256.961.7909

ESS 100 - INTRODUCTION TO SPACE SCIENCE

Semester Hour: 1

Covers 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 101 - EXPLORING SPACE SC & ENGR

Semester Hour: 1

Exploring Space Science and Engineering courses 1-9. 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 ESS 101 group may be taken for credit. The courses are offered through distance learning.

ESS 103 - ENVIRONMENTAL EARTH SCIENCE

Semester Hours: 4

Principles and foundations of Earth and environmental science with lectures and labs on concepts in Earth system science. Applied science labs use applications and real-world examples from ecosystems, geology, soil science, water, pollution, agriculture, population, natural disasters and energy.

ESS 103L - LABORATORY

Semester Hours: 0

ESS 111 - WEATHER, CLIMATE & GLOBAL CHNG

Semester Hours: 4

Intro to the atmosphere and climate system, including weather systems, climate extremes, and natural / human-induced changes in the atmosphere - climate system. Major topics discussed include greenhouse effect, solar impacts on climate, El-Nino, climate change, atmospheric and ocean circulations, cyclones, hurricanes, thunderstorms, and tornadoes.

ESS 111L - LABORATORY

Semester Hours: 0

ESS 210 - COLLAPSE OF CIVILIZATIONS

Semester Hours: 3

This course will investigate why some cultures succeed and others fail. From archeological and historical records of past civilizations we will examine the factors which lead to collapse in an attempt to determine the future of current societies.

ESS 212 - SEVERE WEATHER ANALYSIS

Semester Hours: 4

Meteorological analysis and beginning forecasting of weather systems, severe weather, snowstorms, hurricanes, and tornadoes through the interpretation of surface, upper air, satellite, and radar weather observations. Strong emphasis placed on unique observations of severe weather from UAH radar and profiling systems. Prerequisite: ESS 111.

ESS 212L - LABORATORY

Semester Hours: 0

Laboratory. Prerequisite: ESS 111.

ESS 301 - INTRO TO EARTH & ATMOSPHERIC PHYS

Semester Hours: 3

This course will provide a survey of earth and atmospheric science for undergraduate students. Topics that will be covered will focus on how the earth-atmosphere system works in an integrated fashion. Prerequisites: ESS 103, ESS 111, (PH 101 or PH 111), and (MA 120 or MA 171).

ESS 302 - PEOPLE, PLANTS, & ENVIRONMENT

Semester Hours: 3

This course is designed to introduce students from multiple departments to the vital roles that plants have in our ecosystems through the study of basic plant and soil science. Special attention is placed on the impact plants have on our technology-based society. Sophomore standing or above.

ESS 303 - CLIMATE & PHYSICAL CAUSES CLIMATE

Semester Hours: 3

Basic atmospheric structure and physical processes, surface processes, climate history and climate change, land use and land change, microclimates, topoclimate, Ecoclimatology. Prerequisites: ESS 103, ESS 111, MA 120 or MA 171, and PH 101 or PH 111.

ESS 305 - HYDROLOGY

Semester Hours: 3

Introduction to hydrologic cycles and concepts of how water interacts with the environment. Covers water properties, precipitation, groundwater and runoff, currents, waves, sediment processes, and conservation strategies. Prerequisites: ESS 103, ESS 111, MA 120 or MA 171, and PH 101 or PH 111.

ESS 307 - ENVIRONMENTAL ARCHEOLOGY

Semester Hours: 3

Archaeologists today need a wide range of scientific approaches in order to delineate and interpret the ecology of their sites. This approach is revolutionizing archaeology making it relevant to the modern-day world. Investigated in this course includes climate modeling, remote sensing, and GIS. Prerequisite: ESS 103.

ESS 312 - PRINCIPLES OF ECOLOGY

Semester 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. Strongly recommend CH 101 or 121. Prerequisite: BYS 120.

ESS 313 - GEOGRAPHIC INFORMATION SYSTEMS

Semester Hours: 3

Introduction to scientific spatial analysis concepts and spatial data processing with focus on ESRI ArcGIS software. Basic concepts in GIS data management and creation, with topics including raster and vector data, projections, data query, data acquisition, and cartography. Prerequisites: ESS 103 and either CS 102 or CS 103.

ESS 321 - POLLUTION PROBLEMS

Semester Hours: 3

Quantitative study of environmental conditions, processes, and problem-solving techniques related to specific pollution problems in air, water, and land. Prerequisites: ESS 111, ESS 103 and (MA 120 or MA 171) and (CH 101 or CH 121) and (PH 101 or PH 111).

ESS 351 - DYNAMIC METEOROLOGY

Semester Hours: 3

Dynamics and kinematics of atmospheric flow. Meteorological coordinate systems. Fundamental governing equations of atmospheric motion, circulation, and vorticity. Prerequisites: PH 111, ESS 301, CS 102 or CS 103, and MA 201 (with concurrency).

ESS 352 - SYNOPTIC METEOROLOGY

Semester 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 is placed on the use of remote sensing data from satellites, radars, and profilers using state-of-the-art workstations. Prerequisite: ESS 212 and ESS 351.

ESS 370 - INTRODUCTION TO REMOTE SENSING

Semester Hours: 3

This course introduces the fundamental physics of remote sensing systems and incorporates hands-on exercises of image processing, information extraction and interpretation, and basic applications of airborne and satellite data in Earth System Science and Atmospheric Science. Prerequisites: ESS 103, ESS 111, (MA 120 or MA 171), (PH 101 or PH 111), and CS 102.

ESS 402 - SCI & SOC ASPTS NATRL DISASTER

Semester 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: ESS 103 and ESS 111.

ESS 407 - ENV THRTS, PUB POLY, & DEC MKG

Semester Hours: 3

Researchers, policymakers and environmental campaigners have identified 25 potential future threats to the global environment. This course examines the nature and consequences of these threats and their potential impacts for the survival of the human race. Prerequisite: ESS 103.

ESS 408 - PYTHON FOR GIS

Semester Hours: 3

Introduction to GIS model building, Python programming, and automation of scripts for ArcGIS. Techniques in Model Builder, Python, and the methods for automation will be taught using data from numerous available data sources across the internet with heavy emphasis on the Earth Sciences. Prerequisites: ESS 313.

ESS 409 - SCI PROGRMNG FOR EARTH & ATMOS

Semester 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. Prerequisite: CS 102 or 103; ESS 301; MA 172; PH 112 and PH 115. Or consent of instructor.

ESS 410 - OPERATIONAL WEATHER FORECAST'G

Semester Hours: 3

Subjective and objective methods of atmospheric prognosis. Techniques for forecasting critical weather elements. Interpretation, use and systematic errors of computer-generated products, human factors with forecasting, and application of meteorological theory in an operational setting. Prerequisites: ESS 111, ESS 212, ESS 352, MA 172, PH 112 and PH 115.

ESS 414 - GEOSPATIAL APPLICATIONS

Semester Hours: 3

An introductory look at the ways in which GIS can be put to use in different fields of study, drawing examples from Demography, Sociology, Archaeology, History, and Ecology. Focus on cartography and map creation principles and public geospatial data acquisition. Prerequisite: ESS 313.

ESS 415 - ADVANCED TOPICS IN GIS

Semester Hours: 3

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. Prerequisite: ESS 414.

ESS 420 - INTRO ATMOSP CHEM & AIR POLLU

Semester 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.

Prerequisites: PH 112, PH 115, CH 121, ESS 301 and ESS 321.

ESS 441 - ATMOSP THERMODY & CLOUD PHYSIC

Semester 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 hydrometeors. Prerequisites: ESS 301, MA 238, PH 112 and PH 115.

ESS 451 - ATMOSPHERIC FLUID DYNAMICS I

Semester Hours: 3

Fluid dynamics in the atmosphere. Coriolis acceleration, scale analysis and appropriate approximations of the complete governing equations. Numerical analysis and interpretation of weather phenomena. Same as ATS 451. Prerequisites: ESS 351, MA 238, PH 112 and PH 115.

ESS 454 - FORECASTING MESOSCALE PROC

Semester 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 of instruments used to detect mesoscale phenomena, most notably satellite and radar. Prerequisite: ESS 352.

ESS 461 - ATMOSPHERIC RADIATION I

Semester Hours: 3

Fundamentals of terrestrial atmospheric radiation. Topics include: basic concepts, radiative transfer equation, gaseous absorption, scattering by molecules and particles, band models, transmittance along an inhomogeneous path. Prerequisite: ESS 301, MA 238, PH 112 and PH 115.

ESS 471 - INTRO TO RADAR METEOROLOGY

Semester Hours: 3

Introduction to principles of radar meteorology, including radar operations, hardware, interpretation and analysis. Doppler, dual-polarization and dual-wavelength radar theory, methods and applications are covered. Prerequisite: ESS 301 and ESS 441.

ESS 490 - SELECTED TOPICS IN ENVIRON SCI

Semester Hours: 1-3

Special offerings to students in areas of interest not covered in the present curriculum. Prerequisite: permission of instructor.

ESS 495 - DIRECTED STUDY

Semester Hours: 2-4

Specialized research for undergraduates often is offered to undergraduates who have senior standing.

ESS 498 - RESEARCH & PROF DEV CAPSTONE

Semester Hour: 1

Applied concepts for professional and research development. Includes evaluation and discussion of published literature and department seminars, with focus on research synthesis and critique. Also includes development of professional and career skills focused on the Earth and Atmospheric Sciences. Senior Standing required.

ESS 499 - UNDERGRADUATE RESEARCH

Semester Hours: 2-4

For advanced Earth System Science students. Individual investigations into Earth systems science problems under direct supervision of a research mentor. Research is conducted and thesis-style paper is written and orally presented. Students identify and obtain consent from a faculty research mentor.

Atmospheric Science Minor

A minor in Atmospheric science consists of:

Code	Title	Semester Hours
Required courses:		
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	4
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	4
ESS 212 & 212L	SEVERE WEATHER ANALYSIS and LABORATORY	4
ESS 301	INTRO TO EARTH & ATMOSPHERIC PHYS	3
Elective courses: Choose at least 2 courses, minimum of 6 credit hours from these courses:		6
ESS 303	CLASSI & PHYSICAL CAUSES CLIM	
ESS 321	POLLUTION PROBLEMS	
ESS 351	DYNAMIC METEOROLOGY	
ESS 352	SYNOPTIC METEOROLOGY	
ESS 409	SCI PROGRAMMING FOR EARTH & ATMOS	
ESS 410	OPERATIONAL WEATHER FORECAST'G	
ESS 420	INTRO ATMOSPHERIC CHEM & AIR POLLU	
ESS 441	ATMOSPHERIC THERMODY & CLOUD PHYSIC	
ESS 451	ATMOSPHERIC FLUID DYNAMICS I	
ESS 454	FORECASTING MESOSCALE PROC	
ESS 461	ATMOSPHERIC RADIATION I	
ESS 471	INTRO TO RADAR METEOROLOGY	
Total credit hours		21

Earth Ecosystems Minor

A minor in Earth Ecosystems consists of:

Code	Title	Semester Hours
Required courses:		
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
ESS 302	PEOPLE, PLANTS, & ENVIRONMENT	
ESS 312	PRINCIPLES OF ECOLOGY	
Elective courses: Choose at least 2 courses, minimum of 6 credit hours from these courses:		6
ESS 210	COLLAPSE OF CIVILIZATIONS	
ESS 303	CLASSI & PHYSICAL CAUSES CLIM	
ESS 307	ENVIRONMENTAL ARCHEOLOGY	
ESS 313	GEOGRAPHIC INFORMATION SYSTEMS	
ESS 321	POLLUTION PROBLEMS	
ESS 370	INTRODUCTION TO REMOTE SENSING	
ESS 407	ENV THRTS, PUB POLY, & DEC MKG	
ESS 408	PYTHON FOR GIS	
ESS 414	GEOSPATIAL APPLICATIONS	
ESS 415	ADVANCED TOPICS IN GIS	
Total credit hours		21

Earth System Sciences, B.S. - Atmospheric Science/Meteorology Concentration

Earth System Science, Atmospheric Science/Meteorology Concentration, BS Requirements:

- Earth System Science, concentration in Atmospheric Science/Meteorology, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine Art or 2nd Literature: PHL 102, PHL 150 or 201 recommended for ESS.		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics with Calculus I & II		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I ⁵	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II ⁵	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	

HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two. GY 105 and GY 110 strongly recommended		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		24
Computer Science: Choose one		
CS 102	INTRO TO C PROGRAMMING	
or CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Lab Science		4
CH 121	GENERAL CHEMISTRY I	
& CH 125	and GENERAL CHEMISTRY LAB I ⁵	
Additional Required Mathematics		14
MA 172	CALCULUS B	
MA 201	CALCULUS C	
MA 238	APPL DIFFERENTIAL EQUATIONS ⁵	
MA 385	INTRO TO PROBABILITY & STATIST ⁵	
Code	Title	Semester Hours
Earth System Science Core		18
ESS 103	ENVIRONMENTAL EARTH SCIENCE	
& 103L	and LABORATORY	
ESS 111	WEATHER, CLIMATE & GLOBAL CHNG	
& 111L	and LABORATORY	
ESS 301	INTRO TO EARTH & ATMOSPHERIC PHYS ⁵	
ESS 303	CLASSICAL & PHYSICAL CAUSES CLIMATE ⁵	
ESS 370	INTRODUCTION TO REMOTE SENSING ⁵	
ESS 498	RESEARCH & PROFESSIONAL DEVELOPMENT CAPSTONE	
Atmospheric Science Concentration Requirements		19
ESS 212	SEVERE WEATHER ANALYSIS	
& 212L	and LABORATORY	
ESS 305	HYDROLOGY ⁵	
ESS 321	POLLUTION PROBLEMS	
ESS 351	DYNAMIC METEOROLOGY	
ESS 409	SCIENTIFIC PROGRAMMING FOR EARTH & ATMOSPHERE ⁵	
ESS 441	ATMOSPHERIC THERMODYNAMICS & CLOUD PHYSICS ⁵	

Atmospheric Science concentration elective courses: Choose 5

14-16

ESS 313	GEOGRAPHIC INFORMATION SYSTEMS (GEOGRAPHIC INFORMATION SYSTEMS) ⁷
ESS 352	SYNOPTIC METEOROLOGY
ESS 408	PYTHON FOR GIS ⁷
ESS 410	OPERATIONAL WEATHER FORECAST'G ⁶
ESS 414	GEOSPATIAL APPLICATIONS ⁷
ESS 420	INTRO ATMOSP CHEM & AIR POLLU
ESS 451	ATMOSPHERIC FLUID DYNAMICS I
ESS 454	FORECASTING MESOSCALE PROC ⁶
ESS 461	ATMOSPHERIC RADIATION I
ESS 471	INTRO TO RADAR METEOROLOGY
ESS 499	UNDERGRADUATE RESEARCH

Elective Courses

9-11

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

Total Semester Hours

128

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 (<http://catalog.uah.edu/search/?P=MA%20112>) and/or MA 113 (<http://catalog.uah.edu/search/?P=MA%20113>) Mathematics courses may be required.
- ³ No more than 6 credit hours can be taken in a single discipline.
- ⁴ For choices see the World Languages and Cultures (p. 177) department.
- ⁵ PH 111 + PH 114, PH 112 + PH 115, MA 238, MA 385, CH 121+ CH 125, ESS 301, ESS 303, ESS 305, ESS 351, ESS 370, ESS 409, ESS 441, ESS 471. These courses partially satisfy the National Weather Service GS-1340 Federal Civil Service Requirements.
- ⁶ ESS 410, ESS 352, ESS 454. Choose at least two of these elective courses to complete the National Weather Service GS-1340 Federal Civil Service Requirements.
- ⁷ ESS 313, ESS 408 and ESS 414. Student may choose 2 of these 3 GIS tools courses to count in the "choose 5 electives" section.

Sample four year plan for Earth System Science, Atmospheric Science/Meteorology Concentration, BS degree:

Note: This is only an example and variations are possible.

Year 1

		Semester Hours
Fall		
EH 101	COLLEGE WRITING I	3
ESS 103	ENVIRONMENTAL EARTH SCIENCE	4
ESS 111	WEATHER, CLIMATE GLOBAL CHNG	4
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
ESS 212 & 212L	SEVERE WEATHER ANALYSIS and LABORATORY	4
MA 172	CALCULUS B	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall

ESS 301	INTRO TO EARTH ATMOSPHERIC PHYSICS	3
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
MA 201	CALCULUS C	4
CS 102 or CS 103	INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA	3
Fine Art		3
See Requirements tab for approved list.		
Term Semester Hours:		17

Spring

ESS 370	INTRODUCTION TO REMOTE SENSING	3
ESS 313	GEOGRAPHIC INFORMATION SYSTEMS	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		16

Year 3**Fall**

ESS 321	POLLUTION PROBLEMS	3
ESS 351	DYNAMIC METEOROLOGY	3
MA 385	INTRO TO PROBABILITY STATIST	3
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	3
History		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Spring

ESS 303	CLASSICAL PHYSICAL CAUSES CLIMATE	3
ESS 305	HYDROLOGY	3
ESS 352	SYNOPTIC METEOROLOGY	3
GY 105	WORLD REGIONAL GEOGRAPHY	3
History		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Year 4**Fall**

ESS 409	SCI PROGRAMMING FOR EARTH ATMOSPHERE	3
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ESS 410	OPERATIONAL WEATHER FORECAST'G	3
ESS 441	ATMOSP THERMODY CLOUD PHYSIC	3
CM 113	Intro to Rhetorical Communication	3
Humanities,2nd Fine art or 2nd Lit		3
See Requirements tab for approved list.		
Term Semester Hours:		15
Spring		
ESS 454	FORECASTING MESOSCALE PROC	3
ESS 471	INTRO TO RADAR METEOROLOGY	3
EH 301	TECHNICAL WRITING	3
ESS 498	RESEARCH PROF DEV CAPSTONE	1
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Total Semester Hours:		128

Earth System Sciences, B.S. - Geographic Information Systems (GIS) & Remote Sensing Concentration

Earth System Science, Geographic Information Systems (GIS) and Remote Sensing Concentration, BS Requirements:

- Earth System Science, GIS and Remote Sensing Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	

EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine Art or 2nd Literature: PHL 102, PHL 150 or PHL 201 recommended for ESS degrees.		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		12
Mathematics ²		4
MA 171	CALCULUS A	
Natural Sciences: Physics with Calculus I & II		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two. GY 105 and GY 110 strongly recommended		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		21
Computer Science		3
CS 102	INTRO TO C PROGRAMMING	
or CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Lab Science		4

CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
Additional Required Mathematics and Statistics		11
MA 172	CALCULUS B	
MA/ST 281	ELEMENTS OF STATISTICAL ANALYSIS	
PY 300 & 300L or SOC 303	PSYCHOLOGICAL STATISTICS and PSYCHOLOGICAL STATISTICS LAB STATISTICS/SOCIAL SCIENCES	

Code	Title	Semester Hours
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Earth System Science Core	18
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ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
ESS 301	INTRO TO EARTH & ATMOSPHERIC PHYS	
ESS 303	CLIMATE & PHYSICAL CAUSES CLIM	
ESS 370	INTRODUCTION TO REMOTE SENSING	
ESS 498	RESEARCH & PROF DEV CAPSTONE	

GIS and Remote Sensing Concentration Requirements	18
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ESS 305	HYDROLOGY	
ESS 313	GEOGRAPHIC INFORMATION SYSTEMS (Geographic Information Systems)	
ESS 321	POLLUTION PROBLEMS	
ESS 407	ENVIRONMENTAL POLY, PUB POLY, & DEC MKG	
ESS 408	PYTHON FOR GIS	
ESS 414	GEOSPATIAL APPLICATIONS	

GIS and Remote Sensing concentration elective courses: Choose 5, 4 must be ESS	14-17
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ESS 212 & 212L	SEVERE WEATHER ANALYSIS and LABORATORY	
ESS 307	ENVIRONMENTAL ARCHEOLOGY	
ESS 402	SCI & SOC ASPECTS NATURAL DISASTER	
ESS 409	SCI PROGRAMMING FOR EARTH & ATMOS	
ESS 415	ADVANCED TOPICS IN GIS	
ESS 499	UNDERGRADUATE RESEARCH	
SOC 300+, PSC 300+ or CS 200+ level or higher courses.		

Elective Courses	12-15
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Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

Total Semester Hours	128
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- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- 2 Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 (<http://catalog.uah.edu/search/?P=MA%20112>) and/or MA 113 (<http://catalog.uah.edu/search/?P=MA%20113>) Mathematics courses may be required.
- 3 No more than 6 credit hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (p. 177) department.

Sample four year plan for Earth System Science, GIS & Remote Sensing Concentration, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	4
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	4
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
ESS 212 & 212L	SEVERE WEATHER ANALYSIS and LABORATORY	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall		
GIS and Remote Sensing Elective		3
See Requirements tab for approved list.		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CS 102 or CS 103	INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA	3
Fine art		3
See Requirements tab for approved list.		
Social and Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		16
Spring		
ESS 301	INTRO TO EARTH ATMOSPHERIC PHYS	3
ESS 313	GEOGRAPHIC INFORMATION SYSTEMS	3
CM 113	Intro to Rhetorical Communication	3
Literature		3
See Requirements tab for approved list.		
CH 101 & CH 105 or CH 121	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB or GENERAL CHEMISTRY I	4
Term Semester Hours:		16

Year 3

Fall		
ESS 321	POLLUTION PROBLEMS	3
ESS 414	GEOSPATIAL APPLICATIONS	3

MA 281	ELEMENTS OF STATISTICAL ANALYSIS	3
History		3
See Requirements tab for approved list.		
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
ESS 303	CLASSICAL PHYSICAL CAUSES CLIMATE	3
ESS 407	ENVIRONMENTAL THREATS, PUBLIC POLICY, DECISION MAKING	3
PY 300 & 300L	PSYCHOLOGICAL STATISTICS and PSYCHOLOGICAL STATISTICS LAB	4
or SOC 303	or STATISTICS/SOCIAL SCIENCES	
History		3
See Requirements tab for approved list.		
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Year 4		
Fall		
EH 301	TECHNICAL WRITING	3
GIS and Remote Sensing Elective		3
See Requirements tab for approved list.		
GIS and Remote Sensing Elective		3
See Requirements tab for approved list.		
Social and Behavioral Science		3
See Requirements tab for approved list.		
Elective		3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
ESS 305	HYDROLOGY	3
ESS 370	INTRODUCTION TO REMOTE SENSING	3
ESS 408	PYTHON FOR GIS	3
ESS 498	RESEARCH PROFESSIONAL DEVELOPMENT CAPSTONE	1
GIS and Remote Sensing Elective		3
See Requirements tab for approved list.		
Elective		3

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

Term Semester Hours:	16
Total Semester Hours:	128

Earth System Sciences, B.S. - Human Dimensions - Societal Impacts Concentration

Earth System Science, Human Dimensions and Societal Impacts Concentration, BS Requirements:

- Earth System Science, Human Dimensions and Societal Impacts Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine Art or 2nd Literature: PHL 102, PHL 150 or PHL 201 recommended for ESS degrees.		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Sciences		11-12
Mathematics: Choose one ²		3-4
MA 120	MATH PROFESSIONAL APPLICATIONS	
MA 171	CALCULUS A	
Natural Sciences: Choose one sequence in Physics		8

PH 101 & PH 102	GENERAL PHYSICS I and GENERAL PHYSICS II	
or		
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
and		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social and Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two. GY 105 and GY 110 strongly recommended		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		17
Computer Science: Choose one		3
CS 102	INTRO TO C PROGRAMMING	
or CS 103	INTRO PROGRAMMING USING JAVA	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Lab Science: Choose one		4
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
or		
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
Additional Required Statistics		7
MA/ST 281	ELEMENTS OF STATISTICAL ANALYS	
PY 300 & 300L	PSYCHOLOGICAL STATISTICS and PSYCHOLOGICAL STATISTICS LAB	
or SOC 303	STATISTICS/SOCIAL SCIENCES	

Code	Title	Semester Hours
Earth System Science Core		18
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
ESS 301	INTRO TO EARTH & ATMOSPHERIC PHYS	
ESS 303	CLASSICAL & PHYSICAL CAUSES CLIMATE	
ESS 370	INTRODUCTION TO REMOTE SENSING	
ESS 498	RESEARCH & PROFESSIONAL DEVELOPMENT CAPSTONE	
Human Dimensions and Societal Impacts Concentration Requirements		18
ESS 210	COLLAPSE OF CIVILIZATIONS	
ESS 305	HYDROLOGY	
ESS 313	GEOGRAPHIC INFORMATION SYSTEMS (Geographic Information Systems)	
ESS 321	POLLUTION PROBLEMS	
ESS 402	SCIENCE & SOCIETY ASPECTS NATURAL DISASTER	
ESS 407	ENVIRONMENTAL THREATS, PUBLIC POLICY, & DECISION MAKING	
Choose 6 courses, 3 must be ESS		18
ESS 200+ level or higher course		
BYS 200+ level or higher course		
CS 200+ level or higher course		
HY 300+ level or higher course		
PSC 300+ level or higher course		
SOC 300+ level or higher course		
Elective Courses		15-16
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Total Semester Hours		128
1	Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)	
2	Based on Math placement, (http://www.uah.edu/science/departments/math/undergraduate-students/placement) prerequisite MA 112 and/or MA 113 Mathematics courses may be required. If the student intends to pursue a course of study requiring more advanced mathematics background, MA 171 is recommended. Otherwise, MA 120 may be used to meet this requirement.	
3	No more than 6 credit hours can be taken in a single discipline.	
4	For choices see the World Languages and Cultures (http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures) department.	

Sample four year plan for Earth System Science, Human Dimensions and Societal Impacts Concentration, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	4
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	4
MA 171	CALCULUS A	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		16

Spring

EH 102	COLLEGE WRITING II	3
ESS 212 & 212L	SEVERE WEATHER ANALYSIS and LABORATORY	4
CH 101 & CH 105 or CH 121	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB or GENERAL CHEMISTRY I	4
Social and Behavioral Science See Requirements tab for approved list.		3
Fine art See Requirements tab for approved list.		3
Term Semester Hours:		17
Year 2		
Fall		
ESS 210	COLLAPSE OF CIVILIZATIONS	3
PH 101 & 101L	GENERAL PHYSICS I and GENERAL PHYSICS I LAB	4
MA 281	ELEMENTS OF STATISTICAL ANALYS	3
CS 102 or CS 103	INTRO TO C PROGRAMMING or INTRO PROGRAMMING USING JAVA	3
Social and Behavioral Science See Requirements tab for approved list.		3
Term Semester Hours:		16
Spring		
ESS 301	INTRO TO EARTH ATMOSPHC PHYS	3
ESS 313	GEOGRAPHIC INFORMATION SYSTEMS	3
PH 102 & 102L	GENERAL PHYSICS II and GENERAL PHYSICS LAB II	4
Literature See Requirements tab for approved list.		3
History See Requirements tab for approved list.		3
Term Semester Hours:		16
Year 3		
Fall		
ESS 321	POLLUTION PROBLEMS	3
ESS 402	SCI SOC ASPTS NATRL DISASTER	3
ESS 414	GEOSPATIAL APPLICATIONS	3
CM 113	Intro to Rhetorical Communication	3
History See Requirements tab for approved list.		3
Term Semester Hours:		15
Spring		
ESS 303	CLASSI PHYSICAL CAUSES CLIM	3
ESS 370	INTRODUCTION TO REMOTE SENSING	3
ESS 407	ENV THRTS, PUB POLY, DEC MKG	3
Humanities, 2nd Fine art or 2nd Lit See Requirements tab for approved list.		3
Human Dimensions and Soc Impacts Elective		3

See Requirements tab for approved list.

Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Year 4		
Fall		
Human Dimensions and Soc Impacts		3
Elective		
Human Dimensions and Soc Impacts		3
Elective		
See Requirements tab for approved list.		
EH 301	TECHNICAL WRITING	3
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		15
Spring		
ESS 305	HYDROLOGY	3
ESS 498	RESEARCH PROF DEV CAPSTONE	1
PY 300 & 300L	PSYCHOLOGICAL STATISTICS and PSYCHOLOGICAL STATISTICS LAB	4
or SOC 303	or STATISTICS/SOCIAL SCIENCES	
Human Dimensions and Soc Impacts		3
Elective		
See Requirements tab for approved list.		
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		17
Total Semester Hours:		128

Geographic Information Systems/Remote Sensing Minor

A minor in Geographic Information Systems/Remote Sensing consists of:

Code	Title	Semester Hours
Required courses:		
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
ESS 370	INTRODUCTION TO REMOTE SENSING	
ESS 313	GEOGRAPHIC INFORMATION SYSTEMS	
ESS 414	GEOSPATIAL APPLICATIONS	

Elective courses: Choose at least 4 credit hours from these courses:

ESS 212 & 212L	SEVERE WEATHER ANALYSIS and LABORATORY
ESS 301	INTRO TO EARTH & ATMOSPHERIC PHYS
ESS 303	CLIMATE & PHYSICAL CAUSES CLIMATE
ESS 305	HYDROLOGY
ESS 321	POLLUTION PROBLEMS
ESS 402	SCI & SOC ASPECTS NATURAL DISASTER
ESS 408	PYTHON FOR GIS
ESS 409	SCI PROGRAMMING FOR EARTH & ATMOSPHERE
ESS 415	ADVANCED TOPICS IN GIS

Total credit hours

21-23

Natural Disaster Impacts and Policy Minor

A minor in Natural Disasters Impacts & Policy consists of:

Code	Title	Semester Hours
Required courses:		
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHANGE and LABORATORY	
ESS 402	SCI & SOC ASPECTS NATURAL DISASTER	
ESS 407	ENVIRONMENTAL THREATS, PUBLIC POLICY, & DECISION MAKING	
Elective courses: Choose at least 7 credit hours from these courses:		7-9
ESS 210	COLLAPSE OF CIVILIZATIONS	
ESS 212 & 212L	SEVERE WEATHER ANALYSIS and LABORATORY	
ESS 305	HYDROLOGY	
ESS 307	ENVIRONMENTAL ARCHEOLOGY	
ESS 313	GEOGRAPHIC INFORMATION SYSTEMS	
ESS 321	POLLUTION PROBLEMS	
ESS 370	INTRODUCTION TO REMOTE SENSING	
ESS 414	GEOSPATIAL APPLICATIONS	

Total credit hours

21-23

Mathematical Sciences

258A Shelby Center

Telephone: 256.824.6470

Email: mathUG@uah.edu

The Mathematical Sciences department offers the following undergraduate degrees:

- Mathematical Sciences, Concentration I, BS (p. 568)
- Mathematical Sciences, Concentration II, BS - Secondary Education (p. 573)
- Mathematical Sciences, Concentration III, BS - Double Major or Dual Degree. Double major-Math degree with another major in the College of Science. Dual Degree-Math degree with an additional degree in another college such as the College of Engineering. (p. 577)

Program Objectives

Our objective is to provide excellent instruction and resources for the mathematics education through our courses and degree programs. Through our bachelor's, master's and doctoral degree programs, our goal is to help produce the new generations of well-educated mathematicians that are critical for the progress of mankind. Our second objective is to promote and communicate the importance of mathematics in society and to help maintain standards of excellence in mathematics through collaboration with other departments. Our third objective is to have graduates prepared for careers in government, industry, teaching at a secondary school level, or for graduate study in mathematics.

Learning Outcomes

Graduates in Mathematics will:

- Demonstrate critical thinking skills to construct clear, valid and succinct proofs
- Effectively apply mathematics to solve problems in applied fields
- Exhibit quantitative reasoning and data analysis

Majors in Mathematical Sciences

- Mathematical Sciences, Concentration I, BS (p. 568)
- Mathematical Sciences, Concentration II, BS - Secondary Education (p. 573)
- Mathematical Sciences, Concentration III, BS - (p. 577) Double Major or Dual Degree (p. 577)

Minor in Mathematical Sciences

- Mathematics (p. 581)

UAH's Joint Undergraduate Master's Program (JUMP) allows undergraduate students to study at the graduate level. By taking graduate courses in your senior year you could reduce the time taken to get a graduate (MS) degree. Please visit JUMP (p. 14) page for general information.

Requirements For Admission

1. Cumulative overall 3.5 GPA
2. Major GPA of 3.5
3. MA 238, MA 244, MA 330, MA 442, and MA 452 must be taken Sophomore and Junior years

Additional Information

1. Maximum of 12 credit hours count toward both degrees
2. With permission of JUMP advisor, a student may use any 500-level course or 500-600 level sequence of courses normally acceptable on Mathematics Master's POS for the 12 hours of double counted courses (Of these 12 hours, 9 credit hours replace undergraduate mathematics electives, and 3 credit hours replace a general undergraduate elective)

Designated Faculty Contact/Advisor

Dr. Boris Kunin Shelby Center 258L kuninb (kuninb@uah.edu)@uah.edu (kuninb@uah.edu) 256.824.6847

MA 105 - NATURE OF MATHEMATICS

Semester Hours: 3

The course explores mathematical ideas that historically led to the development of major branches of mathematics. Conceptual understanding and real-world problem solving will be emphasized. Topics may include world of numbers, infinity, chance, foundations of statistics, and mathematical aesthetics. MA 105 cannot be used to fulfill prerequisite requirements for any mathematics course.

MA 107 - ALGEBRA WITH APPLICATIONS

Semester Hours: 3

Algebra review, functions and graphs, linear models, exponential logarithmic functions, mathematics of finance, sets and probability. Prerequisites: Level 1 placement for MA 107 and Level 0 placement for MA 107L. No credit given to students who have received credit for another MA course.

MA 110 - FINITE MATHEMATICS

Semester 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: Level 1 placement for MA 110 and Level 0 placement for MA 110L.

MA 112 - PRECALCULUS ALGEBRA

Semester 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. Prerequisites: Level 1 placement for MA 112 and Level 0 placement for MA 112L.

MA 113 - PRECALCULUS TRIGONOMETRY

Semester 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. Prerequisites: Level 2 placement or MA 112 with a grade of C or better. No credit given to students who have completed a MA course numbered above MA 113. MA 113 is an AGSC core course.

MA 115 - PRECALCULUS ALGEBRA & TRIG

Semester 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.

MA 120 - MATH PROFESSIONAL APPLICATIONS

Semester Hours: 3

Limits, continuity, differentiation, applications of the derivative, integration, the fundamental theorem of calculus, applications of the integral. Prerequisites: MA 107, MA 110, or MA 112 with a grade of C or better, or Level 2 placement. No credit given to students who have already received credit for a calculus course. MA 120 is an AGSC core course.

MA 171 - CALCULUS A

Semester Hours: 4

Limits, derivatives, applications of the derivative, definite and indefinite integrals, exponential and logarithmic functions, and inverse functions. Prerequisites: MA 113 or MA 115 with a grade of C or better, or Level 3 placement.

MA 171R - CALCULUS A RECITATION

Semester Hours: 0

Extension of MA 171. Review of previous math skills needed for success. Homework discussed; examination preparation, review of homework and examination tutoring and individual consultation.

MA 172 - CALCULUS B

Semester Hours: 4

Techniques of integration, applications of the integral, polar coordinates, sequences, series, and conic sections. Prerequisites: MA 171 with a grade of C or better.

MA 201 - CALCULUS C

Semester Hours: 4

Vectors, vector-valued functions, partial derivatives, multiple integrals, vector fields, line and surface integrals. Prerequisites: MA 172 with a grade of C or better.

MA 230 - MATH FOR ELEMENTARY TEACHERS

Semester 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 systems (integers, fractions, decimals, percents) and number theory. Prerequisites: Two MA courses at the 100 level or above, each with a grade of C or better. Open only to students majoring in elementary education.

MA 231 - MATH FOR ELEM SCH TCHERS II

Semester Hours: 3

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 - APPL DIFFERENTIAL EQUATIONS

Semester 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 firstorder 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 & MA 201 with concurrency.

MA 244 - INTRO TO LINEAR ALGEBRA

Semester 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. Prerequisites: MA 120 or MA 172.

MA 281 - ELEMENTS OF STATISTICAL ANALYSIS

Semester 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, or MA 115, or Level 2 Placement.

MA 299 - MATHEMATICS PROJECT

Semester Hour: 1

Individualized special projects in mathematics and its applications for inquisitive and well prepared sophomore-level undergraduate students. No credit allowed toward major or minor in mathematics. S/U grading. Approval of department chair and instructor required.

MA 301 - INTRO ELEMENTARY NUMBER THEORY

Semester Hours: 3

Fundamental properties of integers, divisibility, linear Diophantine equations, congruency, Euler function, Chinese Remainder Theorem, Fermat Theorems, Wilson Theorem, and applications to Cryptography. Prerequisite: MA 244.

MA 330 - FOUNDATIONS OF MATH

Semester Hours: 3

Symbolic 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 201 or MA 244).

MA 385 - INTRO TO PROBABILITY & STATISTICS

Semester 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 with a grade of C or better and 1 MA course at 200 level or above.

MA 399 - MATHEMATICS PROJECT

Semester Hour: 1

Individualized special projects in mathematics and its applications for inquisitive and well prepared junior-level undergraduate students. No credit allowed toward a major or minor in mathematics. S/U grading. Approval of department chair and instructor required.

MA 415 - INTRO NUMERICAL METHODS

Semester 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, and CS 121.

MA 420 - INTERM DIFFERENTIAL EQUATIONS

Semester Hours: 3

This is a second course in differential equations. Course topics include series solutions for second order differential equations and the method of Frobenius; 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 244 and MA 238.

MA 433 - INTRODUCTION TO GEOMETRY

Semester 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 W/APPLIC

Semester 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 385.

MA 450 - COMBINATORIAL ENUMERATION

Semester Hours: 3

Counting, pigeonhole principle, permutations and combinations, generating functions, principle of inclusion and exclusion, Polya's theory of counting. Prerequisite: MA 385 or MA 442 (with concurrency).

MA 452 - INTRO TO REAL ANALYSIS

Semester 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 - INTRO TO COMPLEX ANALYSIS

Semester 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 300 level or above.

MA 456 - METHODS OF PARTIAL DIFF EQUA

Semester 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

Semester 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 of systems of linear differential equations, and use of computer software such as MATLAB. Prerequisites: MA 238 and MA 244.

MA 460 - INTRO FOURIER ANALYSIS

Semester Hours: 3

Brief development of trigonometric and exponential Fourier series, derivation of the classical Fourier transform from 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, introduction to the discrete transform and/or multidimensional transforms, as time permits. Prerequisites: MA 238 and MA 244.

MA 465 - INTRO TO MATH MODELING

Semester 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 student study general modeling principles and case studies (some open-ended) drawn from various sources. Prerequisites: MA 201, MA 238, and MA 244.

MA 487 - INTRO TO MATH STATISTICS

Semester 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.

MA 490 - SEL TOP UNDERGRAD MATH

Semester Hours: 1-3

Requested undergraduate topics. Approval of instructor required.

MA 499 - MATHEMATICS PROJECT

Semester Hour: 1

Individualized special projects in mathematics and its applications for superior undergraduate students. No credit is allowed toward a major or minor in mathematics. S/U grading. Approval of department chair and instructor required.

Mathematical Sciences, BS - Concentration I

Mathematical Sciences, Concentration I, BS Requirements:

- Mathematical Sciences, Concentration I, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre-professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshmen Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		12
Mathematics ²		4
MA 171	CALCULUS A	
Natural Science sequence		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	

PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		13
Computer Science		6
CS 102	INTRO TO C PROGRAMMING	
CS 121	COMPUTER SCIENCE I	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Lab Science		4
AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
Code	Title	Semester Hours
Mathematics Core		17
MA 172	CALCULUS B	
MA 201	CALCULUS C	
MA 244	INTRO TO LINEAR ALGEBRA	

MA 330	FOUNDATIONS OF MATH	
MA 385	INTRO TO PROBABILITY & STATIST	
Mathematics Concentration I Requirements		21
MA 238	APPL DIFFERENTIAL EQUATIONS	
MA 442	ALGEBRAIC STRUCTURES W/APPLIC	
MA 452	INTRO TO REAL ANALYSIS	
MA 465	INTRO TO MATH MODELING	
MA 300+ level or higher course		
MA 300+ level or higher course		
MA 300+ level or higher course		
Elective Courses		35
Elective courses. 12 credits of the 35 elective credits must be taken at the 300+ level or higher.		
Additional Elective courses 100+ level to reach 128 credit hours. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Total Semester Hours		128
1	Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)	
2	Based on Math placement, (http://www.uah.edu/science/departments/math/undergraduate-students/placement) prerequisite MA 112 and/or MA 113 Mathematics courses may be required.	
3	No more than 6 credit hours can be taken in a single discipline.	
4	For choices see the World Languages and Cultures (http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures) department.	

Sample Four-Year Plan for Mathematical Sciences, BS degree:**Note: This is only an example and variations are possible.****Year 1**

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
CS 102	INTRO TO C PROGRAMMING	3
Additional Lab Science		4
See Requirements tab for approved list.		
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		15
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
CS 121	COMPUTER SCIENCE I	3
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
Fine Art		3
See Requirements tab for approved list.		
Term Semester Hours:		17

Year 2

Fall		
MA 201	CALCULUS C	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
Literature		3
See Requirements tab for approved list.		
Social and Behavioral Science		3
See Requirements tab for approved list.		

Elective		2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
	Term Semester Hours:	16
Spring		
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
Humanities, 2nd Fine Art or 2nd Literature		3
See Requirements tab for approved list.		
Social and Behavioral Science		3
See Requirements tab for approved list.		
Elective		3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
	Term Semester Hours:	16
Year 3		
Fall		
MA 330	FOUNDATIONS OF MATH	3
MA 385	INTRO TO PROBABILITY STATIST	3
CM 113	Intro to Rhetorical Communication	3
History		3
See Requirements tab for approved list.		
Elective		3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
	Term Semester Hours:	16
Spring		
MA 442	ALGEBRAIC STRUCTURES W/ APPLIC	3
MA 465	INTRO TO MATH MODELING	3
History		3
See Requirements tab for approved list.		
Elective 300+ level or higher course		3
Elective		3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
	Term Semester Hours:	16
Year 4		
Fall		
MA 452	INTRO TO REAL ANALYSIS	3
EH 301	TECHNICAL WRITING	3
MA 300+ level or higher course		3
Elective 300+ level or higher course		3
Elective		3
Elective		1

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

Term Semester Hours:	16
Spring	
MA 300+ level or higher course	3
MA 300+ level or higher course	3
Elective 300+ level or higher course	3
Elective 300+ level or higher course	3
Elective	3
Elective	1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.	
Term Semester Hours:	16
Total Semester Hours:	128

Mathematical Sciences, BS or BA - Concentration I

This concentration leads to a B.S. or B.A. degree with a major in mathematics, and is appropriate for students planning careers in industry or graduate study in mathematics.

The minimum requirement for a B.S. degree is 128 credit hours. See: Academic Policies and Procedures (p. 772).

Code	Title	Semester Hours
Charger Foundations		41
Major Core Courses ^{1,2}		
MA 171	CALCULUS A	4
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 244	INTRO TO LINEAR ALGEBRA	3
MA 330	FOUNDATIONS OF MATH	3
MA 385	INTRO TO PROBABILITY & STATIST	3
Required Ancillary Courses for All Concentrations ³		
CM 113	Intro to Rhetorical Communication	3
EH 301	TECHNICAL WRITING	3
CS 102	INTRO TO C PROGRAMMING	3
CS 121	COMPUTER SCIENCE I	3
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
Required Courses ⁴		
MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 442	ALGEBRAIC STRUCTURES W/APPLIC	3
MA 452	INTRO TO REAL ANALYSIS	3
MA 465	INTRO TO MATH MODELING	3
Three mathematics courses at the 300 level or above		9
Total Semester Hours		103

- ¹ Courses required for all concentrations in the major.
- ² Only MA courses numbered 171 or above may be included in a mathematics major, and an overall average of C is required for all UAH MA or ST courses that are included in a mathematics major. Information on other MA course requirements is given in Concentrations I, II, and III below. Students who think that substitutions in those concentrations can produce a program better suited to their needs should consult their faculty advisor about the feasibility of such substitutions. All MA electives must be approved by the student's faculty advisor prior to registering for the courses. All majors in mathematics must satisfy the appropriate (B.S. or B.A.) Charger Foundation and degree requirements.
- ³ Students majoring in other academic areas who wish to obtain a more solid background in mathematics than is provided by a minor may pursue a second major in mathematics rather than a minor in mathematics. Concentration III is specifically designed for such students.
- ⁴ The MA electives must be pre-approved by the student's mathematics advisor. The Charger Foundations are outlined here (p. 30).

Mathematical Sciences, Secondary Education, BS

Mathematical Sciences, Secondary Education, Concentration II, BS Requirements:

- Mathematical Sciences, Secondary Education, Concentration II, BS degree requires 131 credit hours.
- 39 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

This concentration leads to a B.S. degree with a major in Mathematics, and meets the requirements for an Alabama Class B Middle/Junior High School Teacher's Certificate or an Alabama Class B High School Teacher's Certificate.

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207 or EH 242	READINGS LITERATURE/CULTURE I MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine Art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		12

Mathematics ²		4
MA 171	CALCULUS A	
Natural Science sequence		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences, required for Education program:		6
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre Professional		13
Computer Science		6
CS 102	INTRO TO C PROGRAMMING	
CS 121	COMPUTER SCIENCE I	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Lab Science		4
AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
Code	Title	Semester Hours
Mathematics Core		17
MA 172	CALCULUS B	
MA 201	CALCULUS C	
MA 244	INTRO TO LINEAR ALGEBRA	
MA 330	FOUNDATIONS OF MATH	
MA 385	INTRO TO PROBABILITY & STATIST	
Mathematics Secondary Education Concentration II Requirements		18
MA 433	INTRODUCTION TO GEOMETRY	
MA 442	ALGEBRAIC STRUCTURES W/APPLIC	
MA 452	INTRO TO REAL ANALYSIS	
MA 487	INTRO TO MATH STATISTICS	

MA 300+ level or higher course

MA 300+ level or higher course

Code	Title	Semester Hours
Education Courses		40
ED 301	INTRO TO EDUCATION PRACTICUM	
ED 307	MULTICULTURAL FND EDUCATION	
ED 308	EDUCATIONAL PSYCHOLOGY	
EDC 301	TCHG THE EXCEPTIONAL CHILD	
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	
ED 410	FOUNDATIONS EDUC EVALUAT	
ED 423	TCHG SC MID & SEC SCHOOLS	
ED 309	CLASSROOM & BEHAVIOR MGMT	
ED 350	TECHNOLOGY IN CLASSROOM	
ED 408	TCHG READING/CONTENT AREA	
ED 497	HIGH SCHOOL INTERNSHIP	
Total Semester Hours		131

¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)

² Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required.

³ No more than 6 credit hours can be taken in a single discipline.

⁴ For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.

Sample Four-Year Plan for Mathematical Sciences, Secondary Education, Concentration II, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
Fine Art		3
See Requirements tab for approved list.		
Additional Lab Science		4
See Requirements tab for approved list.		
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		15
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
PY 101	GENERAL PSYCHOLOGY I	3
Term Semester Hours:		14

Year 2

Fall		
MA 201	CALCULUS C	4
MA 244	INTRO TO LINEAR ALGEBRA	3
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
PY 201	LIFE-SPAN DEVELOPMENT	3
Term Semester Hours:		14

Spring

MA 330	FOUNDATIONS OF MATH	3
CS 102	INTRO TO C PROGRAMMING	3
CM 113	Intro to Rhetorical Communication	3
Literature		3
See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		

Term Semester Hours:	15
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Year 3**Fall**

MA 385	INTRO TO PROBABILITY STATIST	3
MA 442	ALGEBRAIC STRUCTURES W/ APPLIC	3
MA 452	INTRO TO REAL ANALYSIS	3
CS 121	COMPUTER SCIENCE I	3
Humanities, 2nd Fine Art or 2nd Literature		3
See Requirements tab for approved list.		

Term Semester Hours:	15
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Spring

MA 433	INTRODUCTION TO GEOMETRY	3
MA 487	INTRO TO MATH STATISTICS	3
MA 300+ level or higher course		3
MA 300+ level or higher course		3
History		3
See Requirements tab for approved list.		

Term Semester Hours:	15
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Year 4**Fall**

ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3

Term Semester Hours:	13
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Spring

ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 423	TCHG SC MID SEC SCHOOLS	3
ED 350	TECHNOLOGY IN CLASSROOM	3
EH 301	TECHNICAL WRITING	3

Term Semester Hours:	12
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Fifth Year**Fall**

ED 309	CLASSROOM BEHAVIOR MGMT	3
ED 408	TCHG READING/CONTENT AREA	3

Term Semester Hours:	6
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Spring

ED 497	HIGH SCHOOL INTERNSHIP	12
	Term Semester Hours:	12
	Total Semester Hours:	131

Mathematical Sciences, Double Major in Science or Dual Degree in Engineering, BS - Concentration III

Mathematical Sciences, Double Major or Dual Degree, (p. 577) Concentration III, BS Requirements:

- Mathematical Sciences, Double Major or Dual Degree, Concentration III, BS degree requires a minimum of 128 credit hours depending upon the second major or dual degree chosen.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre-professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772)

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		12
Mathematics ²		4
MA 171	CALCULUS A	
Natural Science sequence		8
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	

PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre-Professional		13
Computer Science		6
CS 102	INTRO TO C PROGRAMMING	
CS 121	COMPUTER SCIENCE I	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Lab Science		4
AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
Code	Title	Semester Hours
Mathematics Core		17
MA 172	CALCULUS B	
MA 201	CALCULUS C	
MA 244	INTRO TO LINEAR ALGEBRA	

MA 330	FOUNDATIONS OF MATH	
MA 385	INTRO TO PROBABILITY & STATIST	
Mathematics Double Major in Science or Dual Degree in Engineering Concentration III Requirements		18
MA 238	APPL DIFFERENTIAL EQUATIONS	
Choose one analysis course:		
MA 415	INTRO NUMERICAL METHODS	
MA 452	INTRO TO REAL ANALYSIS ⁵	
MA 453	INTRO TO COMPLEX ANALYSIS	
MA 460	INTRO FOURIER ANALYSIS	
Choose one algebra course:		
MA 442	ALGEBRAIC STRUCTURES W/APPLIC ⁵	
MA 450	COMBINATORIAL ENUMERATION	
MA 458	APPLIED LINEAR ALGEBRA	
MA 300+ level or higher course		
MA 300+ level or higher course		
MA 300+ level or higher course		
Double major or Dual degree		36+
Electives		1-2
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Total Semester Hours		128 minimum

- ¹ Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- ² Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required.
- ³ No more than 6 credit hours can be taken in a single discipline.
- ⁴ For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.
- ⁵ If neither MA 442 or 452 is taken, choose an additional MA 300+ level or higher course.

Sample four year plan for Mathematical Sciences, Double major with Computer Science, Curriculum III, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
CS 102	INTRO TO C PROGRAMMING	3
Additional Lab Science		4
See Requirements tab for approved list.		
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		15
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
CS 121	COMPUTER SCIENCE I	3
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
Fine art		3
See Requirements tab for approved list.		
Term Semester Hours:		17

Year 2

Fall

MA 201	CALCULUS C	4
CS 221	COMP SCI II: DATA STRUCTURES	3
CS 214	INTRO DISCRETE STRUCTURE	3
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		17

Spring

MA 238	APPL DIFFERENTIAL EQUATIONS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
CS 309 & 309L	COMPUTER ORG & SWTCHNG THRY and LABORATORY	3
CS 321	INTRO OBJECT-ORIENTED PROG JAV	3
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		15

Year 3**Fall**

MA 330	FOUNDATIONS OF MATH	3
MA 385	INTRO TO PROBABILITY STATIST	3
CS 308	ASSEMBLY LANGUAGE PROGRAMMING	3
CS 317	INTRO DESIGN/ANALYSIS OF ALG	3
Social and Behavioral Science		3
See Requirements tab for approved list.		
Term Semester Hours:		15

Spring

One Algebra course		3
See Requirements tab for approved list.		
MA 300+ level or higher course		3
CS 413 & 413L	INTRO DIGITAL COMP ARCHITECTUR and LABORATORY	3
CS 300+ level or higher course		3
CM 113	Intro to Rhetorical Communication	3
Social and Behavioral science		3
See Requirements tab for approved list.		
Term Semester Hours:		18

Year 4**Fall**

One Analysis course		3
See Requirements tab for approved list.		
MA 300+ level or higher course		3
CS 300+ level or higher course		3
CS 424	PROGRAMMING LANGUAGES	3
EH 301	TECHNICAL WRITING	3
History		3

See Requirements tab for approved list.

	Term Semester Hours:	18
Spring		
CS 490	INTRO TO OPERATING SYSTEMS	3
CS 499	SR PROJ:TEAM SOFTWARE DESIGN	3
MA 300+ level or higher course		3
CS 400+ level or higher course		3
CS 400+ level or higher course		3
History		3
See Requirements tab for approved list.		
	Term Semester Hours:	18
	Total Semester Hours:	133

Mathematics Minor

A minor in Mathematical Sciences consists of:

Code	Title	Semester Hours
MA 171	CALCULUS A	4
MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 244	INTRO TO LINEAR ALGEBRA	3
Select two MA or ST 300+ or 400+ level courses.		6
Total Semester Hours		21

Physics and Astronomy

Room 201B Optics Building (OPB)

Telephone: 256.824.2483

Email: physics@uah.edu

The Physics and Astronomy department offers the following undergraduate degrees:

- Physics, BS (p. 586)
- Physics, BS - Applied and Theoretical Physics Concentration (p. 590)
- Physics, BS - Optics Concentration (p. 603)
- Physics, BS - Astronomy and Astrophysics Concentration (p. 594)
- Physics, BS - Engineering Physics Concentration (p. 599)
- Physics, BS - Secondary Education Concentration (p. 608)

Program Objectives

Our primary objective is to educate and train the next generation of physicists, perform cutting-edge and internationally-recognized research, and support the education of students in allied areas such as engineering, chemistry, atmospheric science, and the biological sciences. Our second objective is to prepare physics majors for employment in industrial research or for further graduate studies in physics or related fields, including astrophysics, optics, biophysics, engineering, or medicine.

Learning Outcomes

Physics students and majors will:

- Demonstrate an understanding of the basic principles and modern tools (viz., numerical methods) of physics
- Engage in service-based learning and public outreach related to physics and science
- Have a rigorous research experience prior to graduation

Majors in Physics

- Physics, BS (p. 586)
- Physics, BS - Applied and Theoretical Physics Concentration (p. 590)
- Physics, BS - Optics Concentration (p. 603)
- Physics, BS - Astronomy and Astrophysics Concentration (p. 594)
- Physics, BS - Engineering Physics Concentration (p. 599)
- Physics, BS - Secondary Education Concentration (p. 608)

Students majoring in other academic areas may minor in physics. The Department of Physics and Astronomy offers three minors: Physics, Optics, and Astronomy & Astrophysics. An overall average of C or better is required for the courses in the minor.

Minors in Physics

- Physics (p. 612)
- Optics (p. 612)
- Astronomy and Astrophysics (p. 612)

UAH's Joint Undergraduate Master's Program (JUMP) allows undergraduate students to study at the graduate level. By taking graduate courses in your senior year you could reduce the time taken to get a graduate (MS) degree. Please visit JUMP (p. 14) page for general information.

Requirements For Admissions

1. Cumulative overall 3.5 GPA
2. Major GPA of 3.5
3. Student shall complete PH 110, PH 111, PH 112, PH 113, PH 114, PH 115, PH 116, PH 251, PH 301, PH 305, PH 351, PH 431, PH 432, MA 171, MA 172, MA 201, MA 238, MA 244 by Junior year

Additional Information

- Maximum of 12 credit hours count toward both degrees

Designated Faculty Contact/Advisor

Dr. James Miller james.miller@uah.edu 256.824.6156
AST 100 - SURVEY OF ASTRONOMY
Semester Hours: 4

One semester survey of astronomy from visible phenomena in the sky to the latest astronomical discoveries. Topics include properties of solar system bodies, origin of the solar system, life cycles of stars and galaxies, exoplanets, cosmology, life in the universe. Includes laboratory. May not be taken in combination with AST 106 or AST 107.

AST 100L - SURVEY OF ASTRONOMY LAB
Semester Hours: 0

Laboratory instruction in support of material covered in AST 100.

AST 106 - EXPLORING THE COSMOS I
Semester Hours: 4

Introduces astronomy emphasizing quantitative aspects of physical phenomena 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 106L - ASTRONOMY LABORATORY
Semester Hours: 0

AST 107 - EXPLORING THE COSMOS II
Semester 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. Offered Spring. Prerequisite: AST 106.

AST 107L - GEN ASTRONOMY II LAB
Semester Hours: 0

AST 210 - INTRO TO ASTROBIOLOGY

Semester Hours: 3

Studies the origin and search for life in the universe, including topics in astronomy, physics, biology, chemistry, and atmospheric science. Introduces research in astrobiology; known requirements for life, the origin and evolution of life of Earth, and the search for extraterrestrial life. Prerequisites: MA 171 and either PH 111, CH 121, or BYS 119.

AST 371 - INTRO TO ASTROPHYSICS

Semester 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. Offered Spring. Prerequisites: PH 111 or PH 114, and MA 201.

AST 471 - ASTROPHYSICS

Semester 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. Offered Fall. Prerequisites: AST 371 and PH 351.

PH 100 - CONCEPTUAL PHYSICS

Semester Hours: 4

Classical and modern physics survey course. Approach physical laws conceptually and intuitively, with minimal mathematics. Motion, gravitation, energy, electricity and magnetism, quantum mechanics, physics of everyday phenomena, philosophical and historical implications. Offered Spring.

PH 100L - CONCEPTUAL PHYSICS LAB

Semester Hours: 0

PH 101 - GENERAL PHYSICS I

Semester 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. Offered Fall.

PH 101L - GENERAL PHYSICS I LAB

Semester Hours: 0

PH 101R - RECITATION

Semester Hours: 0

PH 102 - GENERAL PHYSICS II

Semester Hours: 4

Continuation of PH 101. Electrostatics, currents, magnetic phenomena, relativity, waves, quantum nature of matter. Laboratory included. Offered Spring. Prerequisite: PH 101.

PH 102L - GENERAL PHYSICS LAB II

Semester Hours: 0

PH 102R - RECITATION

Semester Hours: 0

PH 110 - FRONTIERS IN SCIENCE

Semester Hours: 3

Introduces frontiers and problems of modern physical science. Physicist present the role of physics in diverse careers and physics fields. Introduction to physics applications and future employment opportunities motivates students to master skills required in undergraduate studies. Offered Fall. Prerequisite with concurrency: MA 171.

PH 111 - GEN PHYSICS W/CALCULUS I

Semester Hours: 3

For science and engineering students. Basic laws of physics and their application to specific problems: vectors, Newtonian mechanics, energy, conservation laws, simple harmonic motion, statics, fluids. Offered all terms. Prerequisite: MA 171 Corequisite: PH 114.

PH 111R - RECITATION

Semester Hours: 0

PH 112 - GEN PHYSICS W/CALC II

Semester Hours: 3

Continuation of PH 111. Heat and thermodynamics, basic electricity, electric and magnetic fields. Offered all terms. Prerequisite: MA 172, PH 111, PH 114. Corequisite: PH 115.

PH 112R - RECITATION

Semester Hours: 0

PH 113 - GEN PHYSICS W/CALC III

Semester Hours: 3

Continuation of PH 111 and 112. Wave motion, optics, relativity, quantum effects, atomic and nuclear structure, and elementary particles. Offered all terms. Prerequisite: MA 201 (or higher), PH 112, and PH 115. Corequisite: PH 116.

PH 113R - RECITATION

Semester Hours: 0

PH 114 - GENERAL PHYSICS LAB I

Semester Hour: 1

Laboratory instruction in support of material covered in PH 111. Offered all terms. Corequisite: PH 111.

PH 115 - GENERAL PHYSICS LAB II

Semester Hour: 1

Laboratory instruction in support of material covered in PH 112. Offered all terms. Corequisite: PH 112.

PH 116 - GENERAL PHYSICS LAB III

Semester Hour: 1

Laboratory instruction in support of material covered in PH 113. Offered all terms. Corequisite: PH 113.

PH 251 - SPECIAL RELATIVITY

Semester Hour: 1

Einstein's theory of special relativity. Invariance, geometry of Minkowski spacetime, non-Euclidean geometry; Principle of Relativity; clock synchronization; Lorentz transformations; counter-intuitive effects measured in relative motion; casualty and the speed of light; relativistic dynamics. Prerequisite: PH 112 and MA 172. Prerequisite with concurrency: PH 113.

PH 301 - INTERMEDIATE MECHANICS

Semester Hours: 3

Reviews Newtonian mechanics, natural and driven oscillations, variational calculus and Lagrange's equations, application to central force motion, rigid body rotation and coupled oscillators. Offered Spring. Prerequisite: PH 111 and either PH 305 or MA 238.

PH 305 - MATH METHODS IN PHYSICS

Semester Hours: 3

Applied 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. Offered Spring. Prerequisite: PH 112.

PH 306 - APPLIED PHYSICS

Semester Hours: 3

Computational and numerical techniques for problem solving. Applications to classical mechanics, electrodynamics, quantum mechanics, optics, astrophysics. Offered Fall. Prerequisite: PH 305, (CS 102 or CPE 112 or CS 121) and (MA 238 or MA 244 or MA 324).

PH 310 - INTERMEDIATE LAB I

Semester Hours: 2

Experiments in classical physics. Introduction to statistical methods. Offered Fall. Prerequisites: PH 113 or 116.

PH 311 - INTERMEDIATE LAB II

Semester Hours: 2

Experiments in modern physics. Offered Spring. Prerequisite: PH 251 and PH 310.

PH 337 - ELECTRONICS

Semester 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. Offered Fall, odd years. Prerequisite: PH 112.

PH 351 - INTRODUCTION TO MODERN PHYSICS

Semester Hours: 3

Kinetic theory, Blackbody radiation, Quantum physics: wave packets, the uncertainty principle, Schrodinger's equation and solutions for simple systems, application to atomic, nuclear, and solid-state physics. Offered Fall. Prerequisite: PH 113, and either MA 238 or 244. Prerequisite with concurrency: PH 251.

PH 416 - SENIOR LABORATORY

Semester Hours: 2

Advanced experimental techniques in various sub-fields of physics. Offered Fall, Spring. Prerequisite: PH 311.

PH 420 - SENIOR THESIS

Semester Hours: 3

Research performed under direction of a faculty member. Final research report required. Offered all terms.

PH 421 - THERMAL & STATISTICAL PHYSICS

Semester 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. Offered Spring, even years. Prerequisite: PH 351. Prerequisite with concurrency: PH 301 and PH 306.

PH 431 - INTERM ELECTRIC & MAGNETISM I

Semester Hours: 3

Electrostatics: electric fields, electric potential, Poisson's equation. Electric fields in matter. Magnetostatics: currents, magnetic fields. Magnetic fields in matter. Prerequisite: PH 305 and MA 201. Prerequisite with concurrency: MA 238.

PH 432 - INTERM ELECTRIC & MAGNETISM II

Semester Hours: 3

Continuation of PH 431. Maxwell's equations for time-varying fields. Electromagnetic waves. AC circuits. Radiation. Relativistic electrodynamics. Offered Spring, odd years. Prerequisite: PH 431.

PH 451 - INTRO QUANTUM MECHANICS I

Semester 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. Offered Fall. Prerequisite: PH 305, PH 351, and (MA 244 or MA 238) and PH 306 with concurrency.

PH 452 - INTRO QUANTUM MECHANICS II

Semester Hours: 3

Multiparticle systems. Atomic structure. Approximation methods. Scattering. Applications to nuclear, atomic, and molecular systems. Offered Spring. Prerequisite: PH 451.

PH 453 - INTRO TO PARTICLE PHYSICS

Semester Hours: 3

Surveys elementary particle physics, 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. Prerequisite with concurrency: PH 451.

PH 474 - INTRO TO GENERAL RELATIVITY

Semester Hours: 3

Introduces general relativity and gravitational physics as inferred from the behavior of particles and light rays for a selection of spacetimes. Major properties of black holes, wormholes, gravitational waves. Physics First approach, and introduces new math as required for discussion of physics. Prerequisite: PH 251 and PH 301.

PH 480 - SELECTED TOPICS

Semester Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, and space physics. Offered all terms. Prerequisite: PH 113 and MA 201.

PH 489 - SELECTED TOPICS

Semester Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Offered all terms. Prerequisites: PH 113 or 116 and MA 201.

PH 499 - PHYSICS PRACTICUM

Semester Hours: 3

"Capstone" course designed to provide real-world research experience for graduation seniors. Students work individually with faculty members on projects. Requires oral presentation and final research report. Offered all terms. Required courses on the POS must be taken prior to, or concurrently with, this course.

Physics, BS

Physics, BS Requirements:

- Physics, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		

2nd Fine Art	
Mathematics and Science	12
Mathematics ²	4
MA 171	CALCULUS A
Natural Science sequence	8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
History and Social Behavioral Sciences	12
History: Choose one ¹	3
HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877
Social and Behavioral Sciences: Choose two	6
ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
GS 200	GLOBAL SYSTEMS AND CULTURES
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
2nd History or 3rd Social and Behavioral Science: Choose one ³	3
2nd History ¹	
3rd Social and Behavioral Science ³	
Pre-Professional	23-24
Computer Science	3
CS 102	INTRO TO C PROGRAMMING
Technical Writing	3
EH 301	TECHNICAL WRITING
Additional Science or Engineering course: Choose one	3-4
AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CS 121	COMPUTER SCIENCE I
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY
MA 112	PRECALCULUS ALGEBRA
MA 113	PRECALCULUS TRIGONOMETRY
MA 281	ELEMENTS OF STATISTICAL ANALYS

Additional Required Mathematics		14
MA 172	CALCULUS B	
MA 201	CALCULUS C	
MA 238	APPL DIFFERENTIAL EQUATIONS	
MA 244	INTRO TO LINEAR ALGEBRA	

Code	Title	Semester Hours
Physics Core		28

PH 110	FRONTIERS IN SCIENCE	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
PH 251	SPECIAL RELATIVITY	
PH 301	INTERMEDIATE MECHANICS	
PH 305	MATH METHODS IN PHYSICS	
PH 351	INTRODUCTION TO MODERN PHYSICS	
PH 499	PHYSICS PRACTICUM	

Physics Elective Courses 8

PH/OPT/AST 300+ level or higher course	
PH/OPT/AST 300+ level or higher course	
PH/OPT/AST 300+ level or higher course	

Elective Courses 26-27

Elective courses. 16 credits of the 26-27 elective credits must be taken at the 300+ level or higher.
Additional Elective courses 100+ level to reach 128 credit hours. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

Total Semester Hours 128

- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- 2 Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required.
- 3 No more than 6 credit hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.

Sample Four-Year Plan for Physics, BS degree:

Note: This is only an example and variations are possible.

Year 1

		Semester Hours
Fall		
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
PH 110	FRONTIERS IN SCIENCE	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		15
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4

PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
Term Semester Hours:		15
Year 2		
Fall		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
MA 201	CALCULUS C	4
CS 102	INTRO TO C PROGRAMMING	3
Fine art		3
See Requirements tab for approved list.		
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		17
Spring		
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
PH 251	SPECIAL RELATIVITY	1
PH 305	MATH METHODS IN PHYSICS	3
MA 238	APPL DIFFERENTIAL EQUATIONS	3
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		17
Year 3		
Fall		
PH 351	INTRODUCTION TO MODERN PHYSICS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
Additional Science or Engineering course		3-4
See Requirements tab for approved list.		
Social and Behavioral science		3
See Requirements tab for approved list.		
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		15-16
Spring		
PH 301	INTERMEDIATE MECHANICS	3
PH/OPT/AST 300+ level or higher course		3
Social and Behavioral science		3
See Requirements tab for approved list.		
CM 113	Intro to Rhetorical Communication	3
Elective 300+ level or higher course		3
Elective		1

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

Term Semester Hours:		16
Year 4		
Fall		
PH/OPT/AST 300+ level or higher course		3
PH/OPT/AST 300+ level or higher course		2
EH 301	TECHNICAL WRITING	3
History		3
See Requirements tab for approved list.		
Elective 300+ level or higher course		3
Elective 300+ level or higher course		3
Term Semester Hours:		17
Spring		
PH 499	PHYSICS PRACTICUM	3
History		3
See Requirements tab for approved list.		
Elective 300+ level or higher course		3
Elective 300+ level or higher course		3
Elective 300+ level or higher course		3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Total Semester Hours:		128-129

Physics, BS - Applied & Theoretical Physics Concentration

Physics, Applied & Theoretical Physics Concentration, BS Requirements:

- Physics, Applied & Theoretical Physics Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	

TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		12
Mathematics ²		4
MA 171	CALCULUS A	
Natural Science sequence		8
CH 121	GENERAL CHEMISTRY I	
& CH 125	and GENERAL CHEMISTRY LAB I	
CH 123	GENERAL CHEMISTRY II	
& CH 126	and GENERAL CHEMISTRY LAB II	
History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre-Professional		23-24
Computer Science		3
CS 102	INTRO TO C PROGRAMMING	

Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Science or Engineering course: Choose one		3-4
AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY	
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CS 121	COMPUTER SCIENCE I	
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 281	ELEMENTS OF STATISTICAL ANALYS	
Additional Required Mathematics		14
MA 172	CALCULUS B	
MA 201	CALCULUS C	
MA 238	APPL DIFFERENTIAL EQUATIONS	
MA 244	INTRO TO LINEAR ALGEBRA	
Code	Title	Semester Hours
Physics Core		28
PH 110	FRONTIERS IN SCIENCE	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
PH 251	SPECIAL RELATIVITY	
PH 301	INTERMEDIATE MECHANICS	
PH 305	MATH METHODS IN PHYSICS	
PH 351	INTRODUCTION TO MODERN PHYSICS	
PH 499	PHYSICS PRACTICUM	
Applied and Theoretical Concentration Requirements		19
PH 310	INTERMEDIATE LAB I	
PH 311	INTERMEDIATE LAB II	
PH 421	THERMAL & STATISTICAL PHYSICS	
PH 431	INTERM ELECTRICI & MAGNETISM I	
PH 432	INTERM ELECTRIC & MAGNETISM II	
PH 451	INTRO QUANTUM MECHANICS I	
PH 452	INTRO QUANTUM MECHANICS II	
Elective Courses		15-16
Elective courses. 5 credits of the 15-16 elective credits must be taken at the 300+ level or higher.		
Additional Elective courses 100+ level to reach 128 credit hours. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Total Semester Hours		128

1

Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)

- ² Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required.
- ³ No more than 6 credit hours can be taken in a single discipline.
- ⁴ For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.

Sample Four-Year Plan for Physics, Applied & Theoretical Physics Concentration, BS degree:

Note: This is only an example and variations are possible.

Year 1

		Semester Hours
Fall		
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
PH 110	FRONTIERS IN SCIENCE	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
FYE 101	CHARGER SUCCESS	1
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
MA 201	CALCULUS C	4
CS 102	INTRO TO C PROGRAMMING	3
Fine art		3
See Requirements tab for approved list.		
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		17
Spring		
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
PH 251	SPECIAL RELATIVITY	1
PH 305	MATH METHODS IN PHYSICS	3
MA 238	APPL DIFFERENTIAL EQUATIONS	3
Social and Behavioral science		3
See Requirements tab for approved list.		
Humanities, 2nd Fine art or 2nd Literature		3

See Requirements tab for approved list.

	Term Semester Hours:	17
Year 3		
Fall		
PH 306	APPLIED PHYSICS	3
PH 310	INTERMEDIATE LAB I	2
PH 351	INTRODUCTION TO MODERN PHYSICS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
Additional Science or Engineering course		3-4
See Requirements tab for approved list.		
	Term Semester Hours:	14-15
Spring		
PH 301	INTERMEDIATE MECHANICS	3
PH 311	INTERMEDIATE LAB II	2
PH 421	THERMAL STATISTICAL PHYSICS	3
CM 113	Intro to Rhetorical Communication	3
Social and Behavioral science		3
See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		
	Term Semester Hours:	17
Year 4		
Fall		
PH 431	INTERM ELECTRICI MAGNETISM I	3
PH 451	INTRO QUANTUM MECHANICS I	3
EH 301	TECHNICAL WRITING	3
CM 113	Intro to Rhetorical Communication	3
History		3
See Requirements tab for approved list.		
	Term Semester Hours:	15
Spring		
PH 432	INTERM ELECTRIC MAGNETISM II	3
PH 452	INTRO QUANTUM MECHANICS II	3
PH 499	PHYSICS PRACTICUM	3
Elective 300+ level or higher course		3
Elective		3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
	Term Semester Hours:	16
	Total Semester Hours:	128-129

Physics, BS - Astronomy & Astrophysics Concentration

The Astronomy & Astrophysics concentration covers basic astronomy and astrophysics, stellar and galactic structure, high-energy astrophysics, general relativity and cosmology. Graduates who complete this concentration find work in all aspects of astrophysics from low-level atmospheric physics, to solar physics and the Sun-Earth system, to the mysteries of dark matter and cosmology. With laboratory experience and exposure to electronics, students may also find work supporting astronomical guidance and control systems on terrestrial and space-borne platforms.

Physics, Astronomy & Astrophysics Concentration, BS Requirements:

- Physics, Astronomy & Astrophysics Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre-professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		12
Mathematics ²		4
MA 171	CALCULUS A	
Natural Science sequence		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	

Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre-Professional		23-24
Computer Science		3
CS 102	INTRO TO C PROGRAMMING	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Science or Engineering course: Choose one		3-4
AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY	
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CS 121	COMPUTER SCIENCE I	
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 281	ELEMENTS OF STATISTICAL ANALYS	
Additional Required Mathematics		14
MA 172	CALCULUS B	
MA 201	CALCULUS C	
MA 238	APPL DIFFERENTIAL EQUATIONS	
MA 244	INTRO TO LINEAR ALGEBRA	
Code	Title	Semester Hours
Physics Core		28
PH 110	FRONTIERS IN SCIENCE	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	

PH 251	SPECIAL RELATIVITY
PH 301	INTERMEDIATE MECHANICS
PH 305	MATH METHODS IN PHYSICS
PH 351	INTRODUCTION TO MODERN PHYSICS
PH 499	PHYSICS PRACTICUM

Code	Title	Semester Hours
Astronomy and Astrophysics Concentration Requirements		17

AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY
AST 107 & 107L	EXPLORING THE COSMOS II and GEN ASTRONOMY II LAB
AST 371	INTRO TO ASTROPHYSICS
AST 471	ASTROPHYSICS
PH/OPT/AST 300+ level or higher course	

Elective Courses	17-18
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Elective courses. 15 credits of the 17-18 elective credits must be taken at the 300+ level or higher.

Additional Elective courses 100+ level to reach 128 credit hours. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

Total Semester Hours	128
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- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- 2 Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required.
- 3 No more than 6 credit hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.

Sample Four-Year plan for Physics, Astronomy & Astrophysics Concentration, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
PH 110	FRONTIERS IN SCIENCE	3
AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY	4
FYE 101	CHARGER SUCCESS	1
Elective		1
Term Semester Hours:		16

Spring		
EH 102	COLLEGE WRITING II	3
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
AST 107	EXPLORING THE COSMOS II	4
MA 172	CALCULUS B	4
Elective		1
Term Semester Hours:		16

Year 2

Fall		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4

MA 201	CALCULUS C	4
MA 244	INTRO TO LINEAR ALGEBRA	3
Literature		3
See Requirements tab for approved list.		
Fine art		3
See Requirements tab for approved list.		
Term Semester Hours:		17
Spring		
PH 113	GEN PHYSICS W/CALC III	4
& PH 116	and GENERAL PHYSICS LAB III	
PH 251	SPECIAL RELATIVITY	1
PH 305	MATH METHODS IN PHYSICS	3
MA 238	APPL DIFFERENTIAL EQUATIONS	3
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
Elective		2
Term Semester Hours:		16
Year 3		
Fall		
PH 351	INTRODUCTION TO MODERN PHYSICS	3
CH 121	GENERAL CHEMISTRY I	4
& CH 125	and GENERAL CHEMISTRY LAB I	
CS 102	INTRO TO C PROGRAMMING	3
CM 113	Intro to Rhetorical Communication	3
Social and Behavioral science		3
See Requirements tab for approved list.		
Term Semester Hours:		16
Spring		
PH 301	INTERMEDIATE MECHANICS	3
AST 371	INTRO TO ASTROPHYSICS	3
CH 123	GENERAL CHEMISTRY II	4
& CH 126	and GENERAL CHEMISTRY LAB II	
Social and Behavioral science		3
See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		
Term Semester Hours:		16
Year 4		
Fall		
AST 471	ASTROPHYSICS	3
EH 301	TECHNICAL WRITING	3
PH/OPT/AST 300+ level or higher course		3
History		3
See Requirements tab for approved list.		
Elective 300+ level or higher course		3
Term Semester Hours:		15
Spring		
PH 499	PHYSICS PRACTICUM	3
Elective 300+ level or higher course		3
Elective 300+ level or higher course		3

Elective 300+ level or higher course	3
Elective 300+ level or higher course	3
Elective	1

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

Term Semester Hours:	16
Total Semester Hours:	128

Physics, BS - Engineering Physics Concentration

Physics, Engineering Physics Concentration, BS Requirements:

- Physics, Engineering Physics Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre-professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207 or EH 242	READINGS LITERATURE/CULTURE I MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		12
Mathematics ²		4
MA 171	CALCULUS A	

Natural Science sequence	8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II
History and Social Behavioral Sciences	12
History: Choose one ¹	3
HY 103	WORLD HISTORY TO 1500
HY 104	WORLD HISTORY SINCE 1500
HY 221	UNITED STATES TO 1877
HY 222	UNITED STATES SINCE 1877
Social and Behavioral Sciences: Choose two	6
ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS
GY 105	WORLD REGIONAL GEOGRAPHY
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY
GS 200	GLOBAL SYSTEMS AND CULTURES
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 105	INTRO CULTURAL ANTHROPOLOGY
SOC 150	SOCIOLOGICAL PERSP TECH & SCI
PY 101	GENERAL PSYCHOLOGY I
PY 201	LIFE-SPAN DEVELOPMENT
2nd History or 3rd Social and Behavioral Science: Choose one ³	3
2nd History ¹	
3rd Social and Behavioral Science ³	
Pre-Professional	23-24
Computer Science	3
CS 102	INTRO TO C PROGRAMMING
Technical Writing	3
EH 301	TECHNICAL WRITING
Additional Science or Engineering course: Choose one	3-4
AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB
CS 121	COMPUTER SCIENCE I
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY
MA 112	PRECALCULUS ALGEBRA
MA 113	PRECALCULUS TRIGONOMETRY
MA 281	ELEMENTS OF STATISTICAL ANALYS
Additional Required Mathematics	14
MA 172	CALCULUS B
MA 201	CALCULUS C

MA 238	APPL DIFFERENTIAL EQUATIONS
MA 244	INTRO TO LINEAR ALGEBRA

Code	Title	Semester Hours
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Physics Core 28

PH 110	FRONTIERS IN SCIENCE
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III
PH 251	SPECIAL RELATIVITY
PH 301	INTERMEDIATE MECHANICS
PH 305	MATH METHODS IN PHYSICS
PH 351	INTRODUCTION TO MODERN PHYSICS
PH 499	PHYSICS PRACTICUM

Code	Title	Semester Hours
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Physics Elective course 3

PH/OPT/AST Elective 300+ level or higher course

Engineering Physics Concentration Requirements 15

Engineering Courses 300+ level or higher
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Elective Courses 16-17

Elective courses. 6 credits of the 16-17 elective credits must be taken at the 300+ level or higher.

Additional Elective courses 100+ level to reach 128 credit hours. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

Total Semester Hours 128

- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- 2 Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required.
- 3 No more than 6 credit hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.

Sample Four-Year plan for Physics, Engineering Physics Concentration, BS degree:

Note: This is only an example and variations are possible.

Year 1

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
PH 110	FRONTIERS IN SCIENCE	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
FYE 101	CHARGER SUCCESS	1
Elective		1

Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.

Term Semester Hours:

16

Spring

EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Year 2		
Fall		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
MA 201	CALCULUS C	4
CS 102	INTRO TO C PROGRAMMING	3
Fine art		3
See Requirements tab for approved list.		
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		17
Spring		
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
PH 251	SPECIAL RELATIVITY	1
PH 305	MATH METHODS IN PHYSICS	3
MA 238	APPL DIFFERENTIAL EQUATIONS	3
Elective		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		17
Year 3		
Fall		
PH 351	INTRODUCTION TO MODERN PHYSICS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
Additional Science or Engineering course		3-4
See Requirements tab for approved list.		
Social and Behavioral science		3
See Requirements tab for approved list.		
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		15-16
Spring		
PH 301	INTERMEDIATE MECHANICS	3
PH/OPT/AST 300+ level or higher course		3
Social and Behavioral science		3
See Requirements tab for approved list.		

CM 113	Intro to Rhetorical Communication	3
Engineering elective course		3
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Year 4		
Fall		
Engineering elective course		3
Engineering elective course		3
EH 301	TECHNICAL WRITING	3
Elective 300+ level or higher course		3
Elective		4
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
PH 499	PHYSICS PRACTICUM	3
Engineering elective course		3
Engineering elective course		3
Elective 300+ level or higher course		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		15
Total Semester Hours:		128-129

Physics, BS - Optics Concentration

Optics is a multidisciplinary field. Students completing the optics concentration receive exposure to geometrical optics, physical optics, optical instruments, interference and diffraction, polarimetry, optoelectronics, lasers, optical sources and detectors, and radiometry along with laboratory experience using state-of-the-art equipment and modern optical techniques.

Physics, Optics Concentration, BS Requirements:

- Physics, Optics Concentration, BS degree requires 128 credit hours.
- 39 of 128 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre-professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

Degree Requirements

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	

ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
MU 100	INTRO TO MUSIC LITERATURE	
TH 122	THEATRE APPRECIATION	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		12
Mathematics ²		4
MA 171	CALCULUS A	
Natural Science sequence		8
CH 121	GENERAL CHEMISTRY I	
& CH 125	and GENERAL CHEMISTRY LAB I	
CH 123	GENERAL CHEMISTRY II	
& CH 126	and GENERAL CHEMISTRY LAB II	
History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences: Choose two		6
ECN 142	PRINC OF MACROECONOMICS	
ECN 143	PRINC OF MICROECONOMICS	
PSC 101	INTRO TO AMERICAN GOVERNMENT	
PSC 102	INTRO TO COMPARATIVE POLITICS	
PSC 260	INTRODUCTION TO INTERNATIONAL RELATIONS	
GY 105	WORLD REGIONAL GEOGRAPHY	
GY 110	PRINCIPLES OF HUMAN GEOGRAPHY	
GS 200	GLOBAL SYSTEMS AND CULTURES	
SOC 100	INTRO TO SOCIOLOGY	
SOC 102	ANALYSIS OF SOCIAL PROBLEMS	
SOC 105	INTRO CULTURAL ANTHROPOLOGY	
SOC 150	SOCIOLOGICAL PERSP TECH & SCI	
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		

Pre-Professional		23-24
Computer Science		3
CS 102	INTRO TO C PROGRAMMING	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Science or Engineering course: Choose one		3-4
AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY	
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CS 121	COMPUTER SCIENCE I	
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 281	ELEMENTS OF STATISTICAL ANALYS	
Additional Required Mathematics		14
MA 172	CALCULUS B	
MA 201	CALCULUS C	
MA 238	APPL DIFFERENTIAL EQUATIONS	
MA 244	INTRO TO LINEAR ALGEBRA	
Code	Title	Semester Hours
Physics Core		28
PH 110	FRONTIERS IN SCIENCE	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
PH 251	SPECIAL RELATIVITY	
PH 301	INTERMEDIATE MECHANICS	
PH 305	MATH METHODS IN PHYSICS	
PH 351	INTRODUCTION TO MODERN PHYSICS	
PH 499	PHYSICS PRACTICUM	
Optics Concentration Requirements		16
OPT 341	GEOMETRICAL OPTICS	
OPT 342	PHYSICAL OPTICS	
OPT 411	GEOMETRICAL OPTICS LAB	
OPT 412	PHYSICAL OPTICS LAB	
PH/OPT 300+ level or higher course		
PH/OPT 400+ level or higher course		
Elective Courses		18-19
Elective courses. 8 credits of the 18-19 elective credits must be taken at the 300+ level or higher.		
Additional Elective courses 100+ level to reach 128 credit hours. Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Total Semester Hours		128

- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- 2 Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required.
- 3 No more than 6 credit hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.

Sample Four-Year Plan for Physics, Optics Concentration, BS degree:

Note: This is only an example and variations are possible.

Year 1

		Semester Hours
Fall		
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
PH 110	FRONTIERS IN SCIENCE	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
FYE 101	CHARGER SUCCESS	1
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16
Spring		
EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
Term Semester Hours:		16

Year 2

Fall		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
MA 201	CALCULUS C	4
CS 102	INTRO TO C PROGRAMMING	3
Fine art		3
See Requirements tab for approved list.		
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		17
Spring		
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
PH 251	SPECIAL RELATIVITY	1
PH 305	MATH METHODS IN PHYSICS	3
MA 238	APPL DIFFERENTIAL EQUATIONS	3
Humanities, 2nd Fine art or 2nd Literature		3

See Requirements tab for approved list.

	Term Semester Hours:	14
Year 3		
Fall		
PH 351	INTRODUCTION TO MODERN PHYSICS	3
OPT 341	GEOMETRICAL OPTICS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
Additional Science or Engineering course		3-4
See Requirements tab for approved list.		
Social and Behavioral science		3
See Requirements tab for approved list.		
	Term Semester Hours:	15-16
Spring		
PH 301	INTERMEDIATE MECHANICS	3
OPT 342	PHYSICAL OPTICS	3
CM 113	Intro to Rhetorical Communication	3
Social and Behavioral science		3
See Requirements tab for approved list.		
History		3
See Requirements tab for approved list.		
Elective		1
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
	Term Semester Hours:	16
Year 4		
Fall		
OPT 411	GEOMETRICAL OPTICS LAB	2
PH/OPT 300+ level or higher course		3
EH 301	TECHNICAL WRITING	3
History		3
See Requirements tab for approved list.		
Elective 300+ level or higher		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
	Term Semester Hours:	17
Spring		
OPT 412	PHYSICAL OPTICS LAB	2
PH 499	PHYSICS PRACTICUM	3
PH/OPT 400+ level or higher course		3
Elective 300+ level or higher course		3
Elective 300+ level or higher course		3
Elective		3
Electives can be taken from any department and do not have to be taken in your major or minor. No more than 4 credit hours of 100 level HPE courses can count toward degree requirements.		
	Term Semester Hours:	17
	Total Semester Hours:	128-129

Physics, BS - Secondary Education Certification

Physics, Secondary Education Concentration, BS Requirements:

- Physics, Secondary Education Concentration, BS degree requires 142-143 credit hours.
- 39 credit hours must be taken at 300 level or higher (39 credits includes courses taken at the 300+ level in major, minor (if chosen), Pre professional area and electives).
- 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
- 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
- Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
- No more than 64 credit hours from a two-year college can be applied toward a UAH degree.
- For graduation application instructions, see here (p. 772).

This concentration leads to a B.S. degree with a major in Physics, and meets the requirements for an Alabama Class B Middle/Junior High School Teacher's Certificate or an Alabama Class B High School Teacher's Certificate.

Code	Title	Semester Hours
Freshman Composition		6
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
Humanities and Fine Arts		12
Fine Arts: Choose one		3
ARH 100	ARH SURV:ANCIENT-MEDIEVAL	
ARH 101	ARH SURV:RENAISSANCE-MODERN	
ARH 103	ARH SUR:NON-WESTERN TRADITIONS	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one		3
EH 207	READINGS LITERATURE/CULTURE I	
or EH 242	MYTHOLOGY	
EH 208	READINGS LITERATURE/CULTURE 2	
Speech		3
CM 113	Intro to Rhetorical Communication	
Humanities, 2nd Fine art or 2nd Literature: Choose one ¹		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any WLC course 100 or 200 level ⁴		
WGS 200	INTRO WOMEN'S & GENDER STUDIES	
2nd Literature ¹		
2nd Fine Art		
Mathematics and Science		12
Mathematics ²		4
MA 171	CALCULUS A	
Natural Science sequence		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	
History and Social Behavioral Sciences		12
History: Choose one ¹		3
HY 103	WORLD HISTORY TO 1500	

HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Sciences, required for Education program:		6
PY 101	GENERAL PSYCHOLOGY I	
PY 201	LIFE-SPAN DEVELOPMENT	
2nd History or 3rd Social and Behavioral Science: Choose one ³		3
2nd History ¹		
3rd Social and Behavioral Science ³		
Pre-Professional		23-24
Computer Science		3
CS 102	INTRO TO C PROGRAMMING	
Technical Writing		3
EH 301	TECHNICAL WRITING	
Additional Science or Engineering course: Choose one		3-4
AST 106 & 106L	EXPLORING THE COSMOS I and ASTRONOMY LABORATORY	
BYS 119 & 119L	PRINCIPLES OF BIOLOGY and LABORATORY	
CH 101 & CH 105	INTRO TO CHEMISTRY and INTRO CHEMISTRY LAB	
CS 121	COMPUTER SCIENCE I	
ESS 103 & 103L	ENVIRONMENTAL EARTH SCIENCE and LABORATORY	
ESS 111 & 111L	WEATHER, CLIMATE & GLOBAL CHNG and LABORATORY	
MA 112	PRECALCULUS ALGEBRA	
MA 113	PRECALCULUS TRIGONOMETRY	
MA 281	ELEMENTS OF STATISTICAL ANALYS	
Additional Required Mathematics		14
MA 172	CALCULUS B	
MA 201	CALCULUS C	
MA 238	APPL DIFFERENTIAL EQUATIONS	
MA 244	INTRO TO LINEAR ALGEBRA	
Code	Title	Semester Hours
Physics Core		28
PH 110	FRONTIERS IN SCIENCE	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	
PH 251	SPECIAL RELATIVITY	
PH 301	INTERMEDIATE MECHANICS	
PH 305	MATH METHODS IN PHYSICS	
PH 351	INTRODUCTION TO MODERN PHYSICS	
PH 499	PHYSICS PRACTICUM	
Physics Elective Courses		8
PH/OPT/AST 300+ level or higher course		
PH/OPT/AST 300+ level or higher course		
PH/OPT/AST 300+ level or higher course		

Secondary Education Concentration Requirements

40

ED 301	INTRO TO EDUCATION PRACTICUM
ED 307	MULTICULTURAL FND EDUCATION
ED 308	EDUCATIONAL PSYCHOLOGY
EDC 301	TCHG THE EXCEPTIONAL CHILD
EDC 311	INSTR STRATEGIES INCLUSIVE CLR
ED 410	FOUNDATIONS EDUC EVALUAT
ED 423	TCHG SC MID & SEC SCHOOLS
ED 350	TECHNOLOGY IN CLASSROOM
ED 408	TCHG READING/CONTENT AREA
ED 309	CLASSROOM & BEHAVIOR MGMT
ED 497	HIGH SCHOOL INTERNSHIP

Total Semester Hours

142-143

- 1 Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, EH 242 + EH 208, EH 242 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- 2 Based on Math placement, (<http://www.uah.edu/science/departments/math/undergraduate-students/placement>) prerequisite MA 112 and/or MA 113 Mathematics courses may be required.
- 3 No more than 6 credit hours can be taken in a single discipline.
- 4 For choices see the World Languages and Cultures (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures>) department.

Sample Four-Year Plan for Physics, Secondary Education Concentration, BS degree:**Note: This is only an example and variations are possible.****Year 1**

Fall		Semester Hours
EH 101	COLLEGE WRITING I	3
MA 171	CALCULUS A	4
PH 110	FRONTIERS IN SCIENCE	3
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	4
FYE 101	CHARGER SUCCESS	1
Term Semester Hours:		15

Spring

EH 102	COLLEGE WRITING II	3
MA 172	CALCULUS B	4
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
Term Semester Hours:		15

Year 2

Fall		
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
MA 201	CALCULUS C	4
CS 102	INTRO TO C PROGRAMMING	3
Fine art		3
See Requirements tab for approved list.		
Term Semester Hours:		14

Spring

PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
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PH 251	SPECIAL RELATIVITY	1
PH 305	MATH METHODS IN PHYSICS	3
MA 238	APPL DIFFERENTIAL EQUATIONS	3
Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		14
Year 3		
Fall		
PH 351	INTRODUCTION TO MODERN PHYSICS	3
MA 244	INTRO TO LINEAR ALGEBRA	3
Additional Science or Engineering course		3-4
See Requirements tab for approved list.		
PY 101	GENERAL PSYCHOLOGY I	3
Required for Education concentration		
Humanities, 2nd Fine art or 2nd Literature		3
See Requirements tab for approved list.		
Term Semester Hours:		15-16
Spring		
PH 301	INTERMEDIATE MECHANICS	3
PH/OPT/AST 300+ level or higher course		3
PY 201	LIFE-SPAN DEVELOPMENT	3
Required for education concentration		
CM 113	Intro to Rhetorical Communication	3
History		3
See Requirements tab for approved list.		
Term Semester Hours:		15
Year 4		
Fall		
PH 499	PHYSICS PRACTICUM	3
EH 301	TECHNICAL WRITING	3
PH/OPT/AST 300+ level or higher course		3
PH/OPT/AST 300+ level or higher course		2
History		3
See Requirements tab for approved list.		
Term Semester Hours:		14
Spring		
ED 301	INTRO TO EDUCATION PRACTICUM	1
ED 307	MULTICULTURAL FND EDUCATION	3
ED 308	EDUCATIONAL PSYCHOLOGY	3
EDC 301	TCHG THE EXCEPTIONAL CHILD	3
EDC 311	INSTR STRATEGIES INCLUSIVE CLR	3
Term Semester Hours:		13
Fifth Year		
Fall		

ED 309	CLASSROOM BEHAVIOR MGMT	3
ED 350	TECHNOLOGY IN CLASSROOM	3
ED 408	TCHG READING/CONTENT AREA	3
ED 410	FOUNDATIONS EDUC EVALUAT	3
ED 423	TCHG SC MID SEC SCHOOLS	3
Term Semester Hours:		15
Spring		
ED 497	HIGH SCHOOL INTERNSHIP	12
Term Semester Hours:		12
Total Semester Hours:		142-143

Astronomy and Astrophysics Minor

A minor in Astronomy and Astrophysics consists of:

Code	Title	Semester Hours
PH 110	FRONTIERS IN SCIENCE	3
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
PH/OPT/AST 300+ or 400+ course ¹		3
AST 106	EXPLORING THE COSMOS I	4
AST 107	EXPLORING THE COSMOS II	4
AST 371	INTRO TO ASTROPHYSICS	3
Total Semester Hours		21

¹ PH 499 is an acceptable course for the PH 300+ or 400+ course.

Optics Minor

A minor in Optics consists of:

Code	Title	Semester Hours
PH 110	FRONTIERS IN SCIENCE	3
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
PH or OPT 300+ or 400+ course ¹		3
OPT 341	GEOMETRICAL OPTICS	3
OPT 411	GEOMETRICAL OPTICS LAB	2
Total Semester Hours		23

¹ PH 499 is an acceptable course for the PH 300+ or 400+ course.

Physics Minor

A minor in Physics consists of:

Code	Title	Semester Hours
PH 110	FRONTIERS IN SCIENCE	3
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
PH 113 & PH 116	GEN PHYSICS W/CALC III and GENERAL PHYSICS LAB III	4
PH 300+ or 400+ course ¹		3
PH 300+ or 400+ course ¹		3
Total Semester Hours		21

¹ Courses PH 351 and PH 301 are encouraged to meet these requirements. PH 499 can be used as well.

Course Descriptions

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Accounting (ACC)

ACC 210 - ACCOUNTING FOR BUSINESS

Semester Hours: 4

An introduction to the role accounting information plays in business. Topics include both external and internal uses of accounting information with a particular focus on the accounting cycle, the preparation and interpretation of financial statements, and the role of accounting information in management decision making.

ACC 211 - PRINC OF FINANCIAL ACCOUNTING

Semester Hours: 3

Introduction to basic concepts that underlie accounting information. Topics include the statement of financial position, the income statement, the accounting cycle, internal control, and ethical and behavioral issues in financial reporting. Emphasis is placed on proper use of financial statement information.

ACC 212 - MANAGEMENT ACCOUNTING

Semester 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, and performance evaluation. Prerequisite: ACC 211.

ACC 307 - ACCOUNTING INFORMATION SYS

Semester Hours: 3

A detailed review and analysis of procedures required to capture, classify, summarize and report financial information. Topics include elements of accounting systems, business documents, consideration 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. Prerequisite: ACC 210.

ACC 310 - INTERM FINANCIAL ACCT I

Semester Hours: 3

First in a two-course sequence to examine the measurement and reporting of income, cash flows, assets, liabilities, and owner's equity in financial statements. Topics include financial statements, current assets and liabilities, investments, revenue recognition, and error analysis. Prerequisite: ACC 210 (with a grade of B- or better).

ACC 310L - LABORATORY

Semester Hours: 0

Intermediate Accounting I Lab provides extra opportunities for students to practice and to develop their problem-solving skills.

ACC 311 - INTERM FINANCIAL ACCT II

Semester Hours: 3

Second in a two-course sequence to examine the measurement and reporting of income, cash flows, assets, liabilities, and owner's equity in financial statements. Topics include long-term assets and liabilities, leases, income taxes, pensions, and owner's equity. Prerequisite: ACC 310.

ACC 311L - LABORATORY

Semester Hours: 0

Intermediate Accounting II lab provides extra opportunities for students to practice and to develop their problem-solving skills.

ACC 313 - INDIVIDUAL/SMALL BUS INCOME TA

Semester Hours: 3

Determination of taxable income, business and non-business deductions, and selected aspects of tax accounting for individuals and sole proprietorships. Prerequisite: ACC 210.

ACC 413 - CORP/PARTNERSHIP/ESTATE TAXES

Semester Hours: 3

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

ACC 414 - COST ACCOUNTING

Semester Hours: 3

Development and use of cost data for external reporting and internal planning and control. Topics include cost modeling, job and process costing, standard costing, activity-based costing, and budgeting. Development of relevant cost information for special purposes is also considered. Prerequisite: ACC 310 (C or better).

ACC 415 - ADV FINANCIAL ACCOUNTING

Semester Hours: 3

Analysis of financial accounting issues and alternatives concerning business combinations, intercorporate investments, international business, and partnerships. Prerequisite: ACC 311.

ACC 417 - ACC ST/LOCAL GOV & NON-PROFITS

Semester 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. Prerequisite: ACC 210 or ACC 212.

ACC 420 - STATE AND LOCAL TAXATION

Semester 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

Semester Hours: 3

Conceptual foundations of auditing practice. Basic auditing concepts including professional ethics, legal ability, independence, and competence. Auditing of computer-oriented systems, audit sampling, and standards of reporting. Role of the internal and independent auditor. Prerequisite: ACC 307 & ACC 310.

ACC 432 - ADVANCED AUDITING

Semester Hours: 3

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

ACC 433 - FORENSIC ACCOUNTING

Semester Hours: 3

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

ACC 440 - BASIC GOV CONTRACT ACCTG

Semester Hours: 3

Basic coverage and principles of government contract accounting with an emphasis on the Federal Acquisition Regulation (FAR). Prerequisite: ACC 314 or ACC 414.

ACC 441 - ADVANCED GOV CONTRACT ACCTG

Semester 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. Prerequisite: ACC 440.

ACC 470 - SEMINAR/CONTEMP ACCTG ISSUES

Semester Hours: 3

Current topics in professional accounting. Prerequisite: ACC 311.

ACC 480 - PROFESSIONAL CERTIFICATION

Semester Hours: 3

Review of the four areas of the Accounting Standards and Procedures: Regulation, Business Environment and Concepts, Financial Accounting and Reporting, Auditing and Attestation. Knowledge of the concepts in each of the areas is required for professional accounting certification practice.

ACC 490 - SPECIAL PROJECTS

Semester Hours: 1-3

Independent study in an area of interest to the student in the fields of accounting. Department chair permission required.

ACC 495 - INTERNSHIP IN ACCOUNTING

Semester Hours: 1-3

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

Ancient and Medieval Studies

AMS 199 - SPECIAL TOPICS

Semester Hours: 3

Special topics. Selected special topics course offered in ancient languages, History, Art History, Philosophy.

AMS 229 - ANCIENT & MEDIEVAL WORLDS

Semester Hours: 3

A survey of ancient and medieval culture in the Mediterranean world with attention to the ancient cultures of the Near East, Egypt, Greece, and Rome as well as the development of medieval Christian and Muslim civilizations.

Art History (ARH)

ARH 100 - ARH SURV:ANCIENT-MEDIEVAL

Semester Hours: 3

Survey of Pre-historic to Medieval art. Course emphasizes study of cultural contexts that fostered art and introduces students to basic analytic tools and history of art history. Very little in art is completely new. Learn about the visual traditions that shaped the culture we live with today.

ARH 101 - ARH SURV:RENAISSANCE-MODERN

Semester Hours: 3

Survey of the Major Western works of art produced since the Renaissance. Relates stylistic change to changes in historical and cultural contexts. Introduces students to basic analytic tools and theories of art history.

ARH 103 - ARH SUR:NON-WESTERN TRADITIONS

Semester Hours: 3

Survey of visual culture in India, the Far East, the Americas, the Pacific, and Africa. Focuses on relationships among art, religious beliefs, politics, and cultural practices. Studying the visual traditions of other cultures fosters greater understanding as our world becomes more global. Use the analytical tools and theories of art history to foster understandings of global cultures.

ARH 120 - ARH SURV: SPECIAL TOPICS

Semester Hours: 3

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

ARH 301 - ANCIENT GREEK ART

Semester Hours: 3

Art of ancient Greece from the Homeric period to the death of Cleopatra. Focuses on relationships of art to philosophy, politics, religion, literature, and drama. Greek art and culture heavily influenced our education system as well as the appearance of cities from Washington, DC to Huntsville, AL. Prerequisites: ARH 100 and ARH 101.

ARH 302 - MEDIEVAL ART

Semester Hours: 3

Examines architecture, sculpture, manuscripts, metalwork, textiles, and stained glass from the fall of Rome to the Gothic era. In addition to a chronological study of the period, engage in case studies on courtship, warfare, religion, and cultural interactions that influenced practices today. Prerequisites: ARH 100 and ARH 101.

ARH 303 - RENAISSANCE ART

Semester Hours: 3

The Renaissance supposedly ushered in advances in arts, humanities, and sciences. Rather than focusing on great masters, this course looks at regional trends in Italy as well as the rest of Europe to see what is innovative about this era considered a high point in Western culture. Prerequisites: ARH 100 and ARH 101.

ARH 304 - TWENTIETH CENTURY ART

Semester Hours: 3

Developments in European and American art from 1890 to World War II will be examined through historical, literary, philosophical, political, and social contexts and theories.. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and ARH 101.

ARH 305 - ANCIENT ROMAN ART

Semester Hours: 3

Roman visual culture from the foundation of the city to its fall. Explore case studies such as the age of Augustus, Pompeii, Roman engineering, the Provinces, games and spectacle. Learn about the Roman legacy and consider its impact on modern Western Culture. Prerequisites: ARH 100 and ARH 101.

ARH 306 - COLLAPSE OF CIVILIZATIONS

Semester Hours: 3

Course investigates why some cultures succeed and others fail. Examine factors that lead to collapse to address a question relevant to the contemporary world: How severe do internal stresses have to become before relatively minor climate shifts can trigger a widespread cultural collapse? Prerequisites: ARH 103 and ART major.

ARH 307 - IMPRESSIONISM & POST-IMP

Semester Hours: 3

European and American art from 1860 to 1900 examined through historical, political, social, philosophical, theoretical and literary perspective. This course guides the students in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and ARH 101.

ARH 309 - CONTEMPORARY ART & ISSUES

Semester Hours: 3

Major movements since World War II examined through historical, political, social, philosophical, and literary perspectives. Contemporary art theories will also be explored. Course guides students in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and ARH 101.

ARH 310 - NINETEENTH CENTURY ART

Semester Hours: 3

European and American art from 1780 to 1860 examined through historical, political, social, philosophical, theoretical and literary perspectives. Course guides students in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and ARH 101.

ARH 311 - PHILOSOPHY OF ART

Semester Hours: 3

What is Art? This course explores and interrogates a wide range of contrasting aesthetic theories within the western tradition, with particular emphasis on the relation between artistic expression and philosophical frameworks. Prerequisites: ARH 100 and ARH 101. OR ARH 100 and ARH 103. OR ARH 101 and ARH 103. ART Major.

ARH 320 - SPECIAL TOPICS IN ART HY

Semester Hours: 3

Developed based on student and faculty interest, special topics courses explore content and issues not currently emphasized in the curriculum. Courses may focus on a particular issue like Women in Antiquity or a particular genre such as Modern Architecture. Prerequisites: ARH 100, ARH 101, and ARH 309.

ARH 395 - INDEPENDENT STUDY

Semester Hours: 3

Directed, independent study on a topic pre-arranged with instructor, normally as an outgrowth of a 300-level art history course. Weekly mentoring meetings with instructor help student develop a workable thesis, conduct research, and manage a project that results in a well-argued paper.

ARH 400 - SENIOR THESIS

Semester Hours: 3

Culminating experience for students with an Art History concentration. With the help of a faculty mentor, student will choose a topic, conduct research, and construct a well-argued paper. Student will present this research to the faculty, displaying skills valuable in most careers.

Art Studio (ARS)

ARS 123 - TWO-DIMENSIONAL DES/COLOR TH

Semester Hours: 3

Introduction to the principles and elements of design and color theory. Assignments explore design concepts and an understanding of color. Course stresses the development of visual and manual skills, problem solving, critical thinking, and the tools and materials used in the making of art.

ARS 140 - THREE-DIMENSIONAL DESIGN

Semester Hours: 3

Course introduces students to fundamental principles pertaining to the creation of three-dimensional art and prepares them for more advanced processes. Processes include, but are not limited to, drawing for sculpture, model making, woodworking, and sewing.

ARS 160 - DRAWING: FOUNDATIONS

Semester Hours: 3

Introduction to principles, materials, and techniques of drawing. Observational drawing and exercises teach students visual skills and introduce aesthetics and artistic expression. Class covers visual and manual skills, problem solving, critical thinking, and the tools and materials artists use.

ARS 210 - GAME DESIGN: INTRODUCTION

Semester Hours: 3

This course is an introduction to the principles and processes of game design. Students will play, research, design, modify, and prototype tabletop games throughout the semester to gain a better understanding of game design. Prerequisite: ARS 160 or permission of instructor.

ARS 220 - ANIMATION: INTRODUCTION

Semester Hours: 3

Course is an introduction to the principles of 3D computer generated imaging including modeling, texturing, rigging, animating, lighting, and rendering, as well as production processes such as storyboarding, sound design, and editing that together provide a basic working knowledge of 3D CGI. Prerequisites: ARS 160 and ARS 123.

ARS 230 - GRAPHIC DESIGN: INTRODUCTION

Semester Hours: 3

Introduction to graphic design theories, principles, and software. Instruction in the basics of graphic design through practical understanding of visual communication and logistics of advertising, conceptual thinking, and creative exploration. Course is a primer for the Macintosh platform. Prerequisites: ARS 123 and ARS 160.

ARS 240 - SCULPTURE: INTRODUCTION

Semester Hours: 3

Students will develop and explore their ideas using a variety of traditional and non-traditional tools, materials and processes. Assemblage, subtraction, modeling, 3D modeling/printing and casting processes will be addressed, preparing students for entrance into advanced coursework. Prerequisite: ARS 140.

ARS 250 - PHOTOGRAPHY: INTRODUCTION

Semester Hours: 3

Fundamentals and techniques 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. Prerequisites: ARS 123 and ARS 160.

ARS 260 - DRAWING: INTRODUCTION

Semester Hours: 3

Course further develops drawing skills through study and practice. Materials, design, and creative ideas are explored. Critical thinking and visual analysis are used in critique. Students continue to develop visual and manual skills, problem solving abilities, and the use of tools and materials. Prerequisites: ARS 123 and ARS 160.

ARS 270 - PAINTING: INTRODUCTION

Semester Hours: 3

Students learn basic painting techniques, materials, and mediums. Problem solving assignments use two-dimensional design and color theory concepts and practices. Students are required to observe and think critically for critique and discussion. Prerequisites: ARS 123 and ARS 160.

ARS 280 - PRINTMAKING: INTRODUCTION

Semester Hours: 3

Introduction to basic areas of printmaking, including planographic, intaglio, and relief processes. Expands 2-D design concepts, color theory, and drawing skills. Develops proficiency with printmaking tools and materials as well as critical thinking and problem solving skills. Prerequisites: ARS 123 and ARS 160.

ARS 311 - GAME DESIGN: SCRIPTING & DES I

Semester Hours: 3

This course introduces students with limited programming experience to video game scripting using a visual programming language. Students will learn tools and techniques to design & script their own video games. Prerequisites: ARS 210, and one of the following: CS 102, CS 103, CS 121. Or permission of instructor.

ARS 320 - ANIMATION: TEAM GAME DESGN I

Semester Hours: 3

Students in this collaborative game design and development course will work in teams to conceptualize and create working video games in one semester. Students will gain an understanding of industry standard tools and practices, as well as get valuable experience working in teams. Prerequisites: ARS 321 or ARS 322 or ARS 324 or ARS 311.

ARS 321 - ANIMATION: MODELING I

Semester Hours: 3

Course focuses on mesh design and creation as well as surface and lighting properties for creating production quality models. Digital sculpting, 3D painting, and other workflows will be covered in this class to help students gain experience and better understand the role of CGI modelers. Prerequisite: ARS 220.

ARS 322 - ANIMATION: CHARACTER ANIMTN I

Semester Hours: 3

Course explores fundamental animation principles (timing/spacing, overlap, squash/stretch, anticipation, etc) along with digital animation tools (rigging, inverse kinematics, keyframing, etc) to help students gain experience and a better understanding of the role of CG animators. Prerequisite: ARS 220.

ARS 323 - ANIMATION: SHORT FILM I

Semester Hours: 3

In this course students will conceptualize and fully produce 3D animated short films. The story, characters, and world will be built from the ground up, and the production pipeline will mirror common industry practices. Experience with 3D is essential, but expertise in a particular discipline is not as critical as being driven to learn and create. Prerequisites: ARS 321 or ARS 322 or ARS 324.

ARS 324 - ANIMATION: TECHNICAL ARTS I

Semester Hours: 3

Course will concentrate on areas of production that require both technical and art skill, often called technical art. Topics include in-depth rigging, automating workflows, simulations, writing custom tools, writing shaders, etc. Students will gain experience in a sought-after production role. Prerequisite: ARS 220.

ARS 330 - GRAPHIC DESIGN: PRINT MEDIA I

Semester Hours: 3

Course emphasizes creative exploration in design and layout. Students will learn intermediate methods of graphic design. Focus for this course is additional study in design, creative thinking, and industry software. Prerequisite: ARS 230.

ARS 332 - GRAPHIC DESIGN: WEB DESIGN

Semester Hours: 3

Beginning course in web design using HTML and CSS to build effective and creative websites with strong user-centric design. Understanding HTML and current best web design practices is essential to web design and development. Prerequisite: ARS 230.

ARS 333 - GRAPH DES: WATERCOLOR & DIG I

Semester Hours: 3

Graphic design from an illustration and fine arts perspective. Course explores different creative directions using current software in combination with traditional watercolor media. Students will learn how to handle watercolor, develop creative concepts, and use software to support their design. Prerequisite: ARS 230.

ARS 334 - GRAPH DES: WEB USER EXPER I

Semester Hours: 3

Course places emphasis on user experience, web animation, and application for the purpose of media development. This course focuses on the understanding of user experience and user interface design through the study of how consumers interact with media. Prerequisite: ARS 230.

ARS 335 - GRAPHIC DESIGN: TYPOGRAPHY I

Semester Hours: 3

Course studies type design and the usage of basic letterforms, typographic contrast, and hierarchy of information, major type families and characteristics, the history of typography design, creativity, and grid layout. Prerequisite: ARS 230.

ARS 340 - SCULP: FABRICATION I

Semester 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. Course instruction includes welding, CNC plasma cutting, advanced wood joinery, and wood bending. Prerequisite: ARS 240.

ARS 341 - SCULP: CARVING I

Semester Hours: 3

Carving stone, wood, and other materials is investigated with emphasis placed on developing the ability to see and release forms and on the unique relationship evolving between maker and material. Instruction also includes CNC routing, wood turning, and sharpening techniques. Prerequisite: ARS 240.

ARS 342 - SCULP: CASTING I

Semester Hours: 3

Course instruction focuses on mold-making processes and materials involved in casting objects using both traditional and non-traditional methods. Metal casting is the principle focus of this course with investigation surrounding how digital practices continue to affect this age-old practice. Prerequisite: ARS 240.

ARS 346 - SCULP: FIGURE MODELING I

Semester 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. Prerequisite: ARS 240.

ARS 347 - SCULP: SPACE AND PLACE I

Semester Hours: 3

Investigation of installation and environmental art practices including site-specific work, public art and interactive environments. Students will explore works that relate to the experience of place and develop the potential to use sculptural objects to transform space. Prerequisite: ARS 240.

ARS 350 - PHOTO: DIGITAL I

Semester Hours: 3

Digital image creation and editing techniques using postproduction software, digital printing, and image presentation. Course addresses contemporary fine art issues and an introduction to studio lighting. Students are required to provide their own digital camera with RAW settings. Prerequisite: ARS 250.

ARS 352 - PHOTO: DARKROOM I

Semester Hours: 3

Black and white film and darkroom techniques explored as a means of expression. Course discusses artistic styles and the history of twentieth-century black and white photography. Students will produce a final fine art portfolio. 35mm camera required (available through department if necessary).

Prerequisite: ARS 250.

ARS 353 - PHOTO: EXPER & HIST I

Semester Hours: 3

Introduction to alternative ways of working in the darkroom with an emphasis on historical photographic techniques. Experimentation with analog and digital materials are encouraged to produce a final portfolio. Students need a film camera (available through the department if necessary). Prerequisite: ARS 352.

ARS 355 - PHOTO: DOCUMENTARY I

Semester Hours: 3

Students study "truth" in the image using the documentary style of photography. Emphasis on the history of the genre and how to work in the field with attention to ethical issues. Students are required to provide their own digital camera with RAW settings. Prerequisite: ARS 350.

ARS 360 - DRAWING: FIGURE

Semester Hours: 3

Drawing with an emphasis on life drawing utilizing both traditional and contemporary methods and materials. Figure drawing is the traditional cornerstone of art training, and includes anatomy, observation, and advanced technical skills. Nude models will be used. Prerequisite: ARS 260.

ARS 375 - PAINTING: TRADITIONAL I

Semester 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. Students are guided in the development of artistic facility and vocabulary. Prerequisite: ARS 270.

ARS 376 - PAINTING: CONTEMPORARY I

Semester Hours: 3

Contemporary approaches toward painting are explored through technical and conceptual exercises based on contemporary painting practices. Students are guided in the development of artistic facility and personal expression. Prerequisite: ARS 270.

ARS 377 - PAINTING: MIXED MEDIA I

Semester Hours: 3

Exploration of painting with mixed and non-traditional media, including the use of assemblage and collage processes, shaped or contoured canvases, and related media. Students are guided in the development of artistic facility and a vocabulary of visual symbols for personal expression. Prerequisite: ARS 270.

ARS 381 - PRINT: ETCHING & RELIEF I

Semester Hours: 3

Etching and relief print processes are explored through woodblock, linoleum cut, aquatint and line etching. Through demonstrations, critical analysis, and making prints, students develop skills with tools, techniques and concepts associated with etching and relief printmaking. Prerequisite: ARS 280.

ARS 383 - PRINT: SCREENPRINT I

Semester Hours: 3

Studio practices in screenprint methods are used to synthesize technical skills and develop sophisticated aesthetic modes of printmaking. Through demonstrations, critical analysis, and making prints, students will consider complex ways in which printmaking becomes a tool for artistic expression. Prerequisite: ARS 280.

ARS 385 - PRINT: BOOK ARTS I

Semester Hours: 3

Students develop skills and aesthetic modes of narrative work through book arts. Emphasis on gaining skills in cutting, folding, measuring, gluing, sewing, printing, and binding. Students develop form and content through the exploration of structural mock ups and personal work. Prerequisite: ARS 280.

ARS 387 - PRINT: MONOPRINT & LITHOGRAPHY I

Semester Hours: 3

Monoprint and lithography are explored through planographic print processes. Through demonstrations, critical analysis, and making prints, student develop skills with tools techniques and concepts associated with monoprint and lithography printmaking. Prerequisite: ARS 280.

ARS 390 - CROSS DISCIPLINARY STUDIO I

Semester Hours: 3

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

ARS 393 - MULTIMEDIA I

Semester Hours: 3

Study and practice of time-based and other artistic approaches that combine elements of various art forms, usually developed along strong conceptual or thematic lines. Readings, written assignments, and presentations foster an understanding of the wide varieties of contemporary art practice. Prerequisites: ARS 123, ARS 140, ARS 160 and ARS 260.

ARS 395 - SP TOPICS IN STUDIO ART

Semester Hours: 3

Special topics on particular media or conceptual approaches to art. This course allows the student to explore new media and/or critical theoretical approaches to contemporary art. Prerequisite: Instructor Approval.

ARS 410 - PRINCIPLES FOR TEACHING ART

Semester Hours: 3

Focus on methods, materials and processes suitable for comprehensive art education content implementation. The course is a hands-on methods course in which students are required to design and implement art lessons to be taught to students in educational settings. Prerequisites: ED 410 and at least 4 300-level ARS courses, minimum gpa 2.75 or higher.

ARS 420 - ANIMATION: TEAM GAME DESIGN II

Semester Hours: 3

In this advanced collaborative game design and development course, students take on leadership production roles on their game teams and help mentor junior members. Students will gain experience as team leads and learn to coordinate multidisciplinary projects. Prerequisite: ARS 320, approval of instructor for non-art majors.

ARS 421 - ANIMATION: MODELING II

Semester Hours: 3

This advanced 3D modeling course will expand on tools and techniques taught in ARS 321 and continue to focus on creating production/portfolio quality 3D models. Students will explore additional tools and techniques for creating real-time and pre-rendered assets, and will have the ability to focus on modeling areas of personal interest. Prerequisite: ARS 321.

ARS 422 - ANIMATION: CHARACTER ANIMTN II

Semester Hours: 3

This advanced character animation course will expand on tools and techniques taught in ARS 322 and focus on creating production/portfolio quality, full character animations. Students will explore animation tools and methods for real-time and prerendered applications, and will have the ability to focus on animation areas of personal interest. Prerequisite: ARS 322.

ARS 423 - ANIMATION: SHORT FILM II

Semester Hours: 3

In this advanced short film production course students will take on leadership roles within their discipline and help guide the conceptualization and production of 3D animated short films. Advanced understanding of an aspect of production and short film pipelines is expected. Prerequisite: ARS 323.

ARS 424 - ANIMATION: TECHNICAL ARTS II

Semester Hours: 3

In this advanced technical arts course, students will select areas of production interest to research, identify need for improvement, and create solutions for the identified needs. Students may create everything from production quality/speed shaders, to production/pipeline tools, to advanced character rigs. Prerequisite: ARS 324.

ARS 430 - GRAPHIC DESIGN: PRINT MEDIA II

Semester Hours: 3

Course emphasizes print production, special applications of print design, environmental graphics, and advertising campaigns. Focus is on mastering print media methods and creating portfolio enhancement projects. Prerequisite: ARS 332.

ARS 432 - GRAPH DES: SENIOR PROJ MGMT

Semester Hours: 3

Students develop and/or manage one or more major web projects for clients as well as a professional site for students themselves. Course is the practical application of current best web design practices including user-centric design, HTML, CSS, and current web standards. Prerequisite: ARS 332.

ARS 433 - GRAPH DES: WATERCOLOR & DIG II

Semester Hours: 3

Course extends a student's knowledge of digital and traditional watercolor media. The purpose of this course is to further explore creative techniques, develop a direction, and apply new techniques combining media. Prerequisite: ARS 333.

ARS 434 - GRAPH DES: WEB USER EXPER II

Semester Hours: 3

Course focuses on advanced methods of user experience and user interface design. With faculty mentoring, students learn how to develop complex designs using these methods in user experience for the purpose of advanced media usage. Prerequisite: ARS 334.

ARS 435 - GRAPHIC DESIGN: TYPOGRAPHY II

Semester Hours: 3

Course explores professional methods in type design and type application. Course teaches students how to develop advertising series and text design using illustrative approaches to hand lettering. Curriculum includes expressive methods in developing type for the purpose of environmental graphics. Prerequisite: ARS 335.

ARS 440 - SCULP: FABRICATION II

Semester Hours: 3

Course continues investigation of fabrication processes exploring the specific nature of each area of specialization with emphasis on integrating multiple processes into singular sculptural works. Emphasis is placed on ideation, discussion, and presentation of personal artistic interests. Prerequisite: ARS 340.

ARS 441 - SCULP: CARVING II

Semester Hours: 3

Continued exploration of subtractive processes with a focus on specific material, process, or context. Discussion of ideation, historical/contemporary contexts, and presentation specific to personal artistic interests. Prerequisite: ARS 341.

ARS 442 - SCULP: CASTING II

Semester Hours: 3

Continued exploration of mold-making, patination, casting, and foundry processes as well as investigation of contemporary methods and materials. Students develop further technical knowledge and conceptual motivation related to casting with an emphasis on individual exploration. Prerequisite: ARS 342.

ARS 447 - SCULP: SPACE AND PLACE II

Semester Hours: 3

Exploration of installation and environmental art practices with an emphasis on creating work at off-campus sites. Students will engage in rigorous ideation through site research and public presentation. Students will have the opportunity to create public artworks on campus and in the City of Huntsville.. Prerequisite: ARS 347.

ARS 450 - PHOTO: DIGITAL II

Semester Hours: 3

Advanced digital image creation and image presentation. Class is open to experimentation with analog materials to produce digital media. There is an emphasis on personal style to produce a cohesive final project. Students are required to provide their own digital camera with RAW settings. Prerequisite: ARS 350.

ARS 452 - PHOTO: DARKROOM II

Semester Hours: 3

Advanced class in black and white darkroom photography. Students will explore the techniques of medium and large format photography to produce a final fine art print portfolio. 120 and/or 4x5 view camera required (available through department if necessary). Prerequisite: ARS 352.

ARS 453 - PHOTO: EXPER & HIST II

Semester Hours: 3

Advanced alternative and historical techniques in photography with an emphasis on personal style. Individual projects will be assigned to produce a cohesive portfolio. Prerequisite: ARS 353.

ARS 455 - PHOTO: DOCUMENTARY II

Semester 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. Prerequisite: ARS 355.

ARS 460 - DRAWING: CONCEPTUAL

Semester 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. Prerequisite: ARS 360.

ARS 475 - PAINTING: TRADITIONAL II

Semester Hours: 3

Continued exploration of figurative painting processes with an emphasis on portfolio development and professional practices. Students are guided in the development of artistic facility and personal expression using paint as a medium. Prerequisite: ARS 375.

ARS 476 - PAINTING: CONTEMPORARY II

Semester Hours: 3

Continued exploration of contemporary painting approaches with an emphasis on portfolio development and professional practices. Students are guided in their development of artistic facility and a vocabulary of visual symbols for personal expression. Prerequisite: ARS 376.

ARS 477 - PAINTING: MIXED MEDIA II

Semester Hours: 3

Continued exploration of mixed and non-traditional media with an emphasis on portfolio development and professional practices. Students are guided in the development of artistic facility and a vocabulary of visual symbols for personal expression through the use of a variety of media. Prerequisite: ARS 377.

ARS 481 - PRINT: ETCHING & RELIEF II

Semester Hours: 3

This is an advanced course, where etching and relief are used to make an independent body of work. Students demonstrate how printmaking is a tool for conceptual exploration and expression. Through visual and written research students consider the hand-printed image within our culture. Prerequisite: ARS 381.

ARS 483 - PRINT: SCREENPRINT II

Semester Hours: 3

Studio practices in advanced screenprint methods are used to create an independent body of work. Students investigate how screenprinting is a tool for developing prints in an expanded way and explore the multiple through the concerns of analogue and digital possibilities. Prerequisite: ARS 383.

ARS 485 - PRINT: BOOK ARTS II

Semester Hours: 3

Students develop an advanced body of work in the book arts, by exploring structure and content. Content is developed through the student's independent investigation of text and image. Structure developed through the making of mockups. Honing technical skills in printing and binding is emphasized. Prerequisite: ARS 385.

ARS 487 - PRINT: MONOPRINT & LITHOGRAPHY II

Semester Hours: 3

Monoprint and lithography print processes are used to create an independent body of work in this advanced course. Students demonstrate how unique and multiple prints are tools for conceptual exploration and expression. Through research students consider the roll printed image within visual culture. Prerequisite: ARS 387.

ARS 490 - CROSS DISCIPLINARY STUDIO II

Semester 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 create a fully developed body of work that is aesthetically and/or conceptually linked. Prerequisite: ARS 390.

ARS 492 - ART INTERNSHIP

Semester Hours: 3

Student applies principles, theories, and skills learned in Art Studio and/or Art History courses to on-the-job experience in a professional environment. Internship host may be suggested by the student or assigned by advisor. 150 work hours required to complete 15-week internship. Prerequisite: Instructor Approval.

ARS 493 - MULTIMEDIA II

Semester Hours: 3

Continued exploration of multi-media art works with emphasis on increasing sophistication and portfolio development. Readings, written assignments, and presentations foster an understanding of the wide varieties of contemporary art practice. Prerequisite: ARS 393.

ARS 494 - PROFESSIONAL PRACTICES

Semester Hours: 3

Course is a requirement for students in the BFA program, and is open to BA students. Includes preparation for the senior exit show or design portfolio, developing written materials for careers in the visual arts, and learning how to install and manage an art exhibition. Prerequisites: ARS 123, ARS 140, ARS 160 ARS 260, plus a minimum of four 300- or 400- level studio courses.

ARS 495 - INDEPENDENT PROJECTS

Semester Hours: 3

Available for an advanced major when an appropriate course is not offered to facilitate progress to graduation. May be taken only one time. Prerequisite: Instructor Approval.

Astronomy (AST)

AST 100 - SURVEY OF ASTRONOMY

Semester Hours: 4

One semester survey of astronomy from visible phenomena in the sky to the latest astronomical discoveries. Topics include properties of solar system bodies, origin of the solar system, life cycles of stars and galaxies, exoplanets, cosmology, life in the universe. Includes laboratory. May not be taken in combination with AST 106 or AST 107.

AST 100L - SURVEY OF ASTRONOMY LAB

Semester Hours: 0

Laboratory instruction in support of material covered in AST 100.

AST 106 - EXPLORING THE COSMOS I

Semester Hours: 4

Introduces astronomy emphasizing quantitative aspects of physical phenomena 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 106L - ASTRONOMY LABORATORY

Semester Hours: 0

AST 107 - EXPLORING THE COSMOS II

Semester 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. Offered Spring. Prerequisite: AST 106.

AST 107L - GEN ASTRONOMY II LAB

Semester Hours: 0

AST 210 - INTRO TO ASTROBIOLOGY

Semester Hours: 3

Studies the origin and search for life in the universe, including topics in astronomy, physics, biology, chemistry, and atmospheric science. Introduces research in astrobiology; known requirements for life, the origin and evolution of life of Earth, and the search for extraterrestrial life. Prerequisites: MA 171 and either PH 111, CH 121, or BYS 119.

AST 371 - INTRO TO ASTROPHYSICS

Semester 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. Offered Spring. Prerequisites: PH 111 or PH 114, and MA 201.

AST 471 - ASTROPHYSICS

Semester 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. Offered Fall. Prerequisites: AST 371 and PH 351.

Atmospheric Science (ATS)

Note: The Atmospheric Science Department administers the Earth System Science degree programs for Undergraduate students. All major courses for these degrees use the ESS prefix.

ESS 100 - INTRODUCTION TO SPACE SCIENCE

Semester Hour: 1

Covers 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 101 - EXPLORING SPACE SC & ENGR

Semester Hour: 1

Exploring Space Science and Engineering courses 1-9. 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 ESS 101 group may be taken for credit. The courses are offered through distance learning.

ESS 103 - ENVIRONMENTAL EARTH SCIENCE

Semester Hours: 4

Principles and foundations of Earth and environmental science with lectures and labs on concepts in Earth system science. Applied science labs use applications and real-world examples from ecosystems, geology, soil science, water, pollution, agriculture, population, natural disasters and energy.

ESS 103L - LABORATORY

Semester Hours: 0

ESS 111 - WEATHER, CLIMATE & GLOBAL CHNG

Semester Hours: 4

Intro to the atmosphere and climate system, including weather systems, climate extremes, and natural / human-induced changes in the atmosphere - climate system. Major topics discussed include greenhouse effect, solar impacts on climate, El-Nino, climate change, atmospheric and ocean circulations, cyclones, hurricanes, thunderstorms, and tornadoes.

ESS 111L - LABORATORY

Semester Hours: 0

ESS 210 - COLLAPSE OF CIVILIZATIONS

Semester Hours: 3

This course will investigate why some cultures succeed and others fail. From archeological and historical records of past civilizations we will examine the factors which lead to collapse in an attempt to determine the future of current societies.

ESS 212 - SEVERE WEATHER ANALYSIS

Semester Hours: 4

Meteorological analysis and beginning forecasting of weather systems, severe weather, snowstorms, hurricanes, and tornadoes through the interpretation of surface, upper air, satellite, and radar weather observations. Strong emphasis placed on unique observations of severe weather from UAH radar and profiling systems. Prerequisite: ESS 111.

ESS 212L - LABORATORY

Semester Hours: 0

Laboratory. Prerequisite: ESS 111.

ESS 301 - INTRO TO EARTH & ATMOSPHERIC PHYS

Semester Hours: 3

This course will provide a survey of earth and atmospheric science for undergraduate students. Topics that will be covered will focus on how the earth-atmosphere system works in an integrated fashion. Prerequisites: ESS 103, ESS 111, (PH 101 or PH 111), and (MA 120 or MA 171).

ESS 302 - PEOPLE, PLANTS, & ENVIRONMENT

Semester Hours: 3

This course is designed to introduce students from multiple departments to the vital roles that plants have in our ecosystems through the study of basic plant and soil science. Special attention is placed on the impact plants have on our technology-based society. Sophomore standing or above.

ESS 303 - CLASSI & PHYSICAL CAUSES CLIM

Semester 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

Semester Hours: 3

Introduction to hydrologic cycles and concepts of how water interacts with the environment. Covers water properties, precipitation, groundwater and runoff, currents, waves, sediment processes, and conservation strategies. Prerequisites: ESS 103, ESS 111, MA 120 or MA 171, and PH 101 or PH 111.

ESS 307 - ENVIRONMENTAL ARCHEOLOGY

Semester 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 making it relevant to the modern-day world. Investigated in this course includes climate modeling, remote sensing, and GIS. Prerequisite: ESS 103.

ESS 312 - PRINCIPLES OF ECOLOGY

Semester 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. Strongly recommend CH 101 or 121. Prerequisite: BYS 120.

ESS 313 - GEOGRAPHIC INFORMATION SYSTEMS

Semester Hours: 3

Introduction to scientific spatial analysis concepts and spatial data processing with focus on ESRI ArcGIS software. Basic concepts in GIS data management and creation, with topics including raster and vector data, projections, data query, data acquisition, and cartography. Prerequisites: ESS 103 and either CS 102 or CS 103.

ESS 321 - POLLUTION PROBLEMS

Semester Hours: 3

Quantitative study of environmental conditions, processes, and problem-solving techniques related to specific pollution problems in air, water, and land. Prerequisites: ESS 111, ESS 103 and (MA 120 or MA 171) and (CH 101 or CH 121) and (PH 101 or PH 111).

ESS 351 - DYNAMIC METEOROLOGY

Semester Hours: 3

Dynamics and kinematics of atmospheric flow. Meteorological coordinate systems. Fundamental governing equations of atmospheric motion, circulation, and vorticity. Prerequisites: PH 111, ESS 301, CS 102 or CS 103, and MA 201 (with concurrency).

ESS 352 - SYNOPTIC METEOROLOGY

Semester 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 is placed on the use of remote sensing data from satellites, radars, and profilers using state-of-the-art workstations. Prerequisite: ESS 212 and ESS 351.

ESS 370 - INTRODUCTION TO REMOTE SENSING

Semester Hours: 3

This course introduces the fundamental physics of remote sensing systems and incorporates hands-on exercises of image processing, information extraction and interpretation, and basic applications of airborne and satellite data in Earth System Science and Atmospheric Science. Prerequisites: ESS 103, ESS 111, (MA 120 or MA 171), (PH 101 or PH 111), and CS 102.

ESS 402 - SCI & SOC ASPTS NATRL DISASTER

Semester 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: ESS 103 and ESS 111.

ESS 407 - ENV THRTS, PUB POLY, & DEC MKG

Semester Hours: 3

Researchers, policymakers and environmental campaigners have identified 25 potential future threats to the global environment. This course examines the nature and consequences of these threats and their potential impacts for the survival of the human race. Prerequisite: ESS 103.

ESS 408 - PYTHON FOR GIS

Semester Hours: 3

Introduction to GIS model building, Python programming, and automation of scripts for ArcGIS. Techniques in Model Builder, Python, and the methods for automation will be taught using data from numerous available data sources across the internet with heavy emphasis on the Earth Sciences.

Prerequisites: ESS 313.

ESS 409 - SCI PROGRMNG FOR EARTH & ATMOS

Semester 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. Prerequisite: CS 102 or 103; ESS 301; MA 172; PH 112 and PH 115. Or consent of instructor.

ESS 410 - OPERATIONAL WEATHER FORECAST'G

Semester Hours: 3

Subjective and objective methods of atmospheric prognosis. Techniques for forecasting critical weather elements. Interpretation, use and systematic errors of computer-generated products, human factors with forecasting, and application of meteorological theory in an operational setting. Prerequisites: ESS 111, ESS 212, ESS 352, MA 172, PH 112 and PH 115.

ESS 414 - GEOSPATIAL APPLICATIONS

Semester Hours: 3

An introductory look at the ways in which GIS can be put to use in different fields of study, drawing examples from Demography, Sociology, Archaeology, History, and Ecology. Focus on cartography and map creation principles and public geospatial data acquisition. Prerequisite: ESS 313.

ESS 415 - ADVANCED TOPICS IN GIS

Semester Hours: 3

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. Prerequisite: ESS 414.

ESS 420 - INTRO ATMOSP CHEM & AIR POLLU

Semester 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.

Prerequisites: PH 112, PH 115, CH 121, ESS 301 and ESS 321.

ESS 441 - ATMOSP THERMODY & CLOUD PHYSIC

Semester 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 hydrometeors. Prerequisites: ESS 301, MA 238, PH 112 and PH 115.

ESS 451 - ATMOSPHERIC FLUID DYNAMICS I

Semester Hours: 3

Fluid dynamics in the atmosphere. Coriolis acceleration, scale analysis and appropriate approximations of the complete governing equations. Numerical analysis and interpretation of weather phenomena. Same as ATS 451. Prerequisites: ESS 351, MA 238, PH 112 and PH 115.

ESS 454 - FORECASTING MESOSCALE PROC

Semester 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 of instruments used to detect mesoscale phenomena, most notably satellite and radar. Prerequisite: ESS 352.

ESS 461 - ATMOSPHERIC RADIATION I

Semester Hours: 3

Fundamentals of terrestrial atmospheric radiation. Topics include: basic concepts, radiative transfer equation, gaseous absorption, scattering by molecules and particles, band models, transmittance along an inhomogeneous path. Prerequisite: ESS 301, MA 238, PH 112 and PH 115.

ESS 471 - INTRO TO RADAR METEOROLOGY

Semester Hours: 3

Introduction to principles of radar meteorology, including radar operations, hardware, interpretation and analysis. Doppler, dual-polarization and dual-wavelength radar theory, methods and applications are covered. Prerequisite: ESS 301 and ESS 441.

ESS 490 - SELECTED TOPICS IN ENVIRON SCI

Semester Hours: 1-3

Special offerings to students in areas of interest not covered in the present curriculum. Prerequisite: permission of instructor.

ESS 495 - DIRECTED STUDY

Semester Hours: 2-4

Specialized research for undergraduates often is offered to undergraduates who have senior standing.

ESS 498 - RESEARCH & PROF DEV CAPSTONE

Semester Hour: 1

Applied concepts for professional and research development. Includes evaluation and discussion of published literature and department seminars, with focus on research synthesis and critique. Also includes development of professional and career skills focused on the Earth and Atmospheric Sciences. Senior Standing required.

ESS 499 - UNDERGRADUATE RESEARCH

Semester Hours: 2-4

For advanced Earth System Science students. Individual investigations into Earth systems science problems under direct supervision of a research mentor. Research is conducted and thesis-style paper is written and orally presented. Students identify and obtain consent from a faculty research mentor.

Biological Sciences (BYS)

BYS 100 - INTRO HEALTH PROFESSIONS

Semester Hour: 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 freshman and sophomores.

BYS 109 - FUNDAMENTALS OF BIOLOGY

Semester Hours: 4

Introduction to biological principles of cell structure, function, metabolism, and reproduction. Discussion of biological function with emphasis on strategies employed by organisms in meeting similar biological needs. Principles of ecology and evolution. Not intended for biology majors. Co-requisite: BYS 109L.

BYS 109L - LABORATORY

Semester Hours: 0

Students will get hands-on experience with topics covered in the lecture, including light microscopy, properties of macromolecules, properties of plants and animals, and introduction to genetics. Every other week will be a recitation and online lab assignment. Co-requisite: BYS 109.

BYS 119 - PRINCIPLES OF BIOLOGY

Semester Hours: 4

Lecture/Lab/Recitation. Introduction to biological principles of cell structure, function, metabolism and reproduction. One two hour lab and a one hour recitation per week.

BYS 119L - LABORATORY

Semester Hours: 0

Laboratory exercised to introduce students to accurate measurement techniques, observation, and the development of relevant hypotheses. Several formal lab reports are required as an introduction to scientific writing.

BYS 119R - RECITATION

Semester Hours: 0

Homework turned in and discussed; exams discussed and further assistance with course material available.

BYS 120 - ORGANISMAL BIOLOGY

Semester Hours: 4

Lecture/Lab/Recitation. Discussion of biological function with special emphasis on contrasting strategies employed by organisms in meeting similar biological needs. One two-hour lab and a one hour recitation per week. Prerequisite: BYS 119.

BYS 120L - ORGANISMAL BIOLOGY LAB

Semester Hours: 0

Introduction to the basic concepts of natural selection, population biology, and the biodiversity of animals and plants. Several formal lab reports are required as a further introduction to scientific writing, along with a lab practical on the biodiversity of animals and plants.

BYS 120R - RECITATION

Semester Hours: 0

Homework turned in and discussed; exams discussed and further assistance with course material available.

BYS 200 - DINOSAUR BIOLOGY

Semester 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 202 - HUMAN ANAT & PHYS II/CALHOUN

Semester Hours: 4

BYS 205 - CODING ALGORITHMS FOR BIOLOGY

Semester Hours: 3

Prerequisites: BYS 119, BYS 120, MA 112.

BYS 214 - INFECTION & IMMUNITY

Semester 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 and either CH 101 or 121.

BYS 214L - LABORATORY

Semester Hours: 0

BYS 215 - HUMAN ANATOMY & PHYSIOLOGY I

Semester Hours: 4

Structure and function of the human body with emphasis on their relationship to disease. Part 1 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 215L - HA&P I LABORATORY

Semester Hours: 0

An introduction to anatomical terminology; basic histology of normal tissues versus common pathologies. Focus on the human skeletal and muscular systems. Students are engaged in recognition of individual bones, surface markings and major muscles through dissection and use of muscular models.

BYS 216 - HUMAN ANATOMY & PHYSIOLOGY II

Semester 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.

Prerequisite: BYS 215.

BYS 216L - HA&P II LABORATORY

Semester Hours: 0

Study of the anatomy of the nervous, cardiovascular, respiratory, renal and digestive systems. Dissections of eye, brain, heart, lung and kidney. Basic EKG/ECG reading and a study of factors affecting blood pressure. Enzymatic action of the digestive system; basic urinalysis determinations.

BYS 219 - GENETICS AND EVOLUTION

Semester Hours: 4

Lecture/Lab/Recitation. Two labs and one recitation per week. Hereditary basis of organisms; genes as the discrete units of inheritance and genes in organisms and populations. Medelian principles and evolutionary processes. Replication, transcription and translation of DNA, RNA, and proteins. Prerequisites: BYS 120 and (CH 101 or CH 121) and (MA 107 or 112).

BYS 219L - LABORATORY

Semester Hours: 0

Laboratory activities include experiments to further students understanding in Mendelian genetics, molecular biology and Human genetic diseases. Counted as part of the overall grade for BYS 219.

BYS 219R - RECITATION

Semester Hours: 0

Homework turned in and discussed; exams discussed and further assistance with course material available.

BYS 292 - INTRO TO BIOLOGICAL RESEARCH

Semester Hours: 3

Introduction to the principles and practices of biological research. Covers experimental design, statistical analysis, critical review of journal articles, responsible conduct of research, and writing for the biological sciences. Recommended for students planning to do undergraduate research. Prerequisites: BYS 119, MA 112, EH 101.

BYS 300 - CELL & DEVELOPMENTAL BIOLOGY

Semester 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 either CH 123 or 201.

BYS 300L - CELL & DEVELOPMENT BIO LAB

Semester Hours: 0

BYS 301 - ELEMENTARY BIOCHEMISTRY

Semester 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. Same as CH 301. Prerequisites: BYS 120 and either CH 201 or 331.

BYS 302 - PEOPLE, PLANTS & ENVIRONMENT

Semester Hours: 3

This course is designed to introduce students from multiple departments to the vital roles that plants have in our ecosystems through the study of basic plant and soil science. Special attention is placed on the impact that plants have on our technology-based society.

BYS 311 - INTRO MOLECULAR UNDST BIO SYST

Semester 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. Prerequisite: CH 331.

BYS 312 - PRINCIPLES OF ECOLOGY

Semester 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. Prerequisites: BYS 120, and BYS 219.

BYS 313 - ANATOMY & PHYSIOLOGY I

Semester Hours: 4

Lecture/Lab. One lab a week. Structure and function of the human body. Anatomy of the skeletal and muscular systems, physiology of membranes, cellular and epithelial transport and nervous system function. Appropriate preparation for professional schools/graduate study in biological sciences. Prerequisite: BYS 119. Prerequisites with concurrency: BYS 300, and either CH 201 or 331.

BYS 313L - LABORATORY

Semester Hours: 0

Laboratory activities on the basic concept of system physiology including a rat dissection. Focuses on membrane transport and histology, and include gross anatomy and a study of the muscles and bones of the human body. Capstone student research project on electromyography of muscles.

BYS 314 - ANATOMY & PHYSIOLOGY II

Semester Hours: 4

Lecture and one lab a week. Continuation of BYS 313 stressing structural and functional relationships of major organ systems, focusing on heart, brain, lungs, kidney and the gastrointestinal tract. Appropriate for students preparing for professional schools or graduate study in biological sciences. Prerequisite: BYS 313.

BYS 314L - ANATOMY/PHYSIOLOGY II LAB

Semester Hours: 0

Research-intensive system based laboratory course. Includes brain dissection and student EEG project and a heart dissection and a cardiovascular physiology project. This is followed by a pulmonary function lab and a renal function lab where students calculate their own glomerular filtration rate.

BYS 315 - ICHTHYOLOGY

Semester Hours: 4

Classification, anatomy, physiology, and ecology of freshwater and marine fishes. Emphasis fishes of north Alabama. Laboratory and field trips required. Prerequisites: BYS 120 and BYS 219. Prerequisite with concurrency: BYS 300.

BYS 317 - VERTEBRATE ZOOLOGY

Semester 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 and BYS 219. Prerequisite with concurrency: BYS 300.

BYS 318 - VERTEBRATE REPRODUCTION

Semester 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 and BYS 219. Prerequisite with concurrency: BYS 300.

BYS 320 - MEDICAL TERMINOLOGY

Semester Hours: 3

The meaning, spelling, etymology and pronunciation of major medical terms related to anatomy, pathology, medical professions, procedures and pharmaceuticals; body systems, their associated diseases and disorders. Correct usage of terms and interpretation of documents containing these terms. Hybrid course with online and in-class portions. Prerequisites: BYS 300 or BYS 215 and BYS 216.

BYS 321 - GENERAL MICROBIOLOGY I

Semester Hours: 4

Structure, biochemistry, and genetics of microorganisms, control of microbial growth, and microorganisms as pathogens. Lab covers basic and diagnostic methods in microbiology, environmental factors controlling microbial growth and survival, and characteristics of medically important microorganisms. Prerequisites: BYS 120, BYS 219. Prerequisite with concurrency: BYS 300.

BYS 321L - LABORATORY

Semester Hours: 0

BYS 322 - GENERAL MICROBIOLOGY II

Semester Hours: 4

Emphasizes diversity of microorganisms with respect to ecology, physiology, and phylogeny. Prerequisite: BYS 321.

BYS 322L - GENERAL MICROBIOLOGY II LAB

Semester Hours: 0

BYS 347 - BIOPHYSICAL CHEMISTRY I

Semester 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. Same as CH 347. Prerequisites: CH 332, PH 112, PH 115 and MA 172.

BYS 348 - BIOPHYSICAL CHEMISTRY II

Semester 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. Same as CH 348. Prerequisites: BYS 347 or CH 347.

BYS 361 - GENERAL BIOCHEMISTRY

Semester Hours: 3

Biochemical structure and function of amino acids, proteins, carbohydrates, lipids, and nucleic acids; Enzyme catalysis and kinetics; major catabolic pathways, their integration and control mechanisms: Glycolysis, Citric Acid Cycle, Fatty Acid Oxidation and Oxidative Phosphorylation. Same as CH 361
Prerequisites: BYS 120, CH 332 and CH 335 or BYS 311, CH 332 and CH 335.

BYS 362 - GENERAL BIOCHEMISTRY LAB

Semester Hour: 1

One 3-hour lab a week. Practical experience in isolation, qualitative identification, and quantitative estimation of biomolecules. Same as CH 362.

Prerequisites: CH 335 and CH 336. Prerequisite with concurrency: CH 361.

BYS 363 - GEN BIOCHEMISTRY II

Semester Hours: 3

A continuation of BYS 361 to include amino acid oxidation, biosynthesis of biomolecules, integration of metabolism, DNA and RNA metabolism, protein biosynthesis, and gene structure. Same as CH 363. Prerequisites: BYS 361.

BYS 364 - BIOGEOGRAPHY

Semester 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. Strongly recommended: BYS 312. Prerequisites: BYS 120, BYS 219. Prerequisite with concurrency: BYS 300.

BYS 365 - GEN BIOCHEMISTRY LAB II

Semester Hour: 1

Experimental course illustrating the topics in BYS 363. Prerequisites: BYS 361 and BYS 362. Prerequisite with concurrency: BYS 363.

BYS 401 - EXERCISE PHYSIOLOGY

Semester 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. Strongly recommended: BYS 301 or CH 301. Prerequisites: BYS 215 & BYS 216 OR BYS 313 & BYS 314.

BYS 401L - LABORATORY

Semester Hours: 0

BYS 402 - KINESIOLOGY & BIOMECHANICS

Semester 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 215 & BYS 216 OR BYS 313 & BYS 314.

BYS 402L - LABORATORY

Semester Hours: 0

BYS 403 - ADV EXERCISE PHYSIOLOGY

Semester Hours: 4

Lecture/Lab. One lab per week. Human physiology, addressing the effects of environmental variables such as altitude, thermal stress and terrain on the major physiological systems of the body; in-depth analysis of resistance training, aerobic and anaerobic training; integration of multiple systems. Prerequisites: BYS 401, and (BYS 301 or CH 301) or (BYS 361 or CH 361).

BYS 405 - PSYCHOPHARMACOLOGY

Semester Hours: 3

Introduction to drug classification and action with emphasis on physiological and psychological interactions.

BYS 419 - MICROBIAL GENETICS

Semester Hours: 3

Transmission, expression, and evolution of genes in microorganisms. Studies of chromosomes, plasmids, transposons, bacteriophages, and other genetic elements. Prerequisites: BYS 219, BYS 300 and BYS 321.

BYS 430 - IMMUNOLOGY

Semester Hours: 4

Lecture/Lab. One 3-hour lab per week. Innate, humoral and cell-mediated immunity. Immune deficiencies and hypersensitivities. Autoimmunity, transplantation, and tumor immunology. Prerequisites: BYS 219, BYS 300 and BYS 321. Prerequisite with concurrency: CH 361.

BYS 436 - BIOLOGICAL PSYCHOLOGY

Semester Hours: 3

Functional analysis of neural and endocrine systems underlying behavior. Same as PY 436. Prerequisites: (either a or b): (a) 15 hours of PY or approval of instructor; (b) BYS 120 or BYS 313, and 6 hours of PY.

BYS 437 - PSYCHOBIOLOGY STRESS & ILLNESS

Semester Hours: 3

Overview of psychological stress responses and their influence on health, behavior and illness. Same as PY 437. Prerequisites: approval of instructor.

BYS 464 - EVOLUTION

Semester Hours: 3

Principles of evolution and speciation. Nature of species, selection and adaptation, divergence and cladogenesis, isolation, hybridization, and phylogeny. Prerequisites: BYS 120, 219. Prerequisites with concurrency: BYS 300.

BYS 465 - MOLECULAR MTHDS ECLGY & EVOLU

Semester Hours: 4

This lecture and laboratory course is intended as an intense introduction to modern molecular methods in biological research. Topics include: genetic variation, evolutionary genetics, ecological genetics, genomics, gene expression, phylogenetics, and bioinformatics. Prerequisites: BYS 464.

BYS 490 - SENIOR CAPSTONE

Semester Hours: 2

Discussions, readings, and presentations of topical biological subjects using scientific literature. Capstone course emphasizing refinement of oral and written communication skills and critical thinking. All students will take ETS Major Field Test in Biology as part of the course grade. Prerequisites: BYS 119, 120, 219, and 300. Senior standing.

BYS 491 - SP TOPICS BIOLOGICAL SCI

Semester 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

Semester 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 499 - UNGRAD HONORS RES & THESIS

Semester 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.

Business Legal Studies (BLS)

BLS 211 - LEGAL ENVIRON/BUSINESS

Semester Hours: 3

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

BLS 400 - LAW, ETHICS & BUSINESS

Semester 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, civics involvement, employer-employee relations, consumer protection, and international business.

BLS 406 - GOVMT CONTRACT LAW

Semester Hours: 3

Application of the legal principles governing government contracts as developed from common law, statutes, regulations, and court decisions. Includes requests for proposals, negotiation, inspection, acceptance, delivery, warranties, modification of contracts, equitable adjustment, and disputes.

Prerequisite: BLS 211 and either MGT 401 or ACC 440.

BLS 411 - BUS LAW FOR ACCOUNTANTS

Semester Hours: 3

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

Chemical Engineering (CHE)

CHE 201 - INTRO CHEMICAL ENGR PROCESS

Semester Hours: 2

Introduction to industrial processes used in the production of commodity chemicals important to chemical engineers. Computer programming, spreadsheets, symbolic math, and drawing packages to model fundamental stages of these processes will be presented. Prerequisites: ENG 101 and CH 123.

CHE 244 - INTRO TO CHEM ENGRG SYSTEMS

Semester 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, MA 201 and CHE 201.

CHE 294 - NATURE & PROPERTIES OF MATLS

Semester Hours: 3

Introduction to the fundamental nature and properties of materials including bonding, composition, and phase diagrams. Composite materials and aspects of materials processing, including diffusion, nucleation, and transformation diagrams, will be presented. Prerequisites: CH 121 and PH 111.

CHE 295 - NATURE & PROPERTIES MATLS LAB

Semester Hour: 1

Experiments include characterizing material structures, testing mechanical properties and mapping phase diagram boundaries. Emphasis on numerical and statistical analysis of the data. Written reports are required, and elements of materials design are presented.

CHE 342 - TRANSPORT PHENOMENA

Semester 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: CH 341 and CHE 244 and MAE 310 w/concurrency.

CHE 344 - CHEM ENGR THERMODYNAMICS

Semester 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 CHE

Semester Hours: 3

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

CHE 359 - INDEPENDENT STUDIES IN CHE

Semester Hours: 1-3

Independent studies or research on a topic that requires the application of basic principles in chemical engineering. A written report, analytical or experimental analysis, and oral presentation will be required. Prerequisites: CHE 244 and CHE 294.

CHE 439 - UNIT OPERATIONS I

Semester Hours: 2

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. Prerequisites: CHE 295, CHE 441, and CHE 446.

CHE 440 - UNIT OPERATIONS II

Semester Hours: 2

Experimental studies covering reaction kinetics, mass separation, biotechnology, and special material properties. Applications of laboratory practices, probability and statistical data analysis, and ethics in professional practice. Emphasis placed on technical communications. Prerequisites: CHE 439, CHE 441, and CHE 443.

CHE 441 - CHEM KINETICS & REACTOR DESIGN

Semester Hours: 3

Fundamental principles of chemical kinetics and chemical reactor engineering along with the design of both thermal and catalytic reactors. (Same as CHE 541) Prerequisites: CHE 344 and CHE 347.

CHE 442L - LABORATORY

Semester Hours: 0

CHE 443 - MASS TRANSFER OPERATIONS

Semester 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, CHE 344, and MAE 310.

CHE 445 - CHEMICAL PROCESS CONTROL

Semester Hours: 3

Fundamental principles of chemical process control; control system design for chemical processes. Prerequisite: CHE 441 and CHE 446.

CHE 446 - ANAL & DESIGN TRANSPORT EQUIP

Semester 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 and CHE 443.

CHE 448 - CHEMICAL ENGINEERING DESIGN

Semester Hours: 3

Capstone design course. Design of chemical engineering components, concluding with an overall team design effort using modern CAD techniques includes preliminary design, simulation, and economic evaluation of a chemical production flow sheet, and a study of ethical issues. Prerequisites: CHE 441, CHE 443, CHE 445 and CHE 446.

CHE 459 - ADVD INDEPENDENT STUD CHE

Semester 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 presentation will be required. Prerequisites: CHE 347 and either CH 363 or CH 440.

CHE 460 - INTRO TO BIOPROCESS ENGRG

Semester 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. (Same as CHE 560). Prerequisite: CH 361.

CHE 461 - BIOSEPARATIONS

Semester Hours: 3

Characteristics of separation processes used in biotechnology industries including removal of insolubles, isolation and purification of thermally sensitive products, and preparation for customer use. Applications for biological separations, recombinant DNA techniques, and protein engineering. (Same as CHE 561). Prerequisite: CHE 460.

CHE 485 - PROCESS SAFETY & TOXICOLOGY

Semester Hours: 3

Fundamentals of process safety and aspects of toxicology. Requires the application of chemical engineering concepts to review and analyze case studies to learn from industrial accidents. Introduces regulatory and design concepts. Prerequisite: CHE 448.

CHE 494 - APPLIED MATERIALS ENGINEERING

Semester Hours: 3

Synthesis and processing methods of materials. Selection and use of materials performance factors for design of structural and functional components. Use of computational methods in solving open-ended design problems using nature and properties of materials will be emphasized. (Same as CHE 594) Prerequisites: CHE 294 and CHE 344.

CHE 495 - POLYMER ENGINEERING

Semester 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. (Same as CHE 595) Prerequisites: CH 341 and CH 440.

Chemistry (CH)

CH 101 - INTRO TO CHEMISTRY

Semester Hours: 3

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. No placement examination is required. Prerequisite: MA 110 or prerequisites with concurrency MA 112 or higher and CH 105.

CH 101R - RECITATION

Semester Hours: 0

CH 105 - INTRO CHEMISTRY LAB

Semester Hour: 1

Complements the lecture material for CH 101. Laboratory fundamentals and basic chemical principles. Prerequisite with concurrency: CH 101.

CH 121 - GENERAL CHEMISTRY I

Semester Hours: 3

For science and engineering majors. Chemical properties of elements, their periodic groups, and their compounds. Reactions and stoichiometry. Nature of the chemical bond, molecular structure, thermochemistry. Properties of gases, liquids, and solids. Prerequisite: CH 101 or placement test. Prerequisites with concurrency: MA 113 or higher, and CH 125.

CH 121R - RECITATION

Semester Hours: 0

CH 122 - GENERAL CHEMISTRY ENGINEERS

Semester Hours: 3

This course is designed as a one semester presentation of key aspects in general chemistry and is recommended for all engineering majors except chemical engineers. Covers topic 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 equilibrium; and electrochemistry. Substitutes for CH 121 when transferred to any other curriculum.

CH 123 - GENERAL CHEMISTRY II

Semester Hours: 3

Continuation of CH 121 with in-depth study of topics listed. To be taken concurrently with CH 126. Prerequisite: CH 121.

CH 123R - RECITATION

Semester Hours: 0

CH 125 - GENERAL CHEMISTRY LAB I

Semester Hour: 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 LAB II

Semester Hour: 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 RES

Semester Hour: 1

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 RES

Semester Hours: 2

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 RES

Semester Hours: 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 - ELEM ORGANIC CHEMISTRY

Semester Hours: 3

Survey of nomenclature, structure, functional groups, properties and reactions of organic compounds. Prerequisites: CH 101 and 105 OR CH 121 and 125. Prerequisite with concurrency: CH 205.

CH 205 - ELEM ORGANIC CHEMISTRY LAB

Semester Hour: 1

Laboratory component of CH 201. Includes reactions of organic compounds and functional group modifications. Prerequisite with concurrency: CH 201. Prerequisites: (CH 101 and CH 105) or CH 201 and CH 205).

CH 223 - QUANTITATIVE ANALYSIS

Semester Hours: 3

Introduction to quantitative analytical chemistry including instrumentation. Data treatment, ionic equilibria, elementary electrochemical, spectrochemical, gravimetric, and volumetric techniques. Prerequisite: CH 126. Prerequisite with concurrency: CH 224.

CH 224 - QUANTITATIVE ANALYSIS LAB

Semester Hour: 1

Introduction to quantitative analytical chemistry laboratory. Experiments include pH measurements, spectrochemical, gravimetric, and volumetric titrations. Prerequisite: CH 126. Prerequisite with concurrency: CH 223.

CH 301 - ELEMENTARY BIOCHEMISTRY

Semester Hours: 3

Survey of structure and function of carbohydrates, lipids, proteins and nucleic acids. Enzyme properties and functions. Major metabolic pathways, interactions, and regulation. No credit given to chemistry majors or minors. Credit in CH 361 precludes credit in CH 301. Same as BYS 301. Prerequisites: BYS 120 and either CH 201 or 331.

CH 311L - ORGANIC CHEM I LAB/OAKWOOD

Semester Hour: 1

CH 315 - CHEMISTRY TEACHING METHODS

Semester 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. Permission of instructor.

CH 331 - ORGANIC CHEMISTRY I

Semester Hours: 3

Lecture/Lab includes one two-hour recitation per week. Chemistry of organic compounds. Synthetic methods, theory, and reaction mechanisms. Prerequisite: CH 123.

CH 331R - ORGANIC CHEM I RECITATION

Semester Hours: 0

To be taken as a co-requisite with CH 331. Organic chemistry problem solving, including nomenclature, reactions, mechanisms, spectroscopy, and test-taking strategy.

CH 332 - ORGANIC CHEMISTRY II

Semester Hours: 3

Lecture/Lab Includes one two-hour recitation per week. Continuation of CH 331. Prerequisite: CH 331.

CH 332R - ORGANIC CHEM II RECITATION

Semester Hours: 0

To be taken as a co-requisite with CH 332. Organic chemistry problem solving, including nomenclature, reactions, mechanisms, spectroscopy, and test-taking strategy.

CH 335 - ORGANIC CHEMISTRY LAB I

Semester Hour: 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. Prerequisite: CH 126.

CH 336 - ORGANIC CHEMISTRY LAB II

Semester Hour: 1

Continuation of CH 335. Prerequisite: CH 335. Prerequisite with concurrency: CH 332.

CH 337 - ORGANIC CHEMISTRY LAB III

Semester 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. Prerequisite: CH 336 and approval of instructor.

CH 341 - PHYSICAL CHEMISTRY I

Semester Hours: 3

An introduction to physical chemistry encompassing: the kinetic theory of gases, the laws of thermodynamics, chemical equilibrium, phase equilibria, electrolyte solutions, electrochemistry and elementary theories of statistical thermodynamics. Credit in CH 341 precludes credit in CH 347. Prerequisites: CH 123, PH 112, MA 201, PH 115.

CH 342 - PHYSICAL CHEMISTRY II

Semester Hours: 3

A survey of additional fundamental concepts of physical chemistry including: chemical kinetics, quantum chemistry, atomic structure, group theory, spectroscopy (i.e. IR, Raman, NMR, EMR, etc.), and surface and colloid chemistry. Credit in 342 precludes credit in CH 348. Prerequisite: CH 341.

CH 343 - INTRO TO QUANTUM CHEM

Semester Hours: 3

Quantum mechanical treatment of atoms, molecules, and spectroscopy. Prerequisites: CH 341 and MA 238.

CH 345 - EXPERIMENTAL PHYSICAL CHEM I

Semester Hour: 1

Laboratory and computer investigation into topics covered in physical chemistry CH 341. Includes thermodynamics, chemical equilibria and electrochemistry. The lab involves report writing, data and error analysis, error propagation and linear and nonlinear regression using appropriate software. Prerequisites: CH 223 and 224. Prerequisite with concurrency: CH 341 or 347.

CH 346 - EXPERIMENTAL PHYSICAL CHEM II

Semester Hour: 1

Laboratory and computer investigations into topics covered in physical chemistry CH 342. Includes kinetics, quantum mechanics and spectroscopy. The lab involves report writing, data and error analysis, error propagation and linear and nonlinear regression using appropriate software. Prerequisite: CH 345. Prerequisite with concurrency: CH 342 or 348.

CH 347 - BIOPHYSICAL CHEMISTRY I

Semester 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. Biochemical reaction kinetics. Enzyme catalysis. Same as BYS 347. Prerequisites: CH 332, PH 112 and MA 172, PH 115.

CH 348 - BIOPHYSICAL CHEMISTRY II

Semester Hours: 3

Quantum mechanics. Statistical thermodynamics. Spectroscopy, including UV-VIS, Fluorescence. Circular dichroism, NMR. Structure determinations. Same as BYS 348. Prerequisite: CH 347.

CH 361 - GENERAL BIOCHEMISTRY

Semester Hours: 3

Nomenclature, structure, function, properties, and metabolism of amino acids, carbohydrates, lipids, and nucleic acids. Enzyme function, major catabolic pathways, their interrelations and control mechanisms. Glycolysis, Citric Acid Cycle, and oxidative phosphorylation. Same as BYS 361. Prerequisites: BYS 120, CH 223, CH 224, CH 332, CH 335 OR BYS 311, CH 332, CH 335.

CH 362 - GENERAL BIOCHEMISTRY LAB

Semester Hour: 1

Lecture/Lab One 3-hour lab a week. Practical experience in isolation, qualitative identification, and quantitative estimation of biomolecules. Same as BYS 362. Prerequisites: CH 335 and 336. Prerequisite with concurrency: CH 361.

CH 363 - GEN BIOCHEMISTRY II

Semester Hours: 3

A continuation of CH 361 to include fatty acid and amino acid oxidation, enzymatic synthesis of biomolecules, integration of metabolic processes, DNA and RNA metabolism including replication and transcription, translation and protein synthesis, and regulation of gene expression. Same as BYS 363. Prerequisite: CH 361.

CH 364 - GEN BIOCHEMISTRY LAB II

Semester Hour: 1

Experimental course illustrating the topics in CH 363. Prerequisites: CH 361 and 362. Prerequisite with concurrency: CH 363.

CH 401 - INORGANIC CHEMISTRY

Semester 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. Prerequisite: CH 332.

CH 402 - INORGANIC CHEMISTRY LAB

Semester Hour: 1

Laboratory techniques of inorganic chemistry including synthesis, purification, isolation, and identification of inorganic compounds. Prerequisite with concurrency: CH 401.

CH 421 - INSTRUMENTAL ANALYSIS

Semester 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 347, or BYS 347, or CH 341.

CH 435 - CHEMICAL TOXICOLOGY

Semester Hours: 3

An introduction to the principles of chemical toxicology, including the effects of drugs, environmental pollutants, natural toxins and venoms, and other potentially hazardous chemicals, at the physiological, cellular, and molecular level. Prerequisites: CH 332 and CH 361.

CH 440 - POLYMER SYNTHESIS & CHARACTERI

Semester 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. Prerequisites: CH 331 and CH 332.

CH 480 - SELECTED TOPICS IN CHEM

Semester 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 - INTRO TO CHEMICAL RESEARCH

Semester Hour: 1

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. Prerequisites: Senior standing. Approval of supervising faculty member and chemistry chair required.

CH 492 - INTRO TO CHEMICAL RESEARCH

Semester Hours: 2

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. Prerequisites: Senior standing. Approval of supervising faculty member and chemistry chair required.

CH 493 - INTRO TO CHEMICAL RESEARCH

Semester Hours: 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. Prerequisites: Senior standing. Approval of supervising faculty member and chemistry chair required.

Civil Engineering (CE)

CE 211 - CIVIL ENGINEERING GRAPHICS

Semester 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 laboratory exercises. Prerequisite: ENG 101 with minimum grade of C-.

CE 271 - STATICS

Semester Hours: 3

Topics include: forces, resultant forces, moments, couples, equivalent forces systems, equilibrium, distributed loads, two force members, trusses, centroids, moments of inertia, shear and bending moment diagrams, static and kinematic friction. (Same as MAE 271). Prerequisite: ENG 101, PH 111 and MA 201 w/concurrency.

CE 272 - DYNAMICS

Semester Hours: 3

Kinematics and kinetics of a 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. (Same as MAE 272). Prerequisites: MA 201 and (CE 271 or MAE 271).

CE 284 - SURVEYING

Semester Hours: 2

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. Consent of instructor/advisor. Prerequisite: CE 211.

CE 284L - SURVEYING LAB

Semester Hours: 0

CE 307 - SYSTOLIC ARRAY PROCESSING

Semester Hours: 3

CE 321 - INTRO TO TRANSPORTATION ENG

Semester Hours: 3

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

CE 370 - MECHANICS OF MATERIALS

Semester Hours: 3

Design and analysis of simple structures for predetermined strength and deformation requirements. Topics include: theory of stress-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. Same as MAE 370. Prerequisites: (CPE 211 or MAE 211) and (MAE 271 or CE 271) and MA 244, corequisite CE 375.

CE 370L - LABORATORY

Semester Hours: 0

CE 372 - SOIL MECHANICS & FOUNDATION

Semester 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 or MAE 370) and MAE 310.

CE 373 - SOIL MECHANICS LAB

Semester Hour: 1

Laboratory classification of soils. Determinations of soil properties.

CE 375 - MECHANICS OF MATERIALS LAB

Semester Hour: 1

Experimental verification of material properties and structural deformation under axial, torsional, and bending loads. Test procedures, use of instrumentation, interpretation of experimental results and comparison to theory. (Same as MAE 375). Corequisites: CE 370.

CE 380 - CIVIL ENGINEERING MATERIALS

Semester Hours: 3

Performance properties and selection criteria of various materials used in the practice of civil engineering including aggregates, Portland cement, concrete, bituminous materials, and timber. Emphasis will be placed on standard methods of testing and characterization. Includes a weekly lab. Prerequisites: CE 370 or MAE 370.

CE 380L - CE MATERIALS LAB

Semester Hours: 0

Standard methods of testing and characterization of various materials used in the practice of civil engineering. Determination of civil engineering materials properties.

CE 381 - STRUCTURAL ANALYSIS I

Semester Hours: 3

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

CE 411 - INTRO GEOGRAPHICAL INFO SYS

Semester Hours: 3

Introduces vector, raster, and tabular concepts. Topics include spatial relationships, map features, attributes, relational database, layers of data, data ingesting, digitizing from maps, projections, output, and availability of public data sets. Same as CE 511.

CE 412 - ADVANCED CE GRAPHICS

Semester Hours: 3

Trending geospatial and graphics technologies including 3-D land development workflows, GPS data acquisition and processing of aerial, lidar, and topographical surveys, terrain modeling, earthwork, sanitary, drainage, and transportation design methodologies within the graphical CAD environment. Prerequisite: CE 211.

CE 420 - URBAN TRANSPORTATION PLANNING

Semester Hours: 3

Planning of highways systems and terminals as part of a complete planning approach; public transportation system planning; transportation planning studies, projection analysis, plan formulation, and programming. Same as CE 520. Prerequisite: CE 321.

CE 422 - TRAFFIC ENGINEERING DESIGN

Semester 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. Prerequisite: CE 321.

CE 441 - HYDRAULIC ENGINEERING DESIGN

Semester Hours: 3

Water-hammer analysis, open channel flow, hydraulic structures such as dams, spillways, stilling basins, flood control devices, locks, pipe-flow systems and water-supply facilities, computational methods. Prerequisite: MAE 310.

CE 449 - INTRO ENVIRONMENTAL ENGR

Semester 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. (Same as CE 549 and CHE 549) Prerequisites: MAE 310 and MAE 341.

CE 452 - CREDIT EXPERIENTIAL LEARNING

Semester Hours: 1-3

Students are engaged in research and creative projects as meaningful experiential learning opportunities. The course fosters cooperation between students and faculty in a research or creative endeavor, and enhances the students' education via active participation in a research, creative or scholarly project.

CE 456 - WATER QUALITY CONTROL PROC

Semester 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. (Same as CE 556). Prerequisite: CE 449.

CE 457 - HYDROLOGY

Semester 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. (Same as CE 557) Prerequisite: MAE 310.

CE 458 - ENVIRONMENTAL ENGR DESIGN

Semester Hours: 3

Engineering design and project management of environmental quality/restoration systems. Design project focusing on: sanitary landfill, municipal incinerator, or groundwater/site remediation. Develops skills for technical communications, process design and decision making. (Same as CE 558) Prerequisite: CE 449.

CE 459 - SEL TOP IN CIVIL ENGR

Semester Hours: 1-6

Special topics in Civil Engineering.

CE 471 - ADVANCED SOIL MECHANICS

Semester Hours: 3

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

CE 472 - SOIL DYNAMICS

Semester Hours: 3

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

CE 473 - EARTH STRUCTURES ENGRG

Semester Hours: 3

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. Stability analyses for retaining walls, earth slopes, and embankment designs. (Same as CE 573) Prerequisites: CE 372 and CE 373.

CE 474 - APP MECHANICS OF SOLIDS

Semester 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. (Same as CE 574 and MAE 474 or MAE 574) Prerequisites: CE 370 or MAE 370.

CE 481 - STRUCTURAL ANALYSIS II

Semester Hours: 3

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

CE 483 - REINFORCED CONCRETE DESIGN

Semester 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. Same as CE 583. Prerequisites: CE 380 and CE 381.

CE 484 - STEEL DESIGN

Semester Hours: 3

Principles of design of steel structures using ASD methods. Analysis and design of structural elements using beams, columns, connection details. (Same as CE 584). Prerequisites: CE 381 and MA 244.

CE 485 - FOUNDATION ENGINEERING

Semester Hours: 3

Design of foundations with emphasis on reinforced concrete, footings, caissons, piles retaining walls, and mat foundations. Effect of bearing pressure on foundations. (Same as CE 585) Prerequisites: CE 372 and CE 483.

CE 487 - BRIDGE DESIGN

Semester 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. (Same as CE 583) Prerequisite: CE 483.

CE 498 - CIVIL ENGINEERING DESIGN I

Semester Hour: 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, CE 372, and CE 483.

CE 499 - CIVIL ENGINEERING DESIGN II

Semester 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 483 and CE 498.

CE 499L - DESIGN II LABORATORY

Semester Hours: 0

Communication Arts (CM)

CM 113 - Intro to Rhetorical Communication

Semester Hours: 3

Develops public speaking skills through an examination of rhetorical theory, training, and practice. Includes informative, persuasive, and other forms of speeches to prepare students for oral presentations in college and post-college ("real world") settings.

CM 205 - INTRO TO JOURNALISM

Semester Hours: 3

Focuses on basic news writing skills specific to print journalism. Students will learn to identify new based on news values, develop leads, organize information, write stories in the inverted pyramid style, revise drafts, and copy-edit articles, all while working under simulated deadline pressure.

CM 210 - WRITING FOR VISUAL MEDIA

Semester Hours: 3

This course offers an introduction to scriptwriting for a variety of media: commercials, PSAs, fiction films, documentaries, and the web. The art of "visual writing" is emphasized. Students produce scripts on their own while contributing to and critiquing the work of their fellow classmates. ed, communication medium. Prerequisites: EH 101, EH 102.

CM 220 - INTRO PUBLIC RELATIONS

Semester Hours: 3

This course is designed to introduce students to the public relations profession. Through study of rhetorical and communication strategies, individual and group projects, as well as speaking and writing experiences, students gain the knowledge necessary to actively participate as effective public relation professionals.

CM 231 - FOUNDATIONS OF HUMAN COMMUNICA

Semester Hours: 3

Examines how human communication shapes and adapts to a variety of practical settings public, interpersonal, organizational, mass, and technical. It prepares students for effective work in various communication contexts.

CM 251 - DECISION-MAKING IN SMALL GROUP

Semester Hours: 3

Provides working knowledge of how small groups communicate in the decision-making process. Students put theory into practice by functioning as group participants, observers, and consultants. Emphasis is placed on leadership, theoretical application, group participation, and oral presentation.

CM 260 - VIDEO PRODUCTION

Semester Hours: 3

This course provides students with an opportunity to experience the process of video production through creative projects designed to stimulate the visual artist, summon the storyteller and create the video editor.

CM 310 - PERSUASION

Semester Hours: 3

Provides foundation in the theories, principles, and strategies of social influence through theory and application. Students explore persuasive communication, social influence, and compliance-gaining from a social-scientific level and examine the production and consumption of persuasive messages.

CM 313 - BUSINESS & PROFESSIONAL COMM

Semester 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. (Prepare business administration students to meet the oral communication requirement in upper division and graduate business courses).

CM 320 - PRACTICUM IN WRITING

Semester 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, CM 302, enrollment in the Technical Writing Track, and a successful interview with the participating technical supervisor.

CM 330 - NONVERBAL COMMUNICATION

Semester Hours: 3

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

CM 331 - COMMUNICATION THEORY

Semester Hours: 3

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. Prerequisite: CM 231.

CM 333 - INTERPERSONAL COMMUNICATION

Semester Hours: 3

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

CM 334 - HIST OF AMERICAN CINEMA

Semester Hours: 3

Investigates the American cinema as a cultural artifact by studying cultural and historical context of representations, audiences, aesthetics and industry practices in American cinema from its beginning (1895) to present.

CM 340 - SPEC TOPICS IN COMM ARTS

Semester Hours: 3

Topics announced in advance. Representative topics include rhetoric and war, technical theatre, and culture and communication. May be repeated twice for credit.

CM 360 - ADVANCED VIDEO PRODUCTION

Semester Hours: 3

Advanced Video Production is an intensive video production course designed to integrate film theory and practice. Students will learn the technical and artistic necessities of the film and video medium. Through immersive lectures, workshops, projects, and exercises, students will gain valuable experience and know-how in this exciting, fast-paced, communication medium. Prerequisite: CM 260.

CM 370 - COMM RESEARCH METHODS

Semester Hours: 3

Examines social scientific concepts, theories and designs commonly used 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. Prerequisite: CM 231.

CM 375 - RHETORICAL CRITICISM

Semester 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. Teaching students to understand the persuasive potential of messages prepares them as critical consumers, analysts, and potential creators of such messages. Prerequisite: CM 113 or approval of instructor.

CM 400 - INTERNSHIP

Semester 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. Prerequisite: Senior Standing with CM major, and permission of instructor.

CM 405 - ADVANCED MEDIA WRITING

Semester Hours: 3

An upper level course that offers an overview of various media writing genres, including Broadcast, Advertising and Public Relations. Students complete a mix of timed assignments within each context to acquire a more complete survey of media writing and prepare for a career within the mass media. Prerequisite: CM 205.

CM 408 - CLASSICAL RHET THEORY

Semester Hours: 3

This course surveys the early development of rhetorical theory in the Western world, from its sophistic origins in the 5th century BCE, through the Greek philosophers and educators, to the Romans and early Christians. Prerequisites: CM 113.

CM 409 - CONTEMPORARY RHETORICAL THEORY

Semester Hours: 3

This course surveys contemporary rhetorical thought, including modern and postmodern theories. The course requires rigorous academic analysis and critique as students explore historical and current rhetorical concepts. Prerequisite: CM 113.

CM 414 - CREATIVE NONFICTION WRITING

Semester Hours: 3

This course introduces students to the genre of creative non-fiction. Undergraduate students will write five essays and revise toward a final writing portfolio.

CM 416 - WOMEN ORATORS

Semester 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 418 - LEGAL ARGUMENT

Semester 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.

CM 420 - PUBLIC RELATIONS WRITING

Semester Hours: 3

This course provides students with professionalization in their writing and editorial skills in public relations. By emphasizing different audiences and various media, students will find and hone their public relations voice. Students will gain experience with instant responses, making ethical and legal decisions, and practicing a wide range of PR writing and design including the development of media kits, pitches, backgrounders, press releases, memos, newsletters, radio announcements, and brochures. Prerequisite: CM 220 (C or better).

CM 426 - BURKEIAN THEORY & CRITICISM

Semester 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. Prerequisite: Junior standing.

CM 430 - MASS MEDIA IN AMERICA

Semester Hours: 3

This course provides an overview of major forms of mass media communication. It focuses on both print and electronic media, its history and structure as well as on theories of mass communication. Students will become familiar with the current role and influence of media in society.

CM 431 - SR SEM COMM THEORY/RESEARCH

Semester Hours: 3

Senior capstone course involving either a scholarly project or an approved communication-intensive internship combined with a comprehensive examination. Prerequisites: CM 370 and CM 375, and senior standing.

CM 433 - DARK SIDE INTERPERSONAL COMM

Semester 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 relationships by exploring a variety of topics related to the "darker" side of relationships situated in the contexts of friendships, 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. Prerequisite: CM 231.

CM 435 - SOCIAL MEDIA

Semester Hours: 3

This course focuses on uses and effects of social media in interpersonal, organizational, mass mediated, health, and political settings. Social media technologies take on many different forms including social networking sites, micro-blogging, wikis, online videos, and blogs. Following questions are discussed in class: Who uses social media? How do people use social media to develop relationships, get social support, and evoke political change? Is privacy dead? How do employers use social media to check on employees?.

CM 440 - PUBLIC RELATIONS CAMPAIGN

Semester Hours: 3

This course provides professionalization and team work experience for students in the public relations track. Students practice the research, planning, implementation, and evaluation of strategic communication plans for various public relations contexts. Prerequisite: CM 220 (C-or better).

CM 444 - ADVERTISING

Semester Hours: 3

This course will examine the emergence of advertising as a form of communication, its influence upon other forms of mediated communications and its impact upon culture and society. Students will learn how to develop and present an advertising strategy for an actual brand. Prerequisite: Junior standing.

CM 451 - ORGANIZATIONAL TRNG & DEVELOP

Semester 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. Prerequisite: Junior standing.

CM 454 - NEW MEDIA WRITING & RHETORIC

Semester Hours: 3

This course teaches students to apply rhetorical principles across a variety of media and includes an examination of communication strategies used widely in academic and industry settings. The course focuses on new media through an exploration of digital technologies and the way digital culture and new media have dramatically impacted reading, writing, and research practices. Prerequisites: EH 101 and EH 102.

CM 455 - COMMUNICATION & CULTURE

Semester Hours: 3

This course focuses on the application of theory and research to intercultural communication. Topics and activities assist the 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 unlike others. Prerequisite: Junior standing.

Computer Engineering (CPE)

CPE 211 - INTRO COMPUTER PROG FOR ENGR

Semester Hours: 3

Advanced programming in a high level language such as C++ with an emphasis on practice in solving engineering problems using top-down design and algorithms. Prerequisites: ENG 101 and MA 171 with concurrency.

CPE 211L - LABORATORY

Semester Hours: 0

This lab is the 0-credit lab component of the 3 credit course.

CPE 212 - FUNDAMENTALS SOFTWARE ENGRG

Semester Hours: 3

Introduction to structured programming using C++. Search and sort algorithms. Introduction to data structures. Applications to engineering related problems. Prerequisite: CPE 211.

CPE 221 - COMPUTER ORGANIZATION

Semester Hours: 3

Functional organization of stored-program digital computers including number representation, assembly language programming, computer hardware, micro-operations, and control logic; microprocessor architecture. Prerequisite: CPE 211 and EE 202 w/concurrency.

CPE 322 - DIGITAL HDWR DESIGN FUNDMNTLS

Semester 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. Laboratory required. Prerequisite: CPE 221.

CPE 323 - INTRO TO EMBEDDED COMPUTER SYS

Semester Hours: 3

Hardware and software aspects in building embedded computer systems. Includes methods to evaluate design tradeoffs of different technology choices and technology capabilities and limitations of system components necessary to design and implement an embedded system and interface it to the outside world. Laboratory required. Prerequisite: CPE 221.

CPE 324 - ADV LOGIC DESIGN LABORATORY

Semester Hour: 1

Laboratory component of CPE 322 includes 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. Prerequisite: CPE 322.

CPE 325 - EMBEDDED SYSTEMS LAB

Semester Hour: 1

Laboratory component of CPE 323 includes experience working with modern integrated software development environments and hardware platforms to solve practical problems.

CPE 348 - INTRO TO COMPUTER NETWORKS

Semester 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 211 and CPE 221.

CPE 353 - SOFTWARE DESIGN & ENGINEERING

Semester Hours: 3

Hands-on experience developing a substantial software project using software design tools such as SQL database system and the Qt graphical interface development environment. Introduction to a software process including requirements elicitation and testing techniques. Prerequisites CPE 212 and CS 317 (with concurrency).

CPE 381 - FUND SIGNALS & SYS FOR COMP EN

Semester Hours: 3

Introduction to the fundamental concepts in continuous and discrete signals and systems, and methods of signal and system analysis for computer engineers. No credit for EE or OPE students. Prerequisites: EE 213 and MA 238.

CPE 412 - INTRO TO PARALLEL PROGRAMMING

Semester Hours: 3

Introduction to processing in parallel and distributed computing environments. Design and analysis of parallel algorithms. Parallel programming environments: Pthreads for shared memory multiprocessor systems and PVM/MPI for distributed networked computers. (Same as CPE 512) Prerequisites: CPE 212 and CS 317.

CPE 423 - HARDWARE/SOFTWARE CO-DESIGN

Semester Hours: 3

Study and design of Systems On A Chip (SOC). Emphasis on Field Programmable realizations of SOC systems. (Same as CPE 523) Prerequisites: CPE 322 and CPE 426.

CPE 426 - VLSI HARDWARE DESC LANG/MODL/S

Semester 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. (Same as CPE 526) Prerequisites: EE 202 and EE 315.

CPE 427 - VLSI DESIGN I

Semester 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. Labortory required. (Same as CPE 527) Prerequisites: EE 202 and EE 315.

CPE 427L - LABORATORY

Semester Hours: 0

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

CPE 431 - INTRO COMPUTER ARCHITECTURE

Semester 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. (Same as CPE 531) Prerequisites: CPE 322 and CPE 323.

CPE 434 - OPERATING SYSTEMS

Semester Hours: 3

Study of the fundamentals of operating systems. Emphasis on processes, file management, interprocess communication, input-output, virtual memory, networking and security. Course must be taken concurrently with CPE 435. Prerequisites: CPE 221 and CPE 353/.

CPE 435 - OPERATING SYSTEMS LABORATORY

Semester Hour: 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 MODERN OPER SYS

Semester 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. (Same as CPE 536) Prerequisite: CPE 434.

CPE 449 - INTRO TO CYBERSECURITY ENGINRG

Semester Hours: 3

Introduction to cryptography and computer security through hardware and physical security to a knowledge of audit methods, security management, and public law. Includes skills such as business process analysis, software security, IAE evaluation, and IAE testing. (Same as CPE 549) Prerequisite: CPE 448.

CPE 449L - INTRO CYBERSECURITY ENG LAB

Semester Hours: 0

Students enrolling in CPE 449 must enroll concurrently in CPE 449L.

CPE 453 - SENIOR SOFTWARE STUDIO

Semester Hours: 3

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

CPE 455 - SECURE SOFTWARE DEVELOPMENT

Semester Hours: 3

Overview of methodologies for development of high-assurance software. Major topics include analysis of security and safety risks, software certification criteria, the software development lifecycle, risk mitigation, design and coding best practices, verification techniques, and auditing of software for insecure and unsafe coding constructs. Prerequisites: CPE 353 or CS 307.

CPE 457 - SOFTWARE REVERSE ENGINEERING

Semester Hours: 3

This course provides fundamental knowledge of software reverse engineering. The course provides the ability (a) to understand software of unknown origin or software for which source code is unavailable, (b) to determine how something works, (c) to discover data used by software, and (d) to aid in the analysis of software. The course introduces tools for reverse engineering, including disassemblers, debuggers, monitors, virtual machines and modern tools for software analysis. Prerequisites: CPE 353 and CS 307.

CPE 459 - SYSTEMS SECURITY

Semester Hours: 3

This course (1) introduces cyber physical, industrial control, embedded, and Supervisory Control and Data Acquisition (SCADA) control systems, (2) examines common vulnerabilities and threats associated with these systems, and (3) examine techniques to defend these systems from cyber-attacks. Prerequisite: CPE 448.

CPE 490 - SPECIAL TOPICS IN COMP ENGR

Semester Hours: 1-3

Topics will vary. The course may be repeated when topics vary. Consent of advisor.

CPE 490L - SPECIAL TOPICS LABORATORY

Semester Hours: 0

CPE 493 - VLSI DESIGN II

Semester Hours: 3

Advanced experience with CAD tools for VLSI design, IC testing. Design Project from EE/CPE 492 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. Fulfills senior design requirement.

CPE 495 - COMPUTER ENGINEERING DESIGN I

Semester Hours: 3

First course in the senior capstone design sequence. Application of techniques to the design of electronic systems that have digital hardware and software components. Application of engineering courses to solve real-world design problems. Must be taken in the same academic year as CPE 496. Prerequisites: CPE 323, CPE 353 and EE 315.

CPE 496 - COMPUTER ENGINEERING DESIGN II

Semester Hours: 3

Second course in the senior capstone design sequence. Must be taken in the same academic year as CPE 495. Prerequisite: CPE 495.

CPE 497 - COMPUTER ENGR INTERNSHIP

Semester 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. Junior/senior standing and approval from Engineering Faculty advisor.

CPE 498 - CYBERSECURITY CAPSTONE

Semester Hours: 3

Students will participate in a team based cybersecurity project which is a culminating experience for the cybersecurity degree. For a target system, student teams will conduct and document a risk assessment, then design, implement, and test cybersecurity controls to mitigate threats to the system.

CPE 499 - PROJECT IN COMPUTER ENGR

Semester Hours: 3

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

Computer Science (CS)

CS 100 - INTRO COMPUTERS & PROGRAM

Semester Hours: 3

Introduction to program design and implementation in the Visual Basic programming language, using hands-on programming assignments, class demonstrations and lectures. Problem analysis and some testing techniques. Basic program structure, data types, control structures, and file organization.

CS 102 - INTRO TO C PROGRAMMING

Semester Hours: 3

Introduction to program design and implementation in the C programming language, using hands-on programming assignments, class demonstrations and lectures. Problem analysis and some testing techniques. Basic program structure, and file organization.

CS 103 - INTRO PROGRAMMING USING JAVA

Semester Hours: 3

Introduction to 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 program structure, data types, control structures, methods and file organization.

CS 104 - INTRO TO CS USING PYTHON

Semester Hours: 3

Introduction to program design and implementation in the Python programming language, using hands-on programming assignments, class demonstrations and lectures. Problem analysis and some testing techniques. Basic program structure, and file organization.

CS 105 - COMP SCI SEM:ETH/PROFESS

Semester Hour: 1

Issues associated with the ethical use of computers in the 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

Semester Hours: 3

Review of problem solving techniques, algorithm development, and fundamental language features; e.g., loops, decisions. In depth coverage of functions, arrays, I/O. Principles of software design, implementation, and testing. Introduction to object oriented design and the C++ programming language. Prerequisites: CS 102 or 103, and either MA 113, 115, 120, 171, 172, 201, 238, or 244.

CS 143 - INTRO TECH MULTIMEDIA & GAMING

Semester Hours: 3

Introduction to terminology, technologies and tools for multimedia and gaming. Elements such as text, sound, images, animation, video, and how they are represented, captured, edited, stored, and published. Overview of multimedia and gaming technologies, multimedia authoring, publishing on the web.

CS 214 - INTRO DISCRETE STRUCTURE

Semester 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: MA 171 and either CS 121 or CPE 211.

CS 217 - ANALYTIC TECH GAMING

Semester Hours: 3

Mathematics for understanding & implementing 3-dimensional graphics & interactive physical modeling in computer games. Topics: coordinate systems, vectors, matrices, transformations, kinematics, dynamics, automata, and probability. Focused on practical mathematics rather than theoretical derivations. Prerequisites: MA 120 or MA 171.

CS 221 - COMP SCI II: DATA STRUCTURES

Semester Hours: 3

Advanced features of the C++ programming language, including pointers, recursion, classes, and inheritance. Fundamental data structures including linked lists, stacks, queues, binary search trees. Basic sort and search algorithms. Design, development, and documentation of object-oriented programs. Prerequisites: CS 121 and either MA 113, or 115. Prerequisites with concurrency: MA 171 or CS 217.

CS 307 - OBJECT ORIENT/PROG C++

Semester Hours: 3

Emphasis on principles of software engineering and object-oriented design. Practical experience using the standard C++ library, the standard template library, and design patterns. Introduction to and experience with graphical user interface applications. Prerequisite: CS 221.

CS 308 - ASSEMBLY LANGUAGE PROGRAMMING

Semester Hours: 3

Programming in a representative assembly language, including floating point programming. Overview of software systems: loaders, assemblers, compiler, interpreters, operating systems. Prerequisite: CS 309.

CS 309 - COMPUTER ORG & SWTCHNG THRY

Semester Hours: 3

Boolean algebra, Boolean function minimization techniques, design and analysis of combinational circuits, design and analysis of sequential circuits. Computer hardware organization, including CPU, instruction representation and executive. Programing in a representative assembly language, including floating point programming. Overview of software systems: loaders, assembler, compiler, interpreters, operating systems. A lab section must be scheduled for this course. Prerequisite: CS 214.

CS 309L - LABORATORY

Semester Hours: 0

Lecture/Lab 3. Students enrolling in CS 309L must enroll concurrently in CS 309.

CS 317 - INTRO DESIGN/ANALYSIS OF ALG

Semester Hours: 3

Introduction to complexity analysis of algorithms; emphasis on searching, sorting, finding spanning trees and shortest paths in graphs. Design techniques such as divide & conquer, dynamic programming, and backtracking. Introduction to problem classification; i.e. NP, intractable, and unsolvable. Prerequisites: MA 244 and CS 214, and either CS 221 or CPE 212.

CS 321 - INTRO OBJECT-ORIENTED PROG JAV

Semester Hours: 3

Writing substantial object-oriented programs in Java, including 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++. Prerequisite: CS 221.

CS 325 - PROFESSIONAL & COMPUTG ETHICS

Semester 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.

CS 330 - ARTFCL INTEL & GAME DEV

Semester Hours: 3

Techniques and concepts of artificial intelligence applied game development and production. Topics: path planning, decision making, tactics, and non-rational behaviors. Prerequisite: CS 221.

CS 347 - INTRO VIDEO GAME DESGN & PROGM

Semester Hours: 3

Provides students with an overview of the video game production process. Covers both theory and practice of game design and programming. Students produce 2D and 3D games from beginning to end using existing game engines. Hands-on focus and project-oriented. CS 143 is highly recommended. Prerequisite: CS 221.

CS 371 - MOBILE COMPUTING APP INCT & D

Semester Hours: 3

Considers application design for the mobile space with emphasis on mobile computer interfaces, including GUI for mobile environments, entertainment computing, and cross-platform development. This course is also a component of the Entertainment Computing Track. Prerequisites: CS 221 or CPE 212.

CS 390 - UNIX PROGRAMMING

Semester Hours: 3

Design and development of systems and programs in the UNIX environment. File and terminal I/O, processes, inter-process communication, signals. Pattern searching, filters, pipes. Shell programming. Program and system development tools such as awk, C, make, sed, and yacc. Prerequisite: CS 221.

CS 391 - INT NETWORK ADMIN PRINC WINDOW

Semester Hours: 3

Network administration principles for installing and administrating Windows networks. OS installation, general network topologies and protocols, and Windows client-server architecture. User management, network file and security systems, and disaster-recovery are also covered. Prerequisite: CS 221.

CS 392 - INT NETWORK ADMIN PRINC FOR UN

Semester Hours: 3

Linux OS installation, network topologies and protocols, and UNIX client-server architecture. User management, network file and security systems, kernel configuration, print servers, domain name service, mail servers, Web and ftp servers are included. Design and implementation of a UNIX domain. Prerequisite: CS 390.

CS 396 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Must have approval of instructor.

CS 397 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Must have approval of instructor.

CS 398 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Must have approval of instructor.

CS 403 - INT FORML LANG AUTO THRY

Semester 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. Prerequisite: CS 317.

CS 413 - INTRO DIGITAL COMP ARCHITECTUR

Semester Hours: 3

Design of computer systems and subsystems, including register transfer, bus structure, timing and control. Pipelining, memory systems including cache and cache coherence, arithmetic, and I/O units. Interrupt handling. A lab section must be scheduled for this course. Prerequisite: CS 309.

CS 413L - LABORATORY

Semester Hours: 0

Lecture/Lab 3. Students enrolling in CS 413L must enroll concurrently in CS 413.

CS 424 - PROGRAMMING LANGUAGES

Semester Hours: 3

Principles of modern programming language features and design. Comparative study of language paradigms. Overview of language implementation, including lexical, syntax, and semantic analysis. Formal grammars, BNF notation. Brief history of programming languages. Prerequisite: CS 317.

CS 443 - INTRO TO MULTIMEDIA SYSTEMS

Semester Hours: 3

Multimedia authoring, color models for image and video, introduction to image and video compression, digital audio, multimedia networks, multimedia synchronization, multimedia retrieval. Taught as CS 443, 543. Prerequisite: CS 317.

CS 445 - INTRO COMPUTER GRAPHICS

Semester Hours: 3

Introduces underlying theory and mechanics of interactive computer graphics. Basic modeling, rasterization, 2D/3D transformations, and viewing. 3D graphics rudiments. Some hardware and historical perspectives. Many programs. Same as CS 545; take only one! Prerequisites: CS 221 and MA 244 or CS 217.

CS 446 - ADVANCED COMPUTER GRAPHICS

Semester Hours: 3

High resolution 3D graphics. Advanced topics in viewing, vertex &, fragment processing, illumination & shading, 3D modeling (curve & surface representation, texture mapping. Some coverage of solid modeling and color theory. Game production pipeline. Many programming projects. Taught as CS 446, 546. Prerequisites: CS 445 and at least junior standing.

CS 447 - GAME ENGINES & LEVEL DEVELOPMENT

Semester Hours: 3

Students produce fully functional games from beginning to end with team members. Focused on engineering development and art asset generation and management. Examines the design, development, and distribution of computer games using game engines for cross-platform implementation. Taught as CS 447, 547. Prerequisites: CS 330 and CS 445.

CS 453 - CLIENT/SERVER ARCHITECTURES

Semester Hours: 3

Aspects of client/server distributed computing, a paradigm that includes technologies addressing web services (such as AJAX using JavaScript/PHP, ASP.NET) as well as distributed objects (such as .NET remoting, CORBA). Students will apply the concepts in practical distributed programs. Prerequisites: CS 307 or CS 321. CS 470 is recommended.

CS 454 - INTRO TO CLOUD COMPUTING

Semester Hours: 3

Different cloud computing paradigms: IaaS, SaaS, PaaS. Open Source cloud software (for ex., OpenStack, CloudStack). RESTful interfaces, AWS interface. Cloud Security. Taught as CS 454, 554. Prerequisites: CS 307 or CS 321.

CS 465 - NETWORK SECURITY

Semester Hours: 3

Introduction to Network Security: Fundamentals of network security and cryptography. Examines security at different network layers. Wireless security. Firewalls. Intrusion detection and penetration analysis. Prerequisites: CS 121, CS 221 or CPE 221.

CS 470 - INTRO TO COMPUTER NETWORKS

Semester 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. Prerequisite: CS 413.

CS 480 - MOBILE DIGITAL FORENSICS

Semester Hours: 3

This course examines digital forensics of mobile devices such as smart phones and tablets in a law enforcement context. Mobile device characteristics that make forensics examinations difficult are discussed. Various forensic tools are critically examined with an eye toward improved tool development. Prerequisites: CS 413 or CPE 323.

CS 485 - COMPUTER & SOFTWARE SECURITY

Semester Hours: 3

This course examines the issues related to security policies, models and mechanisms applicable to providing security for computer-based systems including operating systems, database management systems, and networks. Corequisite: CS 490.

CS 487 - DATABASE SYSTEMS

Semester Hours: 3

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. Senior standing required.

CS 488 - INTRO TO BIG DATA COMPUTING

Semester Hours: 3

Provides big data concepts and characteristics; big data architectural concepts; big data ecosystem. Includes MapReduce framework and programming and coverage of big data applications. Prerequisite: CS 317.

CS 490 - INTRO TO OPERATING SYSTEMS

Semester Hours: 3

Principles of operating systems. Process management, memory management, I/O management, and file systems. Specific topics include process states, threads, CPU scheduling, concurrent processing, virtual memory. Contemporary operating systems will be used as examples. Prerequisite: CS 413.

CS 495 - SEL TOPICS:UNDERGRAD CS

Semester Hours: 3

Individual directed study under the supervision of an instructor. Instructor approval required.

CS 496 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Instructor approval required.

CS 497 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Instructor approval required.

CS 498 - SPECIAL TOPICS

Semester Hours: 3

Course offered by an instructor in a specialized area of computer science. Instructor approval required.

CS 499 - SR PROJ:TEAM SOFTWARE DESIGN

Semester 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. Prerequisite: CS 317.

Early Childhood Education (ECH)

ECH 306 - PRINCPLS OF EARLY CHILDHOOD ED

Semester Hours: 3

This introductory course will provide preservice early childhood educators with basic knowledge of the core principles and foundations of early childhood education. The course introduces students to the historical and sociocultural forces that have impacted the field along with contemporary early childhood programs and models, recent trends and issues, and theories of play. Admission to teacher education program required.

ECH 320 - DIFF INSTR FOR EARLY LEARNERS

Semester Hours: 3

An early childhood education curriculum course designed to provide practical knowledge for blending content areas to maximize children's learning and prepare teacher candidates to meet the needs of children across the curriculum. Focus is on the implementation of a curriculum designed to promote learning and development in the social, emotional, physical, language and cognitive domains. Additionally, the course will emphasize developmentally, culturally, and linguistically appropriate and effective teaching approaches to enhance each child's learning and development. Admission to teach education program required.

ECH 330 - ASSESSMENT OF YOUNG LEARNERS

Semester Hours: 3

This course provides candidates with an understanding of the forms, functions, methods, and roles of assessment for planning and implementing effective early childhood programs for young children, ages birth to five, from diverse cultures and with varied learning needs. Candidates will explore both quantitative and qualitative approaches to evaluation and assessment. They will learn about technological adaptations to enhance the assessment process. Students will gain an understanding of appropriate strategies for conducting, reporting, and decision making related to specific functions of assessment. They will learn about assessment strategies necessary for second language learners and about adaptations for children with disabilities. They will use selected assessment strategies with young children in their field placements and are expected to become competent in the use of authentic assessment strategies to describe a child's learning strengths and instructional needs. Admission to teach education program required.

ECH 340 - LANGUAGE & SPEECH DEVELOPMENT

Semester Hours: 3

This course provides an introductory examination of the development of language and speech in young learners. Pragmatic syntactic, and phonological analyses of children's language and speech development are required. Admission to teacher education program required.

ECH 490 - EARLY CHILDHOOD INTERNSHIP

Semester Hours: 3

Observation, participation and teaching in at least two early childhood settings with children ranging from infancy to grade 3 (full time, 15 week semesters). Students will also attend campus-based seminars designed to meet specific needs of the interns. Admission to the teacher education program required.

Earth System Science (ESS)

ESS 100 - INTRODUCTION TO SPACE SCIENCE

Semester Hour: 1

Covers 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 101 - EXPLORING SPACE SC & ENGR

Semester Hour: 1

Exploring Space Science and Engineering courses 1-9. 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 ESS 101 group may be taken for credit. The courses are offered through distance learning.

ESS 103 - ENVIRONMENTAL EARTH SCIENCE

Semester Hours: 4

Principles and foundations of Earth and environmental science with lectures and labs on concepts in Earth system science. Applied science labs use applications and real-world examples from ecosystems, geology, soil science, water, pollution, agriculture, population, natural disasters and energy.

ESS 103L - LABORATORY

Semester Hours: 0

ESS 111 - WEATHER, CLIMATE & GLOBAL CHNG

Semester Hours: 4

Intro to the atmosphere and climate system, including weather systems, climate extremes, and natural / human-induced changes in the atmosphere - climate system. Major topics discussed include greenhouse effect, solar impacts on climate, El-Nino, climate change, atmospheric and ocean circulations, cyclones, hurricanes, thunderstorms, and tornadoes.

ESS 111L - LABORATORY

Semester Hours: 0

ESS 210 - COLLAPSE OF CIVILIZATIONS

Semester Hours: 3

This course will investigate why some cultures succeed and others fail. From archeological and historical records of past civilizations we will examine the factors which lead to collapse in an attempt to determine the future of current societies.

ESS 212 - SEVERE WEATHER ANALYSIS

Semester Hours: 4

Meteorological analysis and beginning forecasting of weather systems, severe weather, snowstorms, hurricanes, and tornadoes through the interpretation of surface, upper air, satellite, and radar weather observations. Strong emphasis placed on unique observations of severe weather from UAH radar and profiling systems. Prerequisite: ESS 111.

ESS 212L - LABORATORY

Semester Hours: 0

Laboratory. Prerequisite: ESS 111.

ESS 301 - INTRO TO EARTH & ATMOSPHERIC PHYS

Semester Hours: 3

This course will provide a survey of earth and atmospheric science for undergraduate students. Topics that will be covered will focus on how the earth-atmosphere system works in an integrated fashion. Prerequisites: ESS 103, ESS 111, (PH 101 or PH 111), and (MA 120 or MA 171).

ESS 302 - PEOPLE, PLANTS, & ENVIRONMENT

Semester Hours: 3

This course is designed to introduce students from multiple departments to the vital roles that plants have in our ecosystems through the study of basic plant and soil science. Special attention is placed on the impact plants have on our technology-based society. Sophomore standing or above.

ESS 303 - CLASSICAL & PHYSICAL CAUSES CLIMATE

Semester 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

Semester Hours: 3

Introduction to hydrologic cycles and concepts of how water interacts with the environment. Covers water properties, precipitation, groundwater and runoff, currents, waves, sediment processes, and conservation strategies. Prerequisites: ESS 103, ESS 111, MA 120 or MA 171, and PH 101 or PH 111.

ESS 307 - ENVIRONMENTAL ARCHEOLOGY

Semester 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 making it relevant to the modern-day world. Investigated in this course includes climate modeling, remote sensing, and GIS. Prerequisite: ESS 103.

ESS 312 - PRINCIPLES OF ECOLOGY

Semester 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. Strongly recommend CH 101 or 121. Prerequisite: BYS 120.

ESS 313 - GEOGRAPHIC INFORMATION SYSTEMS

Semester Hours: 3

Introduction to scientific spatial analysis concepts and spatial data processing with focus on ESRI ArcGIS software. Basic concepts in GIS data management and creation, with topics including raster and vector data, projections, data query, data acquisition, and cartography. Prerequisites: ESS 103 and either CS 102 or CS 103.

ESS 321 - POLLUTION PROBLEMS

Semester Hours: 3

Quantitative study of environmental conditions, processes, and problem-solving techniques related to specific pollution problems in air, water, and land. Prerequisites: ESS 111, ESS 103 and (MA 120 or MA 171) and (CH 101 or CH 121) and (PH 101 or PH 111).

ESS 351 - DYNAMIC METEOROLOGY

Semester Hours: 3

Dynamics and kinematics of atmospheric flow. Meteorological coordinate systems. Fundamental governing equations of atmospheric motion, circulation, and vorticity. Prerequisites: PH 111, ESS 301, CS 102 or CS 103, and MA 201 (with concurrency).

ESS 352 - SYNOPTIC METEOROLOGY

Semester 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 is placed on the use of remote sensing data from satellites, radars, and profilers using state-of-the-art workstations. Prerequisite: ESS 212 and ESS 351.

ESS 370 - INTRODUCTION TO REMOTE SENSING

Semester Hours: 3

This course introduces the fundamental physics of remote sensing systems and incorporates hands-on exercises of image processing, information extraction and interpretation, and basic applications of airborne and satellite data in Earth System Science and Atmospheric Science. Prerequisites: ESS 103, ESS 111, (MA 120 or MA 171), (PH 101 or PH 111), and CS 102.

ESS 402 - SCI & SOC ASPTS NATRL DISASTER

Semester 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: ESS 103 and ESS 111.

ESS 407 - ENV THRTS, PUB POLY, & DEC MKG

Semester Hours: 3

Researchers, policymakers and environmental campaigners have identified 25 potential future threats to the global environment. This course examines the nature and consequences of these threats and their potential impacts for the survival of the human race. Prerequisite: ESS 103.

ESS 408 - PYTHON FOR GIS

Semester Hours: 3

Introduction to GIS model building, Python programming, and automation of scripts for ArcGIS. Techniques in Model Builder, Python, and the methods for automation will be taught using data from numerous available data sources across the internet with heavy emphasis on the Earth Sciences.

Prerequisites: ESS 313.

ESS 409 - SCI PROGRMNG FOR EARTH & ATMOS

Semester 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. Prerequisite: CS 102 or 103; ESS 301; MA 172; PH 112 and PH 115. Or consent of instructor.

ESS 410 - OPERATIONAL WEATHER FORECAST'G

Semester Hours: 3

Subjective and objective methods of atmospheric prognosis. Techniques for forecasting critical weather elements. Interpretation, use and systematic errors of computer-generated products, human factors with forecasting, and application of meteorological theory in an operational setting. Prerequisites: ESS 111, ESS 212, ESS 352, MA 172, PH 112 and PH 115.

ESS 414 - GEOSPATIAL APPLICATIONS

Semester Hours: 3

An introductory look at the ways in which GIS can be put to use in different fields of study, drawing examples from Demography, Sociology, Archaeology, History, and Ecology. Focus on cartography and map creation principles and public geospatial data acquisition. Prerequisite: ESS 313.

ESS 415 - ADVANCED TOPICS IN GIS

Semester Hours: 3

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. Prerequisite: ESS 414.

ESS 420 - INTRO ATMOSP CHEM & AIR POLLU

Semester 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.

Prerequisites: PH 112, PH 115, CH 121, ESS 301 and ESS 321.

ESS 441 - ATMOSP THERMODY & CLOUD PHYSIC

Semester 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 hydrometeors. Prerequisites: ESS 301, MA 238, PH 112 and PH 115.

ESS 451 - ATMOSPHERIC FLUID DYNAMICS I

Semester Hours: 3

Fluid dynamics in the atmosphere. Coriolis acceleration, scale analysis and appropriate approximations of the complete governing equations. Numerical analysis and interpretation of weather phenomena. Same as ATS 451. Prerequisites: ESS 351, MA 238, PH 112 and PH 115.

ESS 454 - FORECASTING MESOSCALE PROC

Semester 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 of instruments used to detect mesoscale phenomena, most notably satellite and radar. Prerequisite: ESS 352.

ESS 461 - ATMOSPHERIC RADIATION I

Semester Hours: 3

Fundamentals of terrestrial atmospheric radiation. Topics include: basic concepts, radiative transfer equation, gaseous absorption, scattering by molecules and particles, band models, transmittance along an inhomogeneous path. Prerequisite: ESS 301, MA 238, PH 112 and PH 115.

ESS 471 - INTRO TO RADAR METEOROLOGY

Semester Hours: 3

Introduction to principles of radar meteorology, including radar operations, hardware, interpretation and analysis. Doppler, dual-polarization and dual-wavelength radar theory, methods and applications are covered. Prerequisite: ESS 301 and ESS 441.

ESS 490 - SELECTED TOPICS IN ENVIRON SCI

Semester Hours: 1-3

Special offerings to students in areas of interest not covered in the present curriculum. Prerequisite: permission of instructor.

ESS 495 - DIRECTED STUDY

Semester Hours: 2-4

Specialized research for undergraduates often is offered to undergraduates who have senior standing.

ESS 498 - RESEARCH & PROF DEV CAPSTONE

Semester Hour: 1

Applied concepts for professional and research development. Includes evaluation and discussion of published literature and department seminars, with focus on research synthesis and critique. Also includes development of professional and career skills focused on the Earth and Atmospheric Sciences. Senior Standing required.

ESS 499 - UNDERGRADUATE RESEARCH

Semester Hours: 2-4

For advanced Earth System Science students. Individual investigations into Earth systems science problems under direct supervision of a research mentor. Research is conducted and thesis-style paper is written and orally presented. Students identify and obtain consent from a faculty research mentor.

Economics (ECN)

ECN 142 - PRINC OF MACROECONOMICS

Semester Hours: 3

How does our economy function? Why do we have periods of unemployment and inflation and what can we do about it? Economics is a way of thinking about the world, how to identify and focus on fundamental issues so we can understand our economy and how monetary and fiscal policy affects our lives. Prerequisite: any 100 level or 200 level MA course.

ECN 143 - PRINC OF MICROECONOMICS

Semester Hours: 3

How do markets coordinate our unlimited wants with our limited capacity to produce? We study producer and consumer choice in a variety of market structures, the social welfare implications inherent in market systems and policies designed to correct those market failures. Prerequisite: Any 100 level or 200 level MA course.

ECN 340 - MACRO ECONOMIC ANALYSIS

Semester Hours: 3

A comprehensive study of the nation's economic system. How interdependent market systems determine income, consumption, saving, investment, interest, employment, and the aggregate price level. Determinants of economic growth and the effects of monetary and fiscal policy are central issues.

Prerequisites: ECN 142 and ECN 143.

ECN 345 - MICRO ECONOMIC ANALYSIS

Semester Hours: 3

This course provides an informed perspective of, and ability to use, microeconomic theory. We develop the analytical tools needed solve problems and focus on the logical foundations of these tools. Core topics include consumer behavior, production, exchange, markets, and game theory. Prerequisites: ECN 142 and ECN 143.

ECN 352 - MONEY AND BANKING

Semester 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

Semester Hours: 3

The course uses economic tools to study market outcomes in sports: the market for talent, labor relations, and the role of government. Specific topics include the demand for sports, sports franchises, and the theory of the firm, compensation of player talent, economics of stadiums, and sports media. Prerequisite: ECN 143.

ECN 411 - ECONOMICS INFORMATION TECH

Semester Hours: 3

Explores economic theories of consumer and firm behavior and strategy in the information technology industry with emphasis on applying formal tools of analysis in real-world contexts. Core topics include cost structures, non-competitive markets, network effects, and game theory. Prerequisites: ECN 143 and MA 120.

ECN 445 - GAMES AND NETWORKS

Semester Hours: 3

An introduction to game theory and economic and social network analysis. Student will explore the use of simple games to understand serious games strategic interactions -- especially in social network settings. Prerequisite: ECN 143.

ECN 450 - INTERNATIONAL BUSINESS

Semester Hours: 3

Cross-discipline course combining theoretical and practical aspects of doing business in the global market. Three modules consisting of international management, marketing and economic/finance cover topics including the legal, socio-political environment, negotiations/diplomacy, import/export mechanics, international distribution, balance of payments, hedging, trade agreements (GATT), and international business strategy.

ECN 454 - INTERNATIONAL ECONOMICS

Semester 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. Prerequisite: FIN 301.

ECN 470 - SEMINAR IN ECONOMICS

Semester 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.

ECN 475 - LABOR ECONOMICS

Semester Hours: 3

Economic analysis of labor markets; labor demand and labor supply at the market and individual level. Topics include individual decisions to supply labor, compensating wage differentials, human capital investment, discrimination in labor markets, pay and productivity, and the role of labor unions. Prerequisite: ECN 143.

ECN 480 - INTRO ECONOMETRICS

Semester Hours: 3

An introduction to the quantitative measurement and analysis of actual economic and business phenomena. Prerequisite: MSC 288.

ECN 481 - RESEARCH PRACTICUM

Semester Hours: 3

The economics research practicum is designed to give students research experience. With the approval of one of the economics' professors, a student teams up with a professor who mentors them through a research project. Prerequisites: ECN 340 and ECN 345.

ECN 490 - SPECIAL PROJECTS

Semester Hours: 3

Faculty guided Independent Study in an area of interest to the student and faculty member. Approval of department chair is required.

ECN 499 - AGENT-BASED COMPUTA ECON

Semester 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.

Education (ED)

ED 115 - EFFECTIVE RDG & STUDY SKILLS

Semester 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 - INTRO TO EDUCATION PRACTICUM

Semester Hour: 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. Prerequisites: ED 305 & ED 308 (taken concurrently). This experience is a prerequisite for admission to the Teacher Education Program.

ED 305 - FOUNDATIONS OF EDUCATION

Semester 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. Prerequisites with concurrency: ED 301 and ED 308.

ED 307 - MULTICULTURAL FND EDUCATION

Semester 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.

ED 308 - EDUCATIONAL PSYCHOLOGY

Semester Hours: 3

Psychological principles basic to an understanding of the learner, the learning process, and the learning situation. Intensive field experience required. Prerequisites with concurrency: ED 301 and 305.

ED 309 - CLASSROOM & BEHAVIOR MGMT

Semester 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. Intensive field experience in an assigned public school required. Prerequisites: Admission to the Teacher Education Program.

ED 310 - TCHG ART IN ELEM SCHOOL

Semester Hours: 3

ED 315 - EDUC EVALUATION & MEASUREMENT

Semester 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. Admission to the Teacher Education Program or permission of the chair.

ED 350 - TECHNOLOGY IN CLASSROOM

Semester 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 entering Education Program.

ED 360 - EARLY CHILDHOOD EDUC PRACTICUM

Semester Hours: 3

A three-hour credit course in a state-approved or NAEYC-accredited pre-kindergarten or kindergarten placement. It includes a weekly one-hour seminar with a faculty member. Admission to Teacher Education required.

ED 371 - TCHG ELEM LANGUAGE ARTS

Semester 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. Prerequisites: Admission to the Teacher Education Program.

ED 372 - TCHG ELEM SOCIAL STUDIES

Semester 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. Prerequisites: Admission to the Teacher Education Program.

ED 373 - TCHG NATURL/HLTH SCIENCE

Semester 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. Prerequisites: Admission to the Teacher Education Program.

ED 374 - TCHG ELEM MATHEMATICS

Semester 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. Prerequisites: Admission to the Teacher Education Program.

ED 375 - TCHG READING IN PRIMARY GRADES

Semester Hours: 3

An introduction to the basic principles of literacy instruction in culturally and linguistically diverse primary grade classrooms, including theoretical bases for instruction, methods of instruction and organization, developmentally appropriate strategies and materials, and assessment of children's literacy needs. Class activities will include mini-lessons, discussions, group activities, and presentations. An intensive school-based practicum in grades pre K -2 is required.

ED 400 - SPECIAL TOPICS-INTERNSHIP

Semester Hours: 3

Innovative internship focused on working with students with disabilities. Observations, participation, and direct instruction and teaching in a middle or high school setting for a prescribed time.

ED 401 - FNDS OF REFLECTIVE TEACHING

Semester Hours: 3

This diversity elective is designed to develop reflective practitioners, who study teaching and student learning in an effort to improve teaching practices and also meet certification requirements. The course will use various lenses of professional teacher noticing to select and discuss evidence of effective teaching. Course topics include edTPA rubrics, lesson planning, video teaching episode analysis, student assessments and feedback, academic language for describing teaching, and professional writing about teaching.

ED 402 - SPECIAL TOPICS IN EDUCATION

Semester Hours: 3

Introduces students to current issues and trends within educational practice, policy and theory through a specific lens. Provides opportunities for students to investigate issues of teaching and learning within the broader social/cultural vantage basic exploration of current research and debate within education. Topic may vary with each offering.

ED 405 - RDG STRATEGIES INTERMED GRADES

Semester 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.

ED 408 - TCHG READING/CONTENT AREA

Semester 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 the Teacher Education Program.

ED 410 - FOUNDATIONS EDUC EVALUAT

Semester 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.

ED 413 - CHILDREN'S & ADOLESCENT LIT

Semester 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. Same as EH 413. Prerequisites: Admission to the Teacher Education Program.

ED 421 - TEACH ENGL MID & SEC SCHOOL

Semester 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 remaining 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. Prerequisite: Admission to the Teacher Education Program.

ED 422 - TEACH MATH MID & SEC SCHOOLS

Semester 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 intensive school-based experiences in area schools. Prerequisite: Admission to the Teacher Education Program.

ED 423 - TCHG SC MID & SEC SCHOOLS

Semester Hours: 3

This 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. Must be admitted to Teacher Education Program.

ED 424 - TCHG SOC ST MID & SEC SCHOOLS

Semester 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 foundations 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. Must be admitted to Teacher Education Program.

ED 425 - METHODS TCHNG FGN LNG MID & HS

Semester 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 experience in area schools.

ED 493 - ELEMENTARY SCHOOL INTERNSHIP

Semester 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.

ED 497 - HIGH SCHOOL INTERNSHIP

Semester 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.

ED 499 - P-12 INTERNSHIP

Semester Hours: 12

Observation, participation and teaching in elementary and middle/high school (full time, 15 week semester). Students will also attend campus-based seminars designed to meet specific needs of the interns.

Education Collaborative (EDC)

EDC 301 - TCHG THE EXCEPTIONAL CHILD

Semester 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 301, ED 307, ED 308 and EDC 311. Prerequisites: Completion of all general education classes.

EDC 302 - INTRO LOW INCIDENCE POPULATION

Semester Hours: 3

Students will 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.

EDC 311 - INSTR STRATEGIES INCLUSIVE CLR

Semester 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.

EDC 316 - DIFFER INSTR FOR ECSE

Semester Hours: 3

This course provides practical strategies to maximize learning for all young learners (birth to 8 years old) with a variety of disabilities. Students will learn to utilize the principles of universal design for learning and differentiated instruction to create structured classrooms and lessons that meet the individual needs of young learners with special needs. This will include learning to select, implement, and evaluate lesson accommodations and modifications for students with exceptional needs.

EDC 321 - COLLAB CONSU(PARENT-TCHR-TEAM)

Semester Hours: 3

This class focuses on the description and rationale 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.

EDC 331 - CRITICAL ISSUES IN SPEC EDUC

Semester 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.

EDC 341 - ASSESS/PLN TRANSITION K-12 STU

Semester Hours: 3

Teacher candidates will develop the skills necessary for transitional planning, including administering cognitive, social, and functional assessments. Results of assessments will be interpreted and utilized to plan transitions from one placement to another, to inform instruction in regular, inclusive and self-contained classrooms, and to develop Individualized Education Plans (IEPs) for eligible students. Field work is required. Prerequisites: Admission to the Teacher Education Program.

EDC 351 - BEHAVIOR ANAL & INTERVENTION

Semester 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 work required. Prerequisites: Admission to the Teacher Education Program.

EDC 361 - ECSE PRACTICUM

Semester Hours: 3

A three-hour credit course in a state-approved or NAEYC-accredited early childhood education setting that includes children with developmental delays or diagnosed disabilities. It includes a weekly one hour seminar with a faculty member. Admission to teacher education program required.

Electrical Engineering (EE)

EE 202 - INTRO DIGITAL LOGIC DSGN

Semester Hours: 3

Engineering approaches to design and analysis of digital logic circuits. Boolean algebra, Karnaugh maps, design using Hardware Description Languages, digital computer building blocks, standard logic (SSI MSI) vs. programmable logic (PLD, PGA0, finite state machine design. Prerequisites: CPE 112 and EE 100.

EE 203 - DIGITAL LOGIC DESIGN LAB

Semester Hour: 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. Prerequisite: EE 202.

EE 213 - ELECTRICAL CIRCUIT ANALYSIS I

Semester Hours: 3

Basic concepts of DC and AC circuit theory and analysis. Includes both DC and AC power. Prerequisites: MA 201 and PH 112 both w/concurrency.

EE 223 - DES & MOD ELEC CIR & SYS

Semester Hours: 3

Electrical circuit and systems design and modeling. Includes using modern tools (i.e. Matlab and simulink) to design and model circuits. Introduces and reinforces engineering design principles. Prerequisites: EE 202 & EE 213.

EE 307 - ELECTRICITY & MAGNETISM

Semester 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, MA 238 and MA 244.

EE 308 - ELECTROMAGNETIC ENGR

Semester 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

Semester Hours: 3

Introduction to semiconductors including crystalline structure, energy bands and charge carriers, excess carriers, and thermal properties. Introduction to semiconductor junctions, the bipolar junction transistor, the MOSFET. Prerequisites: PH 113 and MA 238.

EE 315 - INTRO ELECTRONIC ANAL & DESIGN

Semester Hours: 3

Properties of diode, bipolar transistors, FET and operational amplifiers, analysis of DC and AC small-signal operation and circuit models for the design and analysis of electronic circuits. Prerequisite: EE 213.

EE 316 - ELE CIRCUITS & ELTRNC DSGN LAB

Semester Hour: 1

Electric circuit experiments including first and second order DC circuits, maximum power transfer, impedance measurements, transformers, measurement of electronic device characteristics and design and testing of operational amplifier circuits and single-stage amplifiers using MOSFETs and BJTs. Prerequisite: EE 315.

EE 382 - ANALY METH CONTINUOUS TIME SYS

Semester 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, MA 238 and MA 244.

EE 383 - ANALY METH MULTIVARIABLE

Semester Hours: 3

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

EE 384 - DIG SIGNAL PROCESS LAB

Semester Hour: 1

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

EE 385 - RANDOM SIGNALS & NOISE

Semester Hours: 3

Random variables and probabilities 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 - INTRO CONTROL/ROBOTIC SYS

Semester Hours: 3

Theory 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 PROC

Semester 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/ECE

Semester Hours: 1-6

Special topics in Electrical Engineering.

EE 410L - SELECTED TOPIC LABORATORY

Semester Hours: 0

EE 411 - ELECTRIC POWER SYSTEM

Semester Hours: 3

Power generation, transmission and distribution. Three-phase circuits, conventional and renewable power systems, transformers and motors, protection and control. Prerequisite: EE 382.

EE 412 - SR DSGN PROJ ELECT ENGR

Semester Hours: 1-6

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

EE 414 - ANALOG & DIGITAL FILTER DESIGN

Semester 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 EE 383.

EE 416 - ELECTRONICS II

Semester Hours: 3

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

EE 421 - ANTENNA DESIGN & ANALYSIS

Semester Hours: 3

Covers analytical methods and mathematical foundations for solving antenna radiation problems, based on Maxwell's equations. Different types of antennas will be studied, including wire, phased array, aperture, microstrip, and reflector antennas. Prerequisite: EE 308.

EE 423 - COMM SYS & SIMULATION W/ LAB

Semester Hours: 3

Modern test equipment and computer-based simulation methods are used to conduct experiments in the area of communication systems. Includes experiments to investigate signal modulation and demodulation, and filters. (Same as EE 523) Prerequisite: EE 426.

EE 424 - INTRO DATA COMMUN NETWORKS

Semester 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. (Same as EE 504) Prerequisites: EE 383 and EE 385.

EE 426 - COMMUNICATION THEORY

Semester Hours: 3

Signals and systems including the Hilbert transform, cross and auto correlation, power density spectrum, and the Wiener-Khintchine theorem. Filter design. Linear and nonlinear modulation and demodulation methods and circuits. Phase lock and frequency feedback techniques. (Same as EE 506). Prerequisites: EE 382 or CPE 381.

EE 436 - DIGITAL ELECTRONICS

Semester 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. (Same as EE 516) Prerequisites: EE 202 and EE 315.

EE 437 - ELECTRONICS MANUF PROCESSES

Semester Hours: 3

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. Senior standing. (Same as ISE 437 and EE 537).

EE 451 - OPTOELECTRONICS

Semester 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. (Same as OPE 451) Prerequisites: EE 307 and EE 315.

EE 453 - LASER SYSTEMS

Semester 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. Prerequisite: EE 307.

EE 454 - OPTICAL FIBER COMMUNICA

Semester 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. (Same as OPE 454) Prerequisites: (EE 307 or PH 432) and (EE 382 or CPE 381).

EE 486 - INTRO MODERN CONTROL SYSTEMS

Semester Hours: 3

Modern control theory including techniques for modeling, analysis and control of MIMO dynamic systems, state-variable feedback control design and state observers. Kalman-filtering. Fundamentals of nonlinear systems analysis and discrete-time system modeling, analysis and control. Prerequisites: EE 386.

EE 494 - EE DESIGN PROJECTS

Semester Hours: 3

Senior Capstone Course. Design, simulation, and construction of technical projects. Review of legal, economic, and ethical issues. Students work as individuals or teams to design, implement, test, and evaluate their projects. Oral presentation and written reports are required. Senior Standing. Prerequisites: ISE 321, EE 308, EE 310, EE 313, EE 315, CPE 323, EE 383, and EE 386.

EE 497 - ELEC ENGR INTERNSHIP

Semester Hours: 1-3

Active involvement in an engineering project in an engineering enterprise, professional organization, or government agency that has particular interest and relevance in the student. Junior/senior standing and Approval of Engineering Faculty Advisor.

Engineering (ENG)

ENG 100 - EXPLORING ENGINEERING

Semester Hour: 1

Exploring engineering fundamentals and disciplines via the design and development of a payload for a UAH designed spacecraft. Included are lectures and design laboratories that introduce the engineering design process, application of math and science, and presentation skills.

ENG 101 - INTRO COMPUTING ENGINEERS

Semester Hours: 3

Introduces students to the fundamental principles of programming for solving engineering problems. It familiarizes students with the process of computational thinking and the translation of real-life engineering to computational problems. Languages may include Matlab, Python, and others as appropriate. Prerequisites: MA 171.

ENG 105 - INTRODUCTION TO AERONAUTICS

Semester Hour: 1

Introduction to a variety of aviation subjects, including flight physiology, computer systems, aerodynamics, aeronautics, jet propulsion, thermodynamics, navigation, and survival skills. Lectures and simulated missions. Offered in cooperation with U.S. Space and Rocket Center. Open only to high-school students enrolled in Aviation Challenge Mach III.

ENG 109 - ENG ORG

Semester Hour: 1

Immersive experience with an Engineering Student Organization to develop an interest in engineering as a profession. Participate in a semester project, develop leadership and team work skills, give back to the community, network with professionals, learn engineering design skills.

English (EH)

EH 101 - COLLEGE WRITING I

Semester Hours: 3

Introduction to academic writing, critical reading, and rhetorical knowledge.

EH 101L - STUDIO FOR COLLEGE WRITING I

Semester Hours: 0

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. Students must pass EH 101L to pass EH 101S.

EH 101S - COLLEGE WRITING I W/STUDIO

Semester Hours: 3

Introduction to academic writing, critical reading, and rhetorical knowledge. For students whose preparation suggests a need for intensive support as they progress through the composition sequence. Requires concurrent registration in studio section 100L.

EH 102 - COLLEGE WRITING II

Semester Hours: 3

Intermediate academic writing. Focuses on research questions and techniques, as well as critical engagement with published and student texts.

Prerequisite: EH 101 or 101S.

EH 103 - ACCELERATED COLLEGE WRITING

Semester Hours: 3

Accelerated introduction to academic writing, critical reading, and research questions. Focuses on research questions and techniques, as well as critical engagement with published and student texts. Prerequisites: minimum highschool GPA 3.5; minimum 26 on ACT or minimum 1170 on SAT.

EH 105 - HONORS ENGLISH SEMINAR

Semester Hours: 3

Interpretive and comparative readings in texts of enduring intellectual, esthetic, and ethical importance; critical and analytic writing and research projects.

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 Program.

EH 207 - READINGS LITERATURE/CULTURE I

Semester Hours: 3

Critical 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. Prerequisite: EH 102 or EH 103 or EH 105.

EH 208 - READINGS LITERATURE/CULTURE 2

Semester 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. Prerequisite: EH 102 or EH 103 or EH 105.

EH 209 - HONORS SEM READINGS LIT/CUL I

Semester 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. Prerequisite: EH 102 or EH 103 or EH 105, and Honor's College Student.

EH 210 - HONORS SEM READINGS LIT/CUL 2

Semester 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. Prerequisite: EH 102 or EH 103 or EH 105, and Honor's College Student.

EH 211 - INTRO CREATIVE WRITING

Semester Hours: 3

Students will discuss contemporary stories/poems and will participate in workshops, where their own poetry and fiction is examined and critiqued by the class and instructor. The class culminates in two revision portfolios (one fiction and one poetry). Prerequisite: EH 102 or EH 103 or EH 105.

EH 242 - MYTHOLOGY

Semester Hours: 3

Archetypal, metaphorical, and historical significance of deities and myths. Prerequisite: EH 102 or EH 103 or EH 105.

EH 260 - INTRO TO WRITING MAJOR

Semester Hour: 1

An introduction to the Writing B.A., this course will overview the field of Writing Studies, its methods of inquiry and the interdisciplinary nature of its rhetoric, composition and language/literacy influences. Prerequisite: EH 102 or EH 103 or EH 105.

EH 300 - STRATEGIES FOR BUSINESS WRITING

Semester 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. Junior standing required. Prerequisite: EH 102 or EH 105.

EH 301 - TECHNICAL WRITING

Semester 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 Cognate Studies in Technical Writing. Junior Standing. Prerequisite: EH 102 or EH 105.

EH 302 - TECHNICAL EDITING

Semester 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. Includes lab emphasizing software skills useful for technical editing. Qualifies as elective in English major. Does not count toward English minor with special approval. Prerequisite: EH 301.

EH 303 - PRAC & RSRCH IN TECH COMM

Semester Hours: 3

Provides an overview of technical communication as a career field and as a research field. Introduces students to best practices and career options in technical communication and to the research methods used by technical communication practitioners and researchers. Does not count toward English minor without special approval. Prerequisite: EH 301.

EH 305 - INTRO TO ENGLISH MAJOR & MINOR

Semester 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. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 320 - PRACTICUM IN WRITING

Semester Hours: 3

Writing and editing under the supervision of professionals. Enrollment requires advance planning. Does not count toward English minor without special approval.. Prerequisite: EH 301 and EH 302.

EH 335 - SURVEY BRITISH LITERATURE

Semester Hours: 3

Writers, genres, and periods from Beowulf through the present. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 336 - SURVEY AMERICAN LITERATURE

Semester Hours: 3

Writers, genres, and periods from the Age of Discovery through the present. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 340 - ACADEMIC WRITING

Semester Hours: 3

Advanced academic writing designed to prepare students for the writing, research, and publishing requirements of their field of study. Prerequisite: EH 102 or EH 103 or EH 105.

EH 400 - COMPOSITION STUDIES FOR TCHERS

Semester Hours: 3

Introduction to effective strategies for the teaching of writing. Students will report on their own writing pedagogy as a result of reading and analyzing a range of writing research related to strategies of assigning, responding and assessing writing. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 401 - THEORY & PRACTICE IN TECH COMM

Semester 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. Prerequisite: EH 301 or CM 301.

EH 403 - LITERARY CRITICISM & THEORY

Semester Hours: 3

Major texts and approaches from Plato to the present. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 406 - FEMINISM AND COMPOSITION

Semester Hours: 3

Explores issues of gender in writing: postmodern feminism, feminist theories and research, gender and forms of writing, and finally, gender, teaching and identity. Students will investigate and analyze composition scholarship through reading, writing, and collaborative inquiry. Prerequisite: EH 207, EH 208, EH 209, EH 201 or EH 242.

EH 408 - HISTORY OF ENGLISH LANGUAGE

Semester Hours: 3

History of the emergence and development of English from the pre-Anglo-Saxon period to the present. Emphasis on cultural contexts. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 410 - FICTION WRITING

Semester Hours: 3

Practice in writing fiction from conception to revision. Students will read and write contemporary literary fiction. Student work will be commented on and critiqued in regular class workshops. The class culminates in a revision portfolio. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 411 - POETRY WRITING

Semester Hours: 3

Practice in writing poetry from conception to revision. Students will read and write contemporary poetry. Student work will be commented on and critiqued in regular class workshops. The class culminates in a revision portfolio. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 412 - SPEC STUDIES CREATIVE WRITING

Semester Hours: 3

Topics in creative writing, professional writing, or other advanced writing announced in advance. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 413 - CHILDREN'S & ADOLESCENT LIT

Semester 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. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 414 - CREATIVE NONFICTION WRITING

Semester Hours: 3

This composition class introduces students to the genre of creative non-fiction via revising, peer responding, prose modeling, and conferencing; and developing expertise in rhetorical writing concepts. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 415 - ANGLOPHONE/POSTCOLONIAL LIT

Semester Hours: 3

An introduction to major concepts, figures, and works with emphasis upon historical and cultural context. Specific focus will vary. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 418 - REP TEXTS-WOMEN WRITERS

Semester Hours: 3

Focus on women's contribution to the literary tradition. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 422 - STUDIES IN THE NOVEL

Semester Hours: 3

Focuses on varying topics in the novel with special attention to form. Texts may be drawn from diverse national and cultural origins. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 423 - CONTEMPORARY BRITISH LITERATURE

Semester Hours: 3

Major works after 1945 with emphasis on historical and cultural contexts. Specific focus will vary. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 424 - POETRY AND POETICS

Semester Hours: 3

An attempt to answer (at least provisionally) the questions "What is a poem?" and "What is poetry?". How to read a poem closely and carefully, with attention to theory, history of genres, and especially the technical aspects of poetry. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 425 - LITERATURE, SCIENCE & TECH

Semester Hours: 3

Considers the relationships among literature, scientific theories, and technological practices through a study of texts from ancient times to the present. Prerequisite: EH 20, EH 208, EH 209, EH 210 or EH 242.

EH 429 - STUDIES IN AMERICAN CINEMA

Semester Hours: 3

Focuses on select topics in American cinema with an emphasis on film history, technique, aesthetics, and cultural context. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 430 - THE AMERICAN NOVEL

Semester Hours: 3

The American novel. In alternate years the course may focus on 19th or 20th century American novels. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 432 - AMERICAN LITERARY MODERNISM

Semester Hours: 3

Major writers and cultural/historical events surrounding American Modernism, with a focus on long texts and shorter forays into the major poets. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 433 - WILLIAM FAULKNER

Semester Hours: 3

Critical study of the major novels. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 434 - SCIENCE FICTION

Semester Hours: 3

Selected short stories and novels, exploring the thematic and narrative concerns of both classic and contemporary science fiction. In alternate years, the course may focus on a specific problem or concern in science fiction. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 435 - SPECIAL STUDIES AMERICAN LIT

Semester Hours: 3

Topics announced in advance. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 436 - READING THE EARLY REPUBLIC

Semester Hours: 3

This class will investigate cultural expression and literary critical traditions associated with the founding period of the American nation (1776-1828). Writers might include Franklin, Jefferson, Equiano, Sargent, Rowson, Brockden Brown, and Irving. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 437 - THE AMERICAN NINETEENTH CNTRY

Semester Hours: 3

This class will investigate Anglophone cultural expression and literary critical traditions associated with long nineteenth century (1789-1919). Specific thematic concern or period of focus is left to the discretion of the instructor. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 438 - AFRICAN AMERICAN LITERATURE

Semester Hours: 3

Themes, concepts and imagery in the Black American literary tradition. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 439 - ETHNIC AMERICAN NOVEL

Semester Hours: 3

Race, ethnicity, and the 20th-century American Novel. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 440 - SPECIAL STUDIES IN ENGLISH LIT

Semester Hours: 3

Topics announced in advance. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 441 - THE CIVIL WAR IN AMRCN IMGNTN

Semester Hours: 3

Cultural representations of the Civil War (1861-5) past and present in diaries, poetry, photography, novels, oratory, history writing, and film. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 442 - USABILITY STUDIES

Semester Hours: 3

Introduces students to theory and practice of usability, which involves designing useful, easy-to-use websites, software, and products. The course involves group projects conducting real-world usability testing. Junior Standing required.

EH 448 - THE BIBLE AS LITERATURE

Semester 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. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 450 - CHAUCER

Semester Hours: 3

A study of Geoffrey Chaucer's Middle English works including the early drama visions, Troilus and Criseyde, and the Canterbury Tales. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 451 - ARTHURIAN ROMANCE

Semester Hours: 3

A study of Arthurian Literature focused on medieval Welsh, Scottish, English, and French poetry and prose, as well as early-modern and modern adaptations of Arthurian stories in poetry, prose, drama, and film. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 454 - NEW MEDIA WRITING & RHETORIC

Semester Hours: 3

This course teaches students to apply rhetorical principles across a variety of media and includes an examination of communication strategies used widely in academic and industry settings. The course focuses on new media through an exploration of digital technologies and the way digital culture and new media have dramatically impacted reading, writing, and research practices. Prerequisites: EH 101 and EH 102.

EH 460 - 16TH CENTURY LITERATURE

Semester Hours: 3

Selected works from the reigns of Henry VIII and Elizabeth I. Close readings of texts in their historical, intellectual, and social contexts. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 461 - SHAKESPEARE I

Semester Hours: 3

Introduction to Shakespeare's canon, selected from tragedies, comedies, histories, romances; the course may include a variety of critical approaches (historical, political, feminist, queer, performative, linguistic, and cultural). Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 462 - SHAKESPEARE II

Semester Hours: 3

Specialized study of Shakespeare's works, with particular attention to a given genre, time period, theme, cultural context, and/or critical/theoretical approach. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 463 - CAPSTONE IN WRITING

Semester Hours: 2

A senior capstone course for the Writing BA for which students will complete a portfolio of their writing. Portfolios will include reflection on and revision to selected samples of course-participants' writing and a scholarly project completed for the capstone course. Prerequisites: EH 260.

EH 465 - DRAMATIC LITERATURE

Semester Hours: 3

Studies in Drama and interpretive strategies for reading plays. May be organized nationally, by genre, or by theme/topic. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 470 - MILTON

Semester 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. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 473 - EARLY MODERN LITERATURE

Semester Hours: 3

This course will examine a particular theme, issue and/or debate within the early modern period, roughly 1500-1700: constructions of subjectivity and community, the exploration of the New World, the rediscovery of the natural world through scientific investigation. The course will likely introduce modern scholarship. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 475 - RHETORIC AND WRITING

Semester Hours: 3

Provides a focused look at specific issues of rhetoric in society, with an emphasis on academic analysis and rhetorical strategy.

EH 480 - THE LONG EIGHTEENTH CENTURY

Semester Hours: 3

Introduction to major works from the Restoration through the American and French Revolutions, 1680-1800, with an emphasis on Britain and the colonies. Topics may include: the rise of the novel, the rise of the lyric, consciousness of modernity, satire, book history, working-class writers, female authorship, empire. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 485 - THE ENLIGHTENMENT

Semester Hours: 3

The European Enlightenment emphasized the importance of reasoned, open-eyed investigations into nature and human society. Its legacies include the scientific method, the valuation of universal human rights, and the American and French Revolutions. Authors may include: Bacon, Behn, Hume, Swift, Voltaire, Montagu, Franklin, Jefferson, Equiano, and Wollstonecraft. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 496 - ROMANTIC LITERATURE

Semester Hours: 3

Poetry and prose, 1780-1832, with a focus on English language traditions. Emphasis may vary with instructor. Prerequisite: EH 207, EH 208, EH 209, EH 210 or EH 242.

EH 497 - VICTORIAN LITERATURE

Semester Hours: 3

Representative writing of the Victorian Age (1837-1901), selected from prose, poetry, or fiction, with emphasis on social and cultural changes that inform the literature. Prerequisite: EH 207 and 208 OR EH 209 and 210.

EH 498 - INDEPENDENT STUDY

Semester Hours: 3

Individual investigation into significant issues in linguistics, literature, technical communication, or composition studies under direct supervision of instructor. Prerequisites: Written approval by the instructor and the department chair of a project prospectus. Junior or Senior standing.

EH 499 - SENIOR RESEARCH PROJECT

Semester Hours: 3

Required: special approval from chair and instructor.

English Linguistics (EHL)

EHL 405 - SUR GEN LINGUISTICS:APP ENG I

Semester Hours: 3

Come to see the strange in familiar as you engage in the study of the system of language through focused analysis of the components of English. Language is usually the lens through which we observe and report on the world. In this course, it becomes the object of observations and discussion.

EHL 406 - CRITICAL ISSUES

Semester Hours: 3

Come to an understanding of the complex of policies, legislation, and practice that impact the progress of English Learners in elementary and secondary schools across the U.S. Understand the impact of federal, state, and local policies on classroom settings and teacher-student interactions.

EHL 407 - ADV EH GRAM:APP LINGUISTICS II

Semester Hours: 3

Through an in-depth analysis of the structure of sentences and discourse in contemporary English, you will understand more clearly the impact of the choices we make in the language we use in day-to-day conversations, instructional settings, political discourse, and beyond.

EHL 409 - SPEC STUDIES: APPL LINGUISTICS

Semester Hours: 3

Special topics in linguistics. Focus and emphasis of topics announced in advance.

Finance (FIN)

FIN 100 - PERSONAL FINANCIAL PLANNING

Semester Hours: 3

An introduction to the study of personal money management. Topics include budgeting, home ownership, insurance, investing, and retirement planning. Cannot be used by finance majors as an elective in the major.

FIN 301 - PRINCIPLES OF FINANCE

Semester Hours: 3

A study of the basic principles of modern finance: financial statement analysis, time value of money, security valuation, risk and return, capital investment, cost of capital, and international finance. Prerequisites: ECN 143, MSC 287, and either ACC 210 or ACC 212.

FIN 352 - MONEY & BANKING

Semester 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

Semester 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

Semester Hours: 3

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

FIN 378 - INTERMEDIATE CORPORATE FINANCE

Semester 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

Semester Hours: 4

Small number of students work closely with finance faculty in the UAH 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 or permission of instructor.

FIN 431 - ADVANCED CORPORATE FINANCE

Semester Hours: 3

Financial principles applied to financial management problems such as cash management; payables and receivables management; cost of short-term credit; and forecasting and financial planning. Prerequisites: FIN 378.

FIN 454 - INTERNATIONAL FINANCE

Semester 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

Semester Hours: 3

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

FIN 461 - PORTFOLIO MANAGEMENT

Semester Hours: 3

A continuation of FIN 460 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

Semester Hours: 3

Independent study in an area of interest to the student in the field of finance. Approval of department chair is required.

FIN 495 - INTERNSHIP IN FINANCE

Semester Hours: 1-3

Active involvement 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. Subject to College's guidelines on internships.

Geography (GY)

GY 105 - WORLD REGIONAL GEOGRAPHY

Semester 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

Semester 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.

Global Studies (GS)

GS 199 - STUDY ABROAD

Semester Hours: 1-3

Course will involve travel to selected countries for academic study purposes. The course is open to all UAH students with permission of the instructor. May be repeated for credit when the content of the course differs.

GS 200 - GLOBAL SYSTEMS AND CULTURES

Semester 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.

GS 299 - ST: GLOBAL STUDIES ABROAD

Semester Hours: 1-3

Course will involve travel to selected countries for academic study purposes. The course is open to all UAH students with permission of the instructor. May be repeated for credit when the content of the course differs.

GS 399 - STUDY ABROAD

Semester Hours: 1-3

Course will involve travel to selected countries for academic study purposes. The course is open to all UAH students with permission of the instructor. May be repeated for credit when the content of the course differs.

GS 400 - GLOBAL STUDIES CAPSTONE

Semester Hours: 3

Capstone independent study for students completing the Global Studies minor. Students complete a portfolio essay assignment and essays connected to the program's core competencies. Prerequisite: GS 200, its equivalent, or approval of instructor. Offered as needed as independent study to students in final semester of study.

GS 450 - GLOBAL PROFESSIONAL PORTFOLIO

Semester Hour: 1

GS 499 - SELECTED TOPICS IN GLOBAL STU

Semester Hours: 1-3

Selected topics in Global Studies. Course may also take place abroad as part of a study abroad program. May be repeated for credit with permission of Global Studies Program director.

Health & Physical Education (HPE)

HPE 100 - AEROBICS

Semester 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.

HPE 109 - SPEED & PLYOMETRIC TRAINING

Semester Hours: 2

HPE 110 - WALK/JOG/RUN

Semester Hour: 1

A beginner and 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 to provide a viable option for a lifetime fitness activity.

HPE 111 - BUTTS & GUTS WORKOUT

Semester Hours: 2

HPE 117 - WEIGHT TRAINING

Semester Hours: 2

Learn to safely and efficiently use strength training techniques to reach your fitness goals. Develop the skills needed to create a personalized weight training program.

HPE 120 - SWIMMING

Semester Hour: 1

Learn the basic or progress in your swimming by learning the common swim strokes and techniques. Introduction to conditioning and training and work toward improving skills and endurance bringing higher efficiency in the water.

HPE 127 - LADIES SELF-DEFENSE

Semester Hour: 1

Explore the concepts, strategies, and methods of self defense. Topics and skills include wrist escapes, falling skills, various strikes and kicks, groundwork, weaponry, and escape tactics. Further, an emphasis will be placed on developing and improving situational awareness.

HPE 129 - KUNG FU

Semester Hours: 2

Kung Fu has become one of the most popular forms of martial arts. Students will be introduced to Sil Lum Tao, the first in the three forms of Wing Chun Kung Fu. The name means "little imagination" and refers to the need of the student to use their imagination in the practice and application of techniques.

HPE 130 - KARATE

Semester Hours: 2

Learn karate techniques and acquire skills required to perform these techniques. The objective of Karate is to teach the student defensive skills through various stances and self-defense techniques.

HPE 133 - AIKIDO

Semester Hour: 1

HPE 134 - T'AI CHI

Semester 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.

HPE 135 - INTERMEDIATE T'AI CHI

Semester Hours: 2

HPE 136 - YOGA

Semester Hour: 1

HPE 137 - JUDO/JUJITSU

Semester Hours: 2

Judo/Jujitsu provides students with an introduction to the Japanese martial arts of Judo and 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.

HPE 140 - BALLROOM DANCE

Semester 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.

HPE 142 - SWING DANCE

Semester Hours: 2

HPE 144 - COUNTRY WESTERN DANCE

Semester Hour: 1

HPE 150 - RACQUETBALL

Semester Hours: 2

Learn the basic of racquetball, including rules, equipment and skills. Singles (2 players), Cut throat (3 players) and Doubles (4 players) versions of racquetball will be taught. Double games during class times will be played when both safety and skill level of the players are acceptable to the instructor.

HPE 153 - TENNIS

Semester Hour: 1

Students will learn the fundamentals of tennis including forehand, backhand, serve, volley, footwork, and ground strokes. There will be both singles and doubles play and a class tournament. Highlights include understanding the rules, regulations and strategies of the game.

HPE 156 - GOLF

Semester Hour: 1

Students will understand and learn the basic skills of golf, including rules, proper stance, grip and swing for all clubs. Clubs are available if needed.

HPE 167 - ROCK CLIMBING

Semester Hours: 2

\$100 fee to be paid directly to Rock Climbing facility.

HPE 169 - BASKETBALL

Semester Hour: 1

HPE 170 - VOLLEYBALL

Semester Hour: 1

Learn the fundamentals 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 advantage as a lifetime sport, with a focus on skill development.

HPE 174 - BILLIARDS

Semester Hour: 1

HPE 199 - SP TOP:HLTH & PHYS ED

Semester Hours: 1-3

HPE 221 - ADVANCED SCUBA

Semester Hour: 1

Presents skills and knowledge for deep diving (80 + feet). Limited visibility diving, and advanced navigation techniques. Earn YMCA advanced open water certification. Students must provide mask, fins, and snorkel. Cost of open water dives not included in lab fee.

HPE 223 - LIFEGUARD TRAINING

Semester Hours: 2

Certification as a Red Cross approved lifeguard upon successful completion of classroom and in-water instruction and testing.

HPE 224 - WATER SAFETY INSTRUCTOR

Semester Hours: 3

Techniques for teaching infant and pre-school aquatics. The American Red Cross Learn to Swim Program, and Basic Water and Emergency Water Safety courses. Includes pre-test and instructor candidate training course.

HPE 231 - INSTR AIRPLANE(IFR)RATING GR S

Semester Hours: 3

Provides student with knowledge needed for instrument flight instruction air training. Prepares student for FAA Instrument Flying Examination.

HPE 400 - SPECIAL TOPICS - INTERNSHIP

Semester Hours: 3

Innovative internship focused on working with students with disabilities. Observations, participation, and direct instruction and teaching in a middle or high school setting for a prescribed time.

History (HY)

HY 103 - WORLD HISTORY TO 1500

Semester Hours: 3

Explore the historical development of peoples and cultures from their beginnings to 1500. Trace cross-cultural interactions among societies, states, and economies of Asia, Europe, Africa, the Americas and Oceania.

HY 104 - WORLD HISTORY SINCE 1500

Semester Hours: 3

Explore global interdependence from the period of transoceanic exploration to the present. Trace cross-cultural interactions among societies, states, and economies of Asia, Europe, Africa, the Americas, and Oceania.

HY 221 - UNITED STATES TO 1877

Semester 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 - UNITED STATES SINCE 1877

Semester 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 290 - CRAFT OF HISTORY

Semester Hours: 3

Introduction to historical methods and thought, designed to prepare history majors for upper-level coursework. Required of all history majors, including transfer students. Open to non-history majors. Prerequisites: HY 103 and HY 104.

HY 300 - CRAFT OF HISTORY

Semester Hours: 3

Introduction to historical methods and thought, designed to prepare history majors for upper-level coursework. Required of all history majors, including transfer students. Open to non-history majors. Prerequisites: HY 103 and HY 104.

HY 306 - COLLAPSE OF CIVILIZATIONS

Semester Hours: 3

This course will investigate why some cultures succeed and others fail.

HY 310 - INTRODUCTION TO PUBLIC HISTORY

Semester Hours: 3

Introduces the interdisciplinary field of public history, including historic preservation, cultural resource management, local and state history, methodology, historical archaeology, museum studies, oral history, and archival management through academic training and practical experience.

HY 311 - HISTORIC ARCHAEOLOGY

Semester Hours: 3

Introduces intellectual and practical concepts using elements of research, fieldwork, analysis, and interpretation to explore and recreate the documented and undocumented past.

HY 312 - CULTURAL RESOURCE MANAGEMENT

Semester Hours: 3

Cultural resource management encompasses recognition description, maintenance, security, and overall management of historical items, places, and ideas through preservation and protection.

HY 318 - CONSTITUTIONAL HY OF THE U.S.

Semester 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.

HY 325 - HISTORY OF ALABAMA

Semester Hours: 3

The state's past from colonial times to the present with emphasis on its place in United States history.

HY 329 - IMPERIAL ROME

Semester Hours: 3

Roman Empire from the Principate to the barbarian invasions.

HY 330 - HISTORY OF CHRISTIAN CHURCH

Semester Hours: 3

A study of the Church from Biblical times through the Protestant Reformation.

HY 331 - WORLD OF MIDDLE AGES

Semester Hours: 3

Survey of the origins and development of medieval society in Europe from the fall of Rome to the Age of Discovery, including the Latin West, Byzantium, and Islamic world.

HY 347 - EARLY MODERN ENGLAND

Semester Hours: 3

Course surveys the political and religious history of England under the Tudors and Stuarts to the Civil Wars and revolutions of the seventeenth century.

HY 360 - AMERICAN HISTORY THROUGH FILM

Semester Hours: 3

This course will explore how motion pictures have shaped our views on American history and how the past has shaped movie making.

HY 363 - INDIGENOUS PEOPLES OF AMERICAS

Semester Hours: 3

Surveys the history of Indigenous peoples of the Americas from the fifteenth century to the present.

HY 367 - WOMEN IN U.S. HISTORY

Semester Hours: 3

Women in the United States from the colonial period to the present.

HY 368 - AMERICAN ENVIRONMENTAL HISTORY

Semester Hours: 3

Explores the interrelationship of people and the environment in American history from 1500 to the present.

HY 370 - TECHNOLOGY IN AMERICAN HISTORY

Semester Hours: 3

Explores the history of the interrelationship of people and technology in American history from 1600 to the present.

HY 371 - US MILITARY HY FRM INDP TO PRS

Semester Hours: 3

Explores the evolution of the U.S. military from the War of Independence to the present.

HY 373 - FOREIGN REL US TO 1920

Semester 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.

HY 376 - SOVIET RUSSIA

Semester Hours: 3

Russia from the collapse of autocracy to the collapse of communism with special emphasis on the revolutions of 1917, the evolution of the Soviet state, ethnicity, and the successes and failures of the post-1945 era.

HY 381 - COLONIAL LATIN AMERICA

Semester Hours: 3

This course surveys the history of Colonial Latin America from the hispanic period to the wars of independence in the nineteenth century.

HY 382 - MODERN LATIN AMERICAN

Semester Hours: 3

This course surveys the history of Latin America from the nineteenth century to the present.

HY 383 - FOOD AND WORLD HISTORY

Semester Hours: 3

Examines the role of food and drink in various historical settings.

HY 384 - ISLAMIC WORLD TO 1800

Semester Hours: 3

This course explores how Islam emerged as a civilization and connected geographic areas across the globe. Topics include: the prophet Muhammad; early Arab conquests; the Sunni-Shiite split; the expansion of the Islamic world into Europe, Africa, and Asia; and the challenge of European imperialism.

HY 385 - MODERN MIDDLE EAST

Semester Hours: 3

This course seeks to establish a historical basis for understanding the current events of the modern Middle East (1800-present). Topics include: the making of the modern Middle East both before and after WWI; the Arab-Israeli conflict; and the relationship between the U.S. and the Middle East.

HY 390 - WOMEN IN MODERN EUROPEAN HIS

Semester Hours: 3

Explores European women's history from the Enlightenment to the present. Focus on gender and women's roles in different historical contexts.

HY 391 - EUROPE, 1500-1815

Semester Hours: 3

Examination of the economic, scientific, social, political, and cultural developments in Europe from the Renaissance to the French Revolution.

HY 392 - EUROPE SINCE 1815

Semester Hours: 3

Europe from the French Revolution to the present.

HY 393 - HISTORY OF SCIENCE TO 1700

Semester Hours: 3

This course surveys the history of science from ancient Babylon and Greece up through the Scientific Revolution.

HY 394 - HISTORY OF MODERN SCIENCE

Semester Hours: 3

This course surveys the history of science from the Scientific Revolution to present-day developments.

HY 395 - HY MED ANTIQTY ENLITNMENT

Semester Hours: 3

Examines the history of medicine in Europe from Ancient and Islamic origins to the changes wrought by the Scientific Revolution and Enlightenment. The course also explores anatomy and dissection, learned vs. popular medicine, sex, and madness.

HY 399 - SPECIAL TOPIC IN HISTORY

Semester Hours: 3

Intensive examination of particular problems, periods, or topics in history.

HY 401 - DAILY LIFE IN ANCIENT ROME

Semester Hours: 3

This course will re-create the daily lives of the ancient Romans using secondary readings, ancient literature, archaeology, and film. It focuses on the lives of ordinary people, with an eye to their struggles, everyday practices, beliefs, values, and mentalities.

HY 410 - SPEC TOPICS IN PUBLIC HISTORY

Semester Hours: 3

Intensive examination of a particular problem, aspect, or methodology in public history.

HY 413 - THE OLD SOUTH

Semester Hours: 3

Southern society, economics, politics and culture concentrating on the nineteenth century South through Reconstruction.

HY 414 - THE NEW SOUTH

Semester 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 instructor.

HY 424 - THE ATLANTIC WORLD

Semester Hours: 3

Examines interactions across the Atlantic Ocean among Africans, Americans, and Europeans. This course meets the requirements for either American or non-American credit in the history major.

HY 426 - COLONIAL AMERICA

Semester Hours: 3

Explores the founding of New World colonies, including political, social, economic, and religious developments during the colonial period.

HY 427 - AGE OF AMERICAN REVOLUTI

Semester Hours: 3

Explores the multinational connections and conflicts that lead some English colonists to revolt. Considers the political, social, and economic aspects of the time period.

HY 428 - EARLY AMERICAN REPUBLIC

Semester Hours: 3

Political, social, and economic changes between the American Revolution and the nineteenth century that laid the foundation for the United States.

HY 429 - CIVIL WAR & RECONSRUCTION

Semester Hours: 3

An examination of the major political, economic, and social developments in the United States during the Civil War and Reconstruction eras.

HY 437 - THE RISE OF MODERN AMER

Semester Hours: 3

Economic and social changes, imperialism, and the growth in government in the United States from 1877 to the 1920s.

HY 438 - MODERN AMERICA

Semester Hours: 3

American society, politics, economics, and foreign affairs from the end of World War I to the origins of the Cold War.

HY 439 - RECENT AMERICAN HISTORY

Semester Hours: 3

Contemporary America from the 1950s to the present, analyzing both domestic and foreign affairs.

HY 440 - FOREIGN REL U.S. SINCE 1920

Semester 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.

HY 445 - COMPTVE MILITARY PLCY & STRAT

Semester Hours: 3

A comparative analysis of the military policy and strategy of states and empires in World History.

HY 451 - SCIENCE & RELIGION IN HISTORY

Semester Hours: 3

Integrated survey of the history of science and religion in mostly Western contexts from Greek. Antiquity to present debates. Prerequisites: HY 290.

HY 472 - US MILITARY HISTORY SINCE 1920

Semester Hours: 3

The evolution 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.

HY 473 - U.S.-LATIN AMERICAN RELATIONS

Semester Hours: 3

This class focuses on the history of political, economic, and cultural interactions between Latin America and the United States from 1800 to the present. Topics include military intervention, trade, cultural exchanges, the Cold War, the drug war, and immigration.

HY 474 - RENAISSANCE & REFORMATION

Semester Hours: 3

Selected topics in the Italian Renaissance and European Reformation.

HY 475 - SECTARIANISM ISLAMIC WORLD

Semester Hours: 3

This course focuses on sectarianism, the practice and rhetoric surrounding marginalization of certain social-religious groups in the Islamic world. It explores the historical foundations of sectarianism (from early 7th century to today) both within the Islamic world and across the globe.

HY 476 - BEING YOUNG MODERN MIDDLE EAST

Semester Hours: 3

This course focuses on the lives of young men and women of the Modern Middle East. It explores how children and youth experienced historical phenomena in the region, the ways in which these experiences affected the foundations of their adulthood, and how their actions shaped historical events.

HY 480 - ROMANS&BARBARIANS LATE ANTIQTY

Semester Hours: 3

This course explores the dynamic world of Late Antiquity including political developments, social and religious transformation, and exchange patterns in the Mediterranean. It is a history of cultural interaction, continuity, and change during a formative period in western civilization.

HY 481 - EMPIRES AND NATIONS

Semester Hours: 3

Thematic focus on empires and nations as political and cultural constructs in European and world history. 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 geograhic focus is distinct each time.

HY 482 - COMPTV SLAVERY & ABOLITION

Semester Hours: 3

Explore what slavery has meant in the ancient world, Indian Ocean, Africa, the United States, and/or other locations over time.

HY 483 - WOMEN & GENDER LATIN AMERICA

Semester Hours: 3

This course studies the history of women and gender relations in Latin America from the colonial period to the present.

HY 484 - LATIN AMERICAN HIST THRU FILM

Semester Hours: 3

Latin American history through the perspective of fictional films.

HY 485 - NAZI GERMANY AND THE HOLOCAUST

Semester Hours: 3

Seminar course on the historiography of Nazi Germany and the Holocaust.

HY 486 - COMMUNISM LEGACY RUSSIA EAST EU

Semester Hours: 3

Overview and analysis of communist states and post-communist legacies in Russia and Eastern Europe.

HY 490 - RESEARCH SEMINAR IN HY

Semester Hours: 3

Research and writing with primary sources and historiography. Required of all history majors. Prerequisites: HY 290. Offered once annually.

HY 492 - PUB MEMORY & INTERP

Semester Hours: 3

Examines how public memory is created by looking at the social, political, and economic forces that shape public history and considers how historical knowledge is conveyed to the public. Prerequisites: 6 hours in History or Instructor's Permission.

HY 493 - FUNDAMENTALS OF ARCHIVES

Semester Hours: 3

Survey of basic archival theory and practice, with emphasis on the role of the archivist in contemporary society.

HY 494 - DEVELOPING DIGITAL ARCHIVES

Semester Hours: 3

Survey of the theory and practice of developing digital access tools in archives, libraries, and museums.

HY 495 - PUBLIC HISTORY INTERNSHIP

Semester Hours: 3

A semester-long public history internship for completing a significant project using historical skills as a professional usually in an off-campus setting. Students must complete 125 hours of work during their internship. Permission of instructor or chair is required.

HY 498 - STUDIES IN HISTORY

Semester Hours: 1-3

A readings or research class on a particular problem, period or topic in history. This course may be repeated for credit.

HY 499 - INDEPENDENT STUDY

Semester Hours: 3

In exceptional circumstances, a student and professor may work together on a specialized topic.

Industrial & Systems Engineering (ISE)

ISE 224 - INTRO INDUSTRIAL & SYSTEMS

Semester 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. Prerequisites: ENG 101.

ISE 321 - ENGINEERING ECONOMY

Semester Hours: 3

Economic evaluation of engineering alternatives. Interest, time-value of investments, depreciation and income taxes, break-even cost analysis. Sophomore standing.

ISE 324 - WORK DESIGN

Semester Hours: 3

Principles of methods analysis and ergonomics to fit a task and workstation to the human operator including work measurement and tools, work sampling, job analysis, anthropometric data, and workplace design. Laboratory exercises focus on the implementation of lean principles. (Same as PY 324) Prerequisites: ISE 390 or PY 300.

ISE 327 - MANAGEMENT SYSTEMS ANALYSIS

Semester 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. Prerequisite: ISE 390.

ISE 340 - OPERATIONS RESEARCH

Semester Hours: 3

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

ISE 390 - PROB & ENGR STATISTICS I

Semester Hours: 3

Engineering uses of probability, 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: MA 201.

ISE 391 - PROB/ENGR STAT II

Semester Hours: 3

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

ISE 402 - INDUSTRIAL & ORGANIZA PSY

Semester Hours: 3

Application of basic principles of learning, motivation, and perception to typical industrial and organizational problems. Senior standing. (Same as PY 402/502).

ISE 403 - HUMAN FACTORS PSYCHOLOGY

Semester 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. Senior standing. (Same as PY 403/503).

ISE 423 - INTR STATISTICAL QUALITY CONTR

Semester Hours: 3

Introduces statistical theory and techniques to control quality of manufacturing products. Provides a solid foundation in Statistical Quality Control. The Six Sigma methodology is also introduced in this course. Students can take the certification exam to earn Green Belt in Six Sigma. Prerequisite: ISE 391.

ISE 426 - DSGN & ANALY OF EXPERIM

Semester Hours: 3

Advanced topics in statistical experiments with emphasis on the design aspect. Factorial designs, including fractional replication and confounding. Includes computer laboratory exercises. (Same as ISE 526). Prerequisite: ISE 391.

ISE 428 - SYSTEMS ANALYSIS & DESIGN I

Semester 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. Senior Standing. Prerequisites: ISE 124, ISE 321, ISE 340, and ISE 391.

ISE 429 - SYS ANALYSIS/DESIGN II

Semester Hours: 3

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

ISE 430 - MANUF SYS & FACILITIES DESIGN

Semester Hours: 3

Modern manufacturing systems design with emphasis on facility location and plant layout. Includes classical systems, just-in-time systems, principles of integrated manufacturing systems design, and an analysis of process flow and productivity, and available space to determine facility layout. (Same as ISE 530).

ISE 433 - PROD & INVENTORY CONTROL SYS

Semester Hours: 3

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

ISE 437 - ELECTRONICS MANUF PROCESSES

Semester Hours: 3

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. Senior Standing. (Same as ISE 537).

ISE 439 - SELECTED TOPICS/ISE

Semester Hours: 1-3

ISE 447 - INTRO TO SYSTEMS SIMULATION

Semester 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. (Same as ISE 547) Prerequisites: CPE 112 and ISE 391.

Information Systems (IS)

IS 146 - COMPUTER APPL IN BUSINESS

Semester Hours: 3

Study of computer solutions to business problems. Overview of hardware/software systems and of data and information processing in organizations. Extensive use of Microsoft Office and other software for word processing, spreadsheet, presentation, and database applications related to business.

IS 210 - INTRO COMP PROG IN BUS

Semester Hours: 3

Fundamentals of business programming using languages such as Python, PHP, JavaScript, JQuery and HTML5. Prerequisite: IS 146.

IS 301 - INFO SYSTEMS IN ORGANIZATIONS

Semester Hours: 3

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

IS 310 - ADV COMP PROGRAMMING IN BUS

Semester Hours: 3

Advanced business language features, control language and file handling, object oriented programming, software quality and maintenance. Workflow programming is also covered. Prerequisite: IS 210.

IS 340 - DATA BASES FOR MANAGEMENT

Semester Hours: 3

The management of data resources to effectively support the information systems of organizations. The course focuses on relational database model and Oracle SQL. It provides students with extensive experiences in formulating and executing SQL queries to retrieve and manipulate information from a relational database management system. Prerequisite: IS 310.

IS 351 - ENTERPRISE SYSTEMS

Semester Hours: 3

This course examines the concepts and uses of enterprise systems to integrate all aspects of an organization into one information system. Specific attention is given to how ERP systems facilitate the flow of information supporting core business processes and the organization's supply chain. The course will emphasize the adaptation of ERP systems to support the organizational structures and business processes of the particular company to efficiently and effectively manage a firm's business. Prerequisites: IS 301.

IS 401 - SURV OF INFORMATION ASSURANCE

Semester Hours: 3

Provides a managerial and technical overview of cybersecurity and introduces students to the complexity of the security issues facing organizations. Presents practices and standards for assessing security risks and managerial and technical approaches to minimize such risks. Prerequisite: IS 301.

IS 412 - MODERN SYSTEM ANALYSIS & DESGN

Semester Hours: 3

Identifying, analyzing, developing and acquiring information systems are central to the information systems discipline. The course covers identifying, conceptualizing and analyzing business opportunities where information systems applications can add value followed by design, development, and implementation of such applications. Planning for and management of this core IS activity is a critical organizational competence. Prerequisites: IS 301, IS 310, and IS 340.

IS 422 - SUPPLY CHAIN MANAGEMENT SYSTEM

Semester 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. Prerequisite: IS 301.

IS 450 - CYBERSECURITY MANAGEMENT

Semester Hours: 3

Examines management issues associated with cybersecurity system planning, implementation, control and assurance. Specific emphasis is on security system controls and their evaluation, compliance, governance, security policies, ethical and legal issues, and risk management. Recent developments in IT, such as client-server systems, cloud computing and the Internet, and their impact on policies, laws are also considered. Prerequisite: IS 301.

IS 460 - TELECOMMUNICATIONS & NETWORKING

Semester Hours: 3

An overview of the IT infrastructure in modern organizations. The course starts from basic telecommunications networking concepts to digital platforms and ecosystems in the market. Prerequisite: IS 301.

IS 463 - COMPUTER FORENSICS

Semester 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. This course is lab intensive and students are expected to gain hands-on experience through learning to use various forensic software. Several information security topics nonspecific to forensics will also be covered. Prerequisite: IS 301.

IS 471 - BUSINESS INTELLIGENCE & ANALYTICS

Semester Hours: 3

Fosters data-analytical thinking. Uses real-world examples and cases to explore the use of big data for business decision-making and how Business Intelligence and Analytics (BIA) enhances business competitiveness. Provides hands-on experience mining data using many BIA tools. Prerequisite: IS 301.

IS 477 - NETWORK DEFENSE/OPERATING SYSTEMS

Semester Hours: 3

Introduction to network security issues and practical applications. Addresses 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 301 and IS 460.

IS 480 - CURRENT TOPICS IN MGT INFO SYS

Semester Hours: 3

Prerequisite: IS 301.

IS 490 - SPECIAL PROJECTS

Semester Hours: 3

IS 491 - IS MANAGEMENT & STRATEGY

Semester Hours: 3

This course emphasizes the integration of various principles, theories, and techniques for implementing, deploying and managing enterprise information systems in organizations to gain strategic and operational advantages. Includes lectures, tours, readings, cases, and the completion of a major project. Normally taken during a student's last semester of studies. Prerequisites: IS 340 and either IS 351 or 460. Prerequisite with concurrency: IS 412.

IS 495 - INTERN IN INFO SYSTEMS

Semester Hours: 1-3

Kinesiology (KIN)

KIN 109 - SPEED & PLYOMETRIC TRAINING

Semester Hours: 2

KIN 117 - WEIGHT TRAINING I

Semester Hours: 2

KIN 118 - WEIGHT TRAINING II

Semester Hours: 2

KIN 119 - WEIGHT TRAINING III

Semester Hours: 2

KIN 200 - CONTEMPORARY NUTRITION

Semester Hours: 2

Introduction to the principles of nutrition as they relate to the growth, development, and maintenance of the human body throughout the lifespan. Emphasis is placed on the classes of nutrients, weight management, and nutritional planning.

KIN 205 - FIRST AID & CPR

Semester Hour: 1

Students will focus on recognizing emergency situations. First Aid and CPR also provides skills and knowledge necessary in caring for injuries or sudden illness.

KIN 210 - ATHLC INJURY PREVENTION & CARE

Semester Hours: 3

Presents the knowledge and techniques necessary to prevent and/or care for common athletic injuries. For coaches, athletes, and those working in recreation, physical education, or athletics.

KIN 215 - FIRST RESPONDER/PROFESSN'L CPR

Semester 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.

KIN 240 - HEALTH & WELLNESS CONCEPTS

Semester Hours: 3

This course provides students with an overview of individual and societal health and wellness and the impact of lifestyle choices. Laboratory experiences provide opportunity for assessment of individual health and fitness behaviors. Topics covered include: wellness, physical fitness, behavior modification, weight management, stress management, disease prevention, addictive behavior and sexual health.

KIN 250 - ESSENTIALS OF PERSONAL TRAIN'G

Semester Hours: 2

This course is designed to provide 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.

KIN 260 - FOUNDATIONS OF KINESIOLOGY

Semester Hours: 3

An introductory course for students in the Kinesiology major. The course will provide an overview of the Kinesiology field, including all subdisciplines and an in-depth discussion of teacher v non-teacher career choices. The history and development of physical education, exercise science, and sport studies will be covered, as well as issues and trends in physical education, exercise science, and sport studies.

KIN 265 - INTRO TO SPORT MGMT

Semester Hours: 3

This 3 hour 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, fundraising, legal issues, event scheduling, and decision making.

KIN 290 - EX TECHNIQUES & LEADERSHIP

Semester Hours: 3

This course provides a practical guide in leadership for group and individual exercise settings. Critical evaluation of a safe fitness environment, adult physical activity programs to promote health, and exercise techniques according to the American College of Sports Medicine and National Strength and Conditioning Association are included.

KIN 300 - NUTRITION FOR FITNESS & SPORT

Semester Hours: 3

Explores the theoretical and applied nutritional sciences as they relate to fitness and sport. Students will develop practical skills applicable to solving nutritional problems in exercising populations. Nutritional requirements and practices related to general fitness, athletic performance, and special needs individuals will also be covered.

KIN 315 - STRENGTH TRNG & CONDITION

Semester Hours: 3

This course provides a comprehensive overview of strength and athletic conditioning. Emphasis is placed on the exercise sciences (including anatomy, exercise physiology, and biomechanics) and 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 215 and BYS 216.

KIN 327 - INTRO TO EXERCISE PHYSIOLOGY

Semester Hours: 3

An introduction to the response and adaptations of the body systems to exercise and physical activity. Prerequisites: KIN 260, BYS 215 and BYS 216 with a grade of C- or better Co-requisite: KIN 328.

KIN 328 - INTRO EX PHYSIOLOGY LAB

Semester Hour: 1

Exercise physiology lab experience to accompany the introduction to exercise physiology course lectures. The course meets two hours weekly for one credit hour. Co-requisite: KIN 327.

KIN 340 - SCHOOL AND COMMUNITY HEALTH

Semester Hours: 3

Obtain information and skills related to school and community health programs with an emphasis on health instruction, strategies, and resources. Survey the components of a school health program: school health services, healthful school environment, principles of physical and movement education, nutrition services, counseling and social services, parent/community involvement, health promotion for staff. Examine the core functions of public health, prevention of diseases and injuries, health needs of special populations, and functions of various organizations.

KIN 351 - EXER TEST & PRECR HEALTHY POP

Semester Hours: 3

Provides students with techniques that evaluate aerobic capacity, muscular strength and endurance, flexibility, and body composition. The development of exercise prescriptions based on evaluation results will be emphasized. Prerequisites: KIN 327 (C- or better grade) and KIN 328.

KIN 352 - EXER TEST & PRECR SPECIAL POP

Semester Hours: 3

This advanced-level course integrates both lecture and laboratory to prepare students with the knowledge and skills necessary to conduct fitness evaluations, exercise prescriptions, and risk stratification of at-risk individuals. Specific emphasis will be placed on the administration of safe fitness testing using protocols published by ACSM for the health related components of physical fitness. Prerequisites: KIN 351.

KIN 361 - TEACHING TEAM SPORTS

Semester Hours: 3

Teaching methods and strategies of sports that require more than one participant. While knowledge of how to play the sport will be taught, emphasis will be placed on the organization, management, and assessment of skills in activities such as, but not limited to soccer, handball, and basketball.

KIN 362 - TEACHING INDIVIDUAL ACTIVITIES

Semester Hours: 3

Teaching methods and strategies for games involving individuals rather than a team. Emphasis will be placed on the organization, management, and assessment of skills in activities including, but not limited to, aerobic dance, cross country/trail running, and tumbling/gymnastics.

KIN 363 - TEACHING FITNESS & WELLNESS

Semester Hours: 3

Learn to perform and instruct a variety of fitness activities. Emphasis will be placed on performing fitness skills and on the methods and techniques for instructing and teaching specific fitness activities. Techniques for evaluating the knowledge and skills of the activities will also be stressed.

KIN 370 - ADAPTED PHYSICAL EDUCATION

Semester Hours: 3

Develop knowledge of current concepts and trends in adapted physical education as well as the ability to plan and implement a physical education program designed to meet the unique needs of individuals.

KIN 371 - ADAPTED FITNESS

Semester Hours: 3

Develop knowledge of current concepts and trends in adapted physical fitness as well as the ability to plan and implement fitness and wellness programs designed to meet the unique needs of individuals, particularly those with disabilities and special needs. Prerequisite: KIN 260.

KIN 381 - FACILITIES AND EQUIPMENT MGT

Semester Hours: 3

This course will provide theories for the design, development, operation, maintenance, and management of sport and fitness facilities. Prerequisite: KIN 260.

KIN 382 - SPORT LEADERSHIP

Semester Hours: 3

This course focuses on the role of leadership in general, with a specific application to a sport setting. We will focus on the numerous approaches to leadership that have been used, and emphasize illustrating and applying them to different aspects of sports. Prerequisites: KIN 260.

KIN 383 - SOCIOLOGY IN SPORT

Semester Hours: 3

This course is designed to study the role sport plays as a social institution. Additionally, we will identify what social institutions are most affected by sport and how these institutions are created. Topics will include the definition of sport as well as why and how it is studied, the effect of sport on society, sport as an institution, and sport and culture. Prerequisite: SOC 100.

KIN 418 - STRUCTURE/FUNCTIONAL KIN

Semester Hours: 3

This course will provide development of knowledge of anatomic systems related to purposeful movement of the human body. Thorough instruction of the structure and function of musculoskeletal system will be provided. Prerequisites: BYS 215 and BYS 216.

KIN 419 - EXERCISE & SPORT BIOMECHANICS

Semester Hours: 3

This course will provide an advanced understanding of biomechanical conditions of human movement as well as knowledge and skills needed to analyze and evaluate human motor performance in order to prescribe appropriate interventions for optimized application to rehabilitation and sports performance. Students will learn to appropriately represent kinematic and kinetic quantities as vectors and use vectors, vector addition, and vector resolution to enhance the understanding of basic mechanical concepts. Prerequisites: BYS 215, BYS 216, and PH 101; and either KIN 418 or BYS 402.

KIN 421 - INST APP TO SPORT PEDAGOGY

Semester Hours: 3

This class is designed to expand and enrich the teaching repertoire. Special emphasis will be given to how selected models of teaching can be used to achieve multiple outcomes of teaching in physical education and other contexts (e.g., physical activity programs & youth sport). Additionally, the course will increase awareness in other instructional areas related to the profession (teaching underserved youth, youth sports programs, etc.). Prerequisites: KIN 361 or KIN 362 or KIN 363.

KIN 440 - MGT SPORT & PHYSICAL EDUCATION

Semester Hours: 3

This course provides the student with the knowledge of sport management and administration in both athletic and leisure-based sports. Topics include management concepts, roles and responsibilities, fiscal management, fund-raising, legal issues, event scheduling, and decision making.

KIN 442 - INTRO TO SPORT LAW

Semester Hours: 3

This course is designed to introduce students to the legal doctrines, major statutes, standards, and case law that establish legal responsibilities, rights, privileges and controls related to the field of exercise and sport sciences. Prerequisite: KIN 260.

KIN 443 - SP TOPICS IN SPORT ADMIN

Semester Hours: 3

This course will address a variety of topics based on emerging trends in Sport Administration. Potential course offerings will include coach education, advanced legal issues, sport sociology, sport finance and accounting and globalization of sport. Course content will be offered in rotation as needed. Prerequisite: KIN 260.

KIN 445 - PRINCIPLES OF COACHING

Semester Hours: 3

Gain knowledge and skills specific to coaching: developing a coaching philosophy and objectives, motivating athletes, managing a team. Emphasis is placed on sport at the high school and club level with consideration given to coaching youth, recreational, and intercollegiate. Coursework provides preparation for the American Sport Education Program (ASEP) Coaching Principles exam which is required by the Alabama High School Athletic Association (AHSAA).

KIN 450 - EXERCISE PHYSIOLOGY INTERNSHIP

Semester Hour: 1

Designed to provide on-site practical experience in a wellness/fitness program, physical therapy clinic, and/or a cardiac rehabilitation facility for Kinesiology-Exercise Science majors. Prerequisites: KIN 351.

KIN 451 - RESEARCH EXERCISE SCIENCE I

Semester Hours: 3

Initial capstone course (part of a two-course sequence) providing a broad and balanced background in various types of research methods and the development of a research proposal. Development of a research question, hypothesis, and research methodology. Application of computers will be used to search databases for relevant literature. Completion of an Institutional Review Board application is required. Prerequisites: KIN 351.

KIN 452 - RESEARCH EXERCISE SCIENCE II

Semester Hours: 3

Final capstone course (part of a two-course sequence) in which students must integrate and apply skills acquired throughout the program to complete a comprehensive research project. The student will complete the research project proposed in KIN 451 by recruiting research participants to collect data, writing the results and conclusions for a manuscript. Results will be prepared for publication and presented in a professional setting. Prerequisites: KIN 451 and PY 300 (with concurrency).

KIN 455 - MOTOR LEARNING

Semester Hours: 3

Study the principles and practices that affect the learning and development of motor skills; theories of motor learning, motor control, and development; lifespan motor development perspective related to performing motor and sport skills; and professional applications of motor learning and development in exercise science, athletic training, and physical education.

KIN 457 - MEASUREMNT & EVAL IN PHYS ACTV

Semester Hours: 3

Measure and evaluate learning or skill improvement based on accepted standards. Gain an understanding of the logic behind measurement instruments in order to better interpret and implement results and to achieve improved learning or physical fitness improvement. These methods of measurement and evaluation are important skills in health, physical education, and exercise science fields.

KIN 460 - SP TOPICS EXERCISE SCIENCE I

Semester Hours: 3

This course is intended to cover a variety of topics based on emerging topics in Exercise Science. Potential course offerings will include environmental exercise physiology, cardiovascular exercise physiology, childhood and adolescent exercise physiology, psychology of injury, illness, and disability, and resources for the personal trainer. Course content will be offered in rotation. Prerequisites: KIN 327.

KIN 461 - SP TOPICS EXERCISE SCIENCE II

Semester Hours: 3

This course is developed to cover a variety of topics based on emerging topics in Exercise Science. Potential course offerings will include environmental exercise physiology, cardiovascular exercise physiology, childhood and adolescent exercise physiology, psychology of injury, illness and disability and resources for the personal trainer. Course content will be offered in rotation. Prerequisites: KIN 327.

KIN 462 - TEACHING PHYS ED IN ELEM SCH

Semester Hours: 3

Physical education teacher candidates will acquire the ability to understand, recognize, analyze, and demonstrate the range of teaching skills employed by successful physical educators in the preschool and elementary setting. Emphasis is placed on understanding the theoretical implications of different teaching skills and the contexts in which they are effective. Teacher candidates will design lessons that allow for maximum student participation while remaining aligned with Alabama Consent Standards. Field experience is required. Candidates will observe, participate in, and teach lessons in physical education classrooms. Prerequisite: Admission to the Teacher Education Program. Prerequisite: KIN 370.

KIN 463 - PSYCHOLOGICAL ASPECTS SPORT

Semester Hours: 3

Provides students with an introductory experience in sport, exercise, and fitness psychology based on the latest research and practice. Practical examples and case studies for individual and group sports are provided. The aim is to bridge science and practice to teach students the role of a sport and fitness psychologist. Prerequisites: KIN 327.

KIN 465 - TEACHING SECONDARY PE

Semester Hours: 3

Physical education teacher candidates will acquire the ability to understand, recognize, analyze, and demonstrate the range of teaching skills employed by successful educators in the secondary setting.

KIN 470 - SPORT MARKETING

Semester Hours: 3

Sport Marketing presents an overview of the various techniques and strategies used in meeting the wants and needs of consumers in the sport industry as well as the understanding how sport can be used to assist in the marketing of other companies and products. Areas to be addressed are the uniqueness of sport marketing in comparison with traditional marketing, an overview of the segments of the sport industry, the importance of market research and segmentation in identifying the right sport consumer, the use of data-based marketing in researching the sport consumer, an overview of the marketing mix as individual units and the relationship between those units, and the development of sponsorship and endorsement packages. Prerequisite: MKT 301.

KIN 471 - SPORT FINANCE

Semester Hours: 3

This course examines the financial tools that sports managers use to run their sport businesses. As such, it explores traditional and innovative methods of revenue acquisition and financial management in sports organizations, the financial business structure of sports organizations, and the financial planning and forecasting processes that make organizations effective. Various other aspects of finance are discussed as they relate to sports organizations, including the time value of money, capital structuring, stocks and bonds, inventory management, and taxation. Prerequisite: FIN 301.

KIN 472 - ETHICS IN SPORT

Semester Hours: 3

This course prepares students to take a more critical view of sport, as well as reflect on their own personal ethical and competitive orientations. A central focus of the course is to view sport and competition from social justice and diversity perspectives. More specifically, sport is discussed from a socio-cultural context regarding how dominant and non-dominant groups (racial, ethnic, or socio-economic) have used sport to preserve or change their societal status. This includes such areas as racial identity and equity, gender identity and equity, cultural and ethnic stereotyping, sexual orientation, hazing and bullying, religion and sport, and individuals with disabilities. This course will also look at how to become an agent for change by using social capital to promote ethical equity and diversity. Prerequisite: KIN 265.

KIN 473 - SPORT & FITNESS MANAGEMENT

Semester Hours: 3

The course is an in-depth analysis of the relationship of sport and management. The study of sport includes sporting goods manufacturers; fitness centers; recreation departments; broadcasting; Little League teams; and high school, NCAA, and professional leagues. The study of management follows the four functions of management: planning, organizing, leading, and controlling. Prerequisite: KIN 265.

KIN 490 - EXERCISE SCIENCE INTERNSHIP

Semester Hours: 6

Designed to provide on-site practical experience in a wellness/fitness program, physical therapy clinic, and/or a cardiac rehabilitation facility for Kinesiology-Exercise Science majors. Prerequisites: KIN 351, senior standing.

KIN 491 - SPORT ADMINISTRATION INTERNSHIP

Semester Hours: 6

Sport Administration Internship will introduce and promote professionalism through a hands-on experience with a local company. The student will be guided by a faculty member and company representative to achieve a strong overall work experience pertaining to the student's interests. Prerequisites: KIN 260.

Management (MGT)

MGT 100 - INTRO TO BUSINESS

Semester Hours: 1-3

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

MGT 101 - INTRO ENTREPRENEURSHIP

Semester 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

Semester Hours: 3

Introduces management theories, roles, functions, and processes that facilitate the successful operation of organizations. Provides 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

Semester Hours: 3

Concepts drawn from theories on career development, human capital, social networks, labor markets, and strategic management will provide a theoretical foundation for students to formulate short- and long- term career goals and a strategic plan for achieving those goals.

MGT 361 - ORGANIZATIONAL BEHAVIOR

Semester 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. Prerequisite: MGT 301.

MGT 363 - HUMAN RESOURCE & LABOR REL MGT

Semester Hours: 3

Theories and practices related to human resource management functions, including strategic planning, internal and external staffing, training and development, compensation management, employee and labor relations, and international human resource management. Prerequisite with concurrency: MGT 301.

MGT 401 - INTRO TO CONTRACT MANAGEMENT

Semester 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 & AWARD

Semester Hours: 3

Study of the evaluation, award, and post-award aspects of the contracting process, focusing on federal government contracting. Covers acquisition and past performance evaluation; the proposal receipt process; and post-award contract administration, closeout, modifications, and dispute resolution. Prerequisite: MGT 401.

MGT 403 - CONTRACT PRICING & COST ANALYS

Semester Hours: 3

Study of methods of price analysis and cost estimation and analysis. Covers data sources, legal requirements, rates, definitions, projection methods, factors affecting profits/fees, the weighted guidelines technique, statistical analysis methods, and learning curve theory.

MGT 405 - NEW VENTURE STRATEGIES

Semester Hours: 3

Theory and application of strategies for start-up, operation, and control of new ventures. Roles of entrepreneurship in the economy. Case studies of corporate and independent new ventures. Prerequisite: MGT 301 and MKT 301.

MGT 408 - TEAMWORK & TEAM PROCESSES

Semester 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. The types of research designs that are typically used in team research are addressed. Junior standing required.

MGT 410 - LEADERSHIP, PERSONAL DEV & ORG

Semester 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. Prerequisite: MGT 301.

MGT 411 - SUPPLY CHAIN MANAGEMENT

Semester 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. Prerequisite: MSC 287.

MGT 450 - INTERNATIONAL BUSINESS

Semester Hours: 3

Explores the economic, social, political, cultural, and legal environment of global business operations and considers how environmental effects on business programs and strategies. Relies on a variety of conceptual, methodological and application perspectives. Prerequisite: MGT 301, MKT 301, and FIN 301.

MGT 460 - EMPLOYEE STAFFING & DEVELOP

Semester Hours: 3

The study of employee staffing and development concepts, issues and tools. 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.

Prerequisite: MGT 301 and MGT 363, and either IS 301, MKT 301, or FIN 301.

MGT 461 - STRATEGIC COMPENSATION MGMT

Semester Hours: 3

Introduction to management of employees' compensation. Overview of compensation practices, behavioral and economic theories of compensation, and research on compensation programs. Prerequisites: MSC 287 and MGT 363.

MGT 462 - EMPLOYMENT LAW FOR MANAGERS

Semester Hours: 3

The study of government regulation of the management of human resources. Examines employer responsibilities and employee rights under federal state law pertaining to separations, discrimination, compensation and other terms of employment, worker safety and health, privacy, and unions.

MGT 470 - SPEC TOPICS SEMINAR IN MGMT

Semester Hours: 3

In-depth study of a selected topic relevant to contemporary management. Different sections of this course may address different topics.

MGT 490 - SPECIAL PROJECTS

Semester Hours: 1-3

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. Approval of department chair is required.

MGT 494 - PRACTICUM IN MANAGEMENT

Semester Hours: 3

Student teams will apply management concepts and skills in a semester-long business simulation or management project conducted for a client firm or non-profit. The teams will be closely supervised by a faculty member with expertise related to the simulation or project. Prerequisite: MGT 301, MSC 287, and MSC 288.

MGT 495 - INTERNSHIP IN MANAGEMENT

Semester Hours: 1-3

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. Subject to College's guidelines on internships.

MGT 499 - COMPETITIVE STRATEGY

Semester Hours: 3

Addresses formulation & implementation of business/corporate level strategies: defining the mission, setting goals and objectives, analyzing current operating conditions and the organization's environment, and setting a unified strategic direction. Recommended taking during final semester of degree. Upper division standing required. Student must obtain a grade of C or higher. Prerequisite: MGT 301, MKT 301, FIN 301, EH 300, IS 301, and MSC 385.

Management Science (MSC)

MSC 287 - BUSINESS STATISTICS I

Semester Hours: 3

Introduction to probability & business statistics. Covers: tabular, graphical, and numerical methods for descriptive statistics; measures of central tendency, dispersion, & association; probability distributions; sampling & sampling distributions; and confidence intervals. Uses spreadsheets to solve problems. Prerequisite: Any 100 level MA course.

MSC 288 - BUSINESS STATISTICS II

Semester Hours: 3

Inferential statistics for business decisions. Topics include: review of sampling distributions and estimation; inferences about means, proportions, and variances with one and two populations; good of fit tests; analysis of variance and experimental design; simple linear regression; multiple linear regression; non parametric methods. Prerequisite: MSC 287.

MSC 385 - OPERATIONS ANALYSIS

Semester Hours: 3

Survey of the firm's production function and quantitative tools for solving production problems, quality management, learning curves, assembly and waiting lines, linear programming, inventory, and other selected topics (e.g., scheduling, location, supply chain management). Uses the SAP software. Prerequisite: MSC 288.

MSC 410 - TRANSPORTATION & LOGISTICS

Semester 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. Prerequisite: MKT 301.

MSC 412 - ARMY SENIOR LOGISTICIAN-ADV

Semester Hours: 3

The Senior Logistician Advanced Course (SLAC) is part of the U.S. Army's new Master Logistician Certificate Program for logistics management specialists within the 0346 occupational series. SLAC is an 80-hour academic learning experience designed to improve senior logistician competencies at the strategic level. The program is organized around the logistics management specialist's 12 competencies, and the coursework is specially designed to better develop and further enrich the thinking and skills of the Army's Senior Logisticians. Special approval and enrollment in CPCS U.S. Army Senior Logistician Advanced Course required.

MSC 470 - SPECIAL TOPICS IN MGMT SCI

Semester Hours: 3

In depth study of a selected topic relevant to contemporary management science. Different sections of this course may address different topics.

MSC 490 - SPECIAL PROJECTS

Semester Hours: 3

Independent study in an area of interest to the student in the field of management science. Approval of department chair is required.

MSC 494 - PRACTICUM IN MANAGEMENT SCIENC

Semester Hours: 3

Student teams will apply management science concepts and skills in a semester-long simulation or management science project conducted for a client firm or non-profit. The teams will be closely supervised by a faculty member with expertise related to the simulation or project. Prerequisite: MSC 287, MSC 288 and MSC 385.

MSC 495 - INTERN IN MGMT SCIENCE

Semester Hours: 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. Subject to College's guidelines on internships.

Marine Science (MS)

MS 202 - MARINE BIOLOGY

Semester Hours: 4

Survey of invertebrates, vertebrates, and marine plants as communities with local examples. Examination of marshland, estuarine, beach, dune, inlet and neritic habitats, and niches. Lecture/Lab/field work. Offered only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, AL. Prerequisites: BYS 119 and BYS 120.

MS 204 - COM MARINE FISHERIES/ALA

Semester Hours: 2

Biology, harvesting technology, and processing of commercially valuable fish and shellfish species of Alabama. Offered only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama. No credit for biological sciences major or minor; can be used for marine science minor.

MS 301 - MARINE TECH METHODS I

Semester Hours: 2

Marine science research equipment, methods, and techniques. Operation and field maintenance of major sampling gear. Only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama. No credit for biological sciences major or minor; can be used for a marine science minor. Prerequisites: BYS 119 and BYS 120.

MS 303 - COASTAL CLIMATOLOGY

Semester Hours: 2

Physical factors resulting in climactic conditions in and near coastal region. Emphasis on northern Gulf of Mexico. Only at the Marine Environmental Sciences Consortium Sea Labat Dauphin Island, Alabama. No credit toward a biological sciences major or minor; can be used for a marine science minor.

MS 304 - COASTAL ZONE MANAGEMENT

Semester 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. Only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama.

MS 491 - SPECIAL TOPICS IN MARINE SCIEN

Semester Hours: 1-4

Marketing (MKT)

MKT 301 - PRINCIPLES OF MARKETING

Semester Hours: 3

Integration of professional selling techniques and concepts with sales management problems. Addresses objectives and policies for managing a sales force; market analysis methods used for sales forecasts and budgeting; and problems faced by sales management in competition, pricing, and promotions.

MKT 315 - SALES MGT/PROF SELLING

Semester 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 anagement in competition, pricing, and promotion. Prerequisite: MKT 301.

MKT 316 - RETAILING POLICY/MGT

Semester 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.

MKT 332 - BUYER BEHAVIOR

Semester 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 sociocultural actions and reactions as they relate to better understading of consumption. Prerequisite: MKT 301.

MKT 342 - PROMOTIONAL STRATEGY

Semester 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. Prerequisite: MKT 301.

MKT 343 - MARKET RESEARCH DESIGN

Semester 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. Prerequisite: MKT 301 and either MSC 287&288 or CM 370 or PY 300 or SOC 303.

MKT 344 - MKT RESEARCH APPLICATION

Semester 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.

MKT 345 - MKT CHANNEL STRUCT & STRATEGY

Semester Hours: 3

Marketing channels as a functional are and the alternative choices available to marketing management in developing overall marketing strategy. Institutional structures and dynamic interrelationships in distribution logistics.

MKT 350 - MARKETING EMERGING TECHNOLOGY

Semester 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. Prerequisite: MKT 301.

MKT 405 - NEW VENTURE STRATEGIES

Semester 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. Prerequisite: MKT 301 and MGT 301.

MKT 414 - MARKETING EMERGING TECH

Semester 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. Prerequisite: MKT 301.

MKT 415 - INTERNATIONAL MARKETING

Semester 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. Prerequisite: MKT 301.

MKT 420 - SERVICES MARKETING

Semester Hours: 3

Addresses the challenge of delivering quality service to customers. Focuses on organizations whose core products are services (e.g., banks, hospitals, non-profit organizations) or which depend on service excellence for competitive advantage. Prerequisite: MKT 301.

MKT 465 - NEW VENTURES CHALLENGE

Semester Hours: 3

Students will develop a plan for starting a new business. Relevant business concepts from finance, accounting, marketing, and management useful for business start-ups will be covered in a manner accessible to both non-business and business majors. Prerequisite: MKT 414, MGT 405, and FIN 301.

MKT 470 - SOCIAL MEDIA MARKETING

Semester Hours: 3

The course focuses on how to meet the challenge of brand building in a digital age. It aims to foster the students' acquisition of social media marketing skills, equipping them with relevant knowledge of how to incorporate social media into marketing strategy this way enhancing value to both companies and customers. As future marketers, students will learn how to adopt a customer centric approach to their future marketing tasks, and be guided through a number of hands-on assignments that are immediately applicable to marketing practices. Prerequisite: MKT 301.

MKT 475 - ADVANCED MARKETING SEMINAR

Semester 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. Prerequisite: MKT 301.

MKT 480 - MARKETING MANAGEMENT

Semester Hours: 3

Study of management of marketing function. Addresses setting objectives, organization and control of marketing resources in coordination with other functional areas, identification and selection of market opportunities, competitive strategies, and development of marketing policies and programs. Prerequisite: MKT 301, MKT 332 (with concurrency).

MKT 490 - SPECIAL PROJECTS

Semester Hours: 1-3

Independent study in an area of interest to the student in the field of marketing. Approval of Dept. Chair required.

MKT 494 - PRACTICUM IN MARKETING

Semester Hours: 3

MKT 495 - INTERN IN MARKETING

Semester Hours: 1-3

Active involvement in an 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. Subject to College's guidelines on internships.

Mathematics (MA)

MA 105 - NATURE OF MATHEMATICS

Semester Hours: 3

The course explores mathematical ideas that historically led to the development of major branches of mathematics. Conceptual understanding and real-world problem solving will be emphasized. Topics may include world of numbers, infinity, chance, foundations of statistics, and mathematical aesthetics. MA 105 cannot be used to fulfill prerequisite requirements for any mathematics course.

MA 107 - ALGEBRA WITH APPLICATIONS

Semester Hours: 3

Algebra review, functions and graphs, linear models, exponential logarithmic functions, mathematics of finance, sets and probability. Prerequisites: Level 1 placement for MA 107 and Level 0 placement for MA 107L. No credit given to students who have received credit for another MA course.

MA 110 - FINITE MATHEMATICS

Semester 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: Level 1 placement for MA 110 and Level 0 placement for MA 110L.

MA 112 - PRECALCULUS ALGEBRA

Semester 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. Prerequisites: Level 1 placement for MA 112 and Level 0 placement for MA 112L.

MA 113 - PRECALCULUS TRIGONOMETRY

Semester 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. Prerequisites: Level 2 placement or MA 112 with a grade of C or better. No credit given to students who have completed a MA course numbered above MA 113. MA 113 is an AGSC core course.

MA 115 - PRECALCULUS ALGEBRA & TRIG

Semester 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.

MA 120 - MATH PROFESSIONAL APPLICATIONS

Semester Hours: 3

Limits, continuity, differentiation, applications of the derivative, integration, the fundamental theorem of calculus, applications of the integral. Prerequisites: MA 107, MA 110, or MA 112 with a grade of C or better, or Level 2 placement. No credit given to students who have already received credit for a calculus course. MA 120 is an AGSC core course.

MA 171 - CALCULUS A

Semester Hours: 4

Limits, derivatives, applications of the derivative, definite and indefinite integrals, exponential and logarithmic functions, and inverse functions. Prerequisites: MA 113 or MA 115 with a grade of C or better, or Level 3 placement.

MA 171R - CALCULUS A RECITATION

Semester Hours: 0

Extension of MA 171. Review of previous math skills needed for success. Homework discussed; examination preparation, review of homework and examination tutoring and individual consultation.

MA 172 - CALCULUS B

Semester Hours: 4

Techniques of integration, applications of the integral, polar coordinates, sequences, series, and conic sections. Prerequisites: MA 171 with a grade of C or better.

MA 201 - CALCULUS C

Semester Hours: 4

Vectors, vector-valued functions, partial derivatives, multiple integrals, vector fields, line and surface integrals. Prerequisites: MA 172 with a grade of C or better.

MA 230 - MATH FOR ELEMENTARY TEACHERS

Semester 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 systems (integers, fractions, decimals, percents) and number theory. Prerequisites: Two MA courses at the 100 level or above, each with a grade of C or better. Open only to students majoring in elementary education.

MA 231 - MATH FOR ELEM SCH TCHERS II

Semester Hours: 3

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 - APPL DIFFERENTIAL EQUATIONS

Semester 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 firstorder 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 & MA 201 with concurrency.

MA 244 - INTRO TO LINEAR ALGEBRA

Semester 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. Prerequisites: MA 120 or MA 172.

MA 281 - ELEMENTS OF STATISTICAL ANALYSIS

Semester 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, or MA 115, or Level 2 Placement.

MA 299 - MATHEMATICS PROJECT

Semester Hour: 1

Individualized special projects in mathematics and its applications for inquisitive and well prepared sophomore-level undergraduate students. No credit allowed toward major or minor in mathematics. S/U grading. Approval of department chair and instructor required.

MA 301 - INTRO ELEMENTARY NUMBER THEORY

Semester Hours: 3

Fundamental properties of integers, divisibility, linear Diophantine equations, congruency, Euler function, Chinese Remainder Theorem, Fermat Theorems, Wilson Theorem, and applications to Cryptography. Prerequisite: MA 244.

MA 330 - FOUNDATIONS OF MATH

Semester Hours: 3

Symbolic 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 201 or MA 244).

MA 385 - INTRO TO PROBABILITY & STATISTICS

Semester 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 with a grade of C or better and 1 MA course at 200 level or above.

MA 399 - MATHEMATICS PROJECT

Semester Hour: 1

Individualized special projects in mathematics and its applications for inquisitive and well prepared junior-level undergraduate students. No credit allowed toward a major or minor in mathematics. S/U grading. Approval of department chair and instructor required.

MA 415 - INTRO NUMERICAL METHODS

Semester 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, and CS 121.

MA 420 - INTERM DIFFERENTIAL EQUATIONS

Semester Hours: 3

This is a second course in differential equations. Course topics include series solutions for second order differential equations and the method of Frobenius; 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 244 and MA 238.

MA 433 - INTRODUCTION TO GEOMETRY

Semester 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 W/APPLIC

Semester 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 385.

MA 450 - COMBINATORIAL ENUMERATION

Semester Hours: 3

Counting, pigeonhole principle, permutations and combinations, generating functions, principle of inclusion and exclusion, Polya's theory of counting. Prerequisite: MA 385 or MA 442 (with concurrency).

MA 452 - INTRO TO REAL ANALYSIS

Semester 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 - INTRO TO COMPLEX ANALYSIS

Semester 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 300 level or above.

MA 456 - METHODS OF PARTIAL DIFF EQUA

Semester 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

Semester 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 of systems of linear differential equations, and use of computer software such as MATLAB. Prerequisites: MA 238 and MA 244.

MA 460 - INTRO FOURIER ANALYSIS

Semester Hours: 3

Brief development of trigonometric and exponential Fourier series, derivation of the classical Fourier transform from 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, introduction to the discrete transform and/or multidimensional transforms, as time permits. Prerequisites: MA 238 and MA 244.

MA 465 - INTRO TO MATH MODELING

Semester 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 student study general modeling principles and case studies (some open-ended) drawn from various sources. Prerequisites: MA 201, MA 238, and MA 244.

MA 487 - INTRO TO MATH STATISTICS

Semester 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.

MA 490 - SEL TOP UNDERGRAD MATH

Semester Hours: 1-3

Requested undergraduate topics. Approval of instructor required.

MA 499 - MATHEMATICS PROJECT

Semester Hour: 1

Individualized special projects in mathematics and its applications for superior undergraduate students. No credit is allowed toward a major or minor in mathematics. S/U grading. Approval of department chair and instructor required.

Mechanical & Aerospace Engineering (MAE)

MAE 115 - INTRODUCTION TO MACHINING

Semester Hour: 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.

MAE 200 - PRINC AERONAUTICS & ASTRONAUTI

Semester Hours: 3

Fundamental concepts of aerospace engineering including the history of flight, standard atmosphere, fluid and flow properties, lift and drag, propulsion, and structures; elementary aircraft performance, stability and control; basic astronautics and space environment; and aerospace vehicle design. Prerequisites: PH 111, ENG 101, MA 172. Prerequisite with concurrency: MAE 211.

MAE 211 - INTRO COMPUTATIONAL TOOLS

Semester Hours: 2

Computer-aided design and solid modeling concepts including: model definition through constraints and dimensioning, and development of subassemblies and assemblies. Prerequisites: ENG 101 and MA 171.

MAE 271 - STATICS

Semester 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. (Same as CE 271) Prerequisites: PH 111, MA 201 and ENG 101.

MAE 272 - DYNAMICS

Semester 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 plan motion, relative motion in rotating coordinates, and gyroscopic motion. (Same as CS 362) Prerequisites: (CE 271 or MAE 271) and MA 201.

MAE 284 - NUMERICAL METHODS

Semester 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, LA 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, ENG 101, MAE 211 and MA 238.

MAE 284L - NUMERICAL METHODS LAB

Semester Hours: 0

MAE 310 - FLUID MECHANICS I

Semester 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: (CE 271 or MAE 271) and MA 238.

MAE 311 - PRIN MEASUREMENT & INSTRUMEN

Semester Hours: 3

Instrumentation and techniques for measurement of mechanical phenomena. Calibration, standards, computerized data acquisition, error analysis, signal conditioning, dynamic response, and experimental design. Laboratory included. Prerequisites: EE 213 and MAE 284.

MAE 311L - PRINC MEASUREMENT & INSTR LAB

Semester Hours: 0

MAE 330 - FUNDAMENTALS AERODYNAMICS

Semester Hours: 3

Fundamentals of incompressible flow, conservation laws, potential flow, similarity, airfoil and finite wing lift and drag, thin airfoil and panel methods, introduction to viscous flows and boundary layers, and modern airfoil and wing design. Prerequisites: MAE 200, MAE 272 and MA 238 (all with minimum grade of C-). Corequisite: MAE 331.

MAE 330L - LABORATORY

Semester Hours: 0

This lab is a 0 credit lab component of the 4 credit MAE 330 course.

MAE 331 - AERODYNAMICS LAB

Semester Hour: 1

Demonstration of fundamental aerodynamic principles through wind tunnel testing including comparison of theory to experimental results. Corequisite: MAE 330.

MAE 341 - THERMODYNAMICS I

Semester 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: CH 121, PH 112, and MA 201.

MAE 342 - THERMODYNAMICS II

Semester Hours: 3

Continuation of MAE 341. Thermodynamic cycles, thermodynamic relations among properties, chemical reactions, and phase and chemical equilibrium. Prerequisites: MAE 341 and MA 238.

MAE 343 - COMPRESSIBLE AERODYNAMICS

Semester Hours: 3

Compressible flow including area change, friction, and heat transfer. Fundamentals of acoustic waves, 1- and 2-D 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, MAE 341 and MA 238 (all with minimum grade of C-).

MAE 345 - HONORS THERMODYNAMICS COLQ

Semester Hour: 1

Students in this course will be expected to participate in assigned readings and discussions to develop an understanding of the context behind the fundamental concepts and principles of thermodynamics. Through reflections students will be encouraged to apply this knowledge to develop their own creative ideas. Prerequisites with concurrency: MAE 341 or CHE 344.

MAE 364 - KINEMATICS/DYNAM MACHINE

Semester Hours: 3

Kinematics and dynamics of planar machinery including principles of mechanisms, cam design, gears and epicycle gear trains, determination of velocity and acceleration in mechanisms. Inertia forces in machines, balancing of rotating masses and reciprocating masses, and vibration analysis.

Prerequisites: MAE 211 and (MAE 272 or CE 272).

MAE 364L - KINEMATICS/DYN MACHINE LAB

Semester Hours: 0

MAE 370 - MECHANICS OF MATERIALS

Semester Hours: 3

Design and analysis of simple structures for predetermined strength and deformation requirements. Topics include: theory of stress-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. Same as MAE 370. Prerequisites: (CPE 211 or MAE 211) and (MAE 271 or CE 271) and MA 244, corequisite MAE 375.

MAE 370L - LABORATORY

Semester Hours: 0

MAE 371 - AEROSPACE STRUCTURES

Semester 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 200 and (MAE 370 or CE 370).

MAE 375 - MECHANICS OF MATERIALS LAB

Semester Hour: 1

Experimental verification of material properties and structural deformation under axial, torsional, and bending loads. Test procedures, use of instrumentation, interpretation of experimental results and comparison to theory. (Same as CE 375). Corequisites: MAE 370.

MAE 378 - MATERIALS & MFG PROCESS

Semester 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. (Same as ISE 378).

Prerequisites: MAE 370 or CE 370.

MAE 395 - SEL TOPICS:MECH & AEROSPACE EG

Semester Hours: 1-3

Special topics in Mechanical or Aerospace Engineering.

MAE 425 - DESIGN OF MACHINE ELEMENTS/A&M

Semester Hours: 3

MAE 440 - ROCKET PROPULSION I

Semester Hours: 3

Introduction to the operation, analysis, and design of liquid and solid rockets. Incorporates design and realization of a thermal system, in which students work in teams to design a rocket motor or component. Prerequisite: MAE 343.

MAE 441 - AIRBREATHING PROPULSION

Semester Hours: 3

Air breathing propulsion systems with emphasis on gas turbine engines for air-and rotor-craft. Includes thermodynamic power cycles, components design, and engine performance analysis. Incorporates a turbine engine design and realization team project. Prerequisite: MAE 343.

MAE 444 - INTRO TO ELECTRIC PROPULSION

Semester Hours: 3

Elements of electrically-driven rocket propulsion for applications from low earth orbit to the outer planets will be discussed. The physics of ionizing and heating gases and plasmas for electrothermal, electrostatic and electromagnetic acceleration will be studied. Characteristics of Resistojet, Arcjet, Magnetoplasmadynamic thrusters, Electrothermal, Pulsed plasma, Electrostatic, and Hall thrusters will be covered. Review thruster system performance, power requirements and selection for space missions. Overview of current research efforts, including thruster systems, physics, and performance. Prerequisite: MAE 420.

MAE 449 - AEROSPACE LABORATORY

Semester Hours: 2

Experimental investigation of aerospace structures, airfoils and bodies in subsonic flow, and performance of various aerospace propulsion systems. An experiment design project is included. Concurrent registration in MAE 449L is required.

MAE 450 - INTRO TO HEAT & MASS TRANSFER

Semester Hours: 3

Principles of heat and mass transfer; application of principles to problems in conductive, convective, and radioactive heat transfer and mass transfer; laminar and turbulent flow processes; boiling and condensation; heat exchangers. Prerequisites: MAE 283, MAE 311, MAE 341 and (MAE 310 or MAE 330). Corequisite: MAE 451.

MAE 450L - INTRO HEAT & MASS TRANSFER LAB

Semester Hours: 0

MAE 451 - HEAT & MASS TRANSFER LAB

Semester Hour: 1

Experimental measurements and analysis of heat and mass transfer mechanisms, processes and systems. Test procedures, use of instrumentation, interpretation of experimental results and comparison to theory. Corequisite: MAE 450.

MAE 455 - DESIGN OF THERMAL SYSTEMS

Semester Hours: 3

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 and MAE 450.

MAE 461 - VIBRATIONS ELASTIC SYS

Semester Hours: 3

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

MAE 463 - INTERMEDIATE DYNAMICS

Semester Hours: 3

Kinematics and dynamics of particles, system of particles, and rigid-bodies. Variational principles and Lagrangian mechanics. Prerequisites: MAE 272 and MAE 488.

MAE 466 - MECH & DSGN MACH ELEMENT

Semester 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 370 or CE 370).

MAE 468 - ELEMENTS OF SPACECRAFT DESIGN

Semester 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 371 and (MAE 272 or CE 272).

MAE 471 - ADV AEROSPACE STR & MTRLS

Semester Hours: 3

Composite materials and applications in aerospace structures including: material types and properties and fabrication techniques, micromechanics, constitutive behavior, and classical laminated plate theory. Introduction to failure concepts, sandwich panels and finite element modeling of 1-and 2-D aerospace structures. Prerequisites: MAE 311 and MAE 371.

MAE 474 - APP MECHANICS OF SOLIDS

Semester 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 370 or CE 370.

MAE 477 - EXP TECH SOLID MECHANICS

Semester 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: MAE 370 or CE 370.

MAE 480 - AIRCRAFT STABILITY & CONTROL

Semester 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. Prerequisites: MAE 430 and MAE 488.

MAE 488 - ANALY ENGINEERING SYSTEM

Semester 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 284 and (MAE 272 or CE 272).

MAE 489 - COMPUTER AIDED ENGR

Semester Hours: 3

Analysis of design of structural, thermal, and dynamical systems using 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. Prerequisites: MAE 370 or CE 370 and MAE 284 w/concurrency.

MAE 490 - SENIOR DESIGN I

Semester Hours: 3

Application of basic design principles including: design methodology, decision making, creativity, product liability, human factors, patents, ethics, and technical writing. Students will be assigned to a multi-disciplinary teams to develop design project requirements and initial concepts. Prerequisites: ISE 321, MAE 311, MAE 341 and [(MAE 310, MAE 364, MAE 375 & MAE 371) or (MAE 330, MAE 331, MAE 343, MAE 371 & MAE 375)].

MAE 491 - SENIOR DESIGN II

Semester Hours: 3

Continuation of MAE 490. Students work on multi-disciplinary teams to design, fabricate, test and demonstrate the performance of various mechanisms, products and vehicles according to customer requirements. Oral presentations and written detailed documentation of the project must also be completed. Prerequisite: MAE 490.

MAE 492 - MISSION DESIGN & DEVELOPMNT

Semester Hours: 3

Senior Capstone Course Option. Students work design teams to develop missions of interest to NASA, DoD and industry. Includes defining the mission architecture and associated vehicles and components required to meet the customer requirements. Prerequisites: MAE 490.

MAE 493 - ROCKET DESIGN

Semester Hours: 3

Senior Capstone Course Option. 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. Prerequisites: MAE 490.

MAE 494 - AIRCRAFT DESIGN

Semester Hours: 3

Senior Capstone Course Option. Design, build, and test an unmanned aircraft to meet specified requirements. Students work on multi-disciplinary teams. Systems engineering aspects including simulation, fabrication, integration, scheduling and cost estimation are also emphasized. Prerequisite: MAE 490.

MAE 495 - SEL TOPICS:MECH & AEROSPACE EG

Semester Hours: 1-4

MAE 496 - IND STUDY:MECH & AEROSPACE EG

Semester Hours: 1-4

Special independent project in a topic of Mechanical or Aerospace Engineering. Must work with a MAE faculty member with project approved by MAE department chair.

MAE 499 - UNDERGRADUATE THESIS

Semester Hours: 3

Required for students completing an Honors Program Bachelors Thesis. Senior standing and permission of thesis advisor required.

Mechanical Engineering (ME)

Military Science (MIL)

MIL 101 - MILITARY SCIENCE I

Semester Hours: 2

MIL 101L - LABORATORY

Semester Hours: 0

MIL 102 - MILITARY SCIENCE I

Semester Hours: 2

MIL 102L - LABORATORY

Semester Hours: 0

MIL 201 - MILITARY SCIENCE II

Semester Hours: 2

MIL 201L - LABORATORY

Semester Hours: 0

MIL 202 - MILITARY SCIENCE II

Semester Hours: 2

MIL 202L - LABORATORY

Semester Hours: 0

MIL 206 - LEADER'S TRAINING COURSE

Semester Hours: 6

MIL 301 - MILITARY SCIENCE III

Semester Hours: 3

MIL 301L - LABORATORY

Semester Hours: 0

MIL 302 - MILITARY SCIENCE III

Semester Hours: 3

MIL 302L - LABORATORY

Semester Hours: 0

MIL 401 - MILITARY SCIENCE IV

Semester Hours: 3

MIL 401L - LABORATORY

Semester Hours: 0

MIL 402 - MILITARY SCIENCE IV

Semester Hours: 3

MIL 402L - LABORATORY

Semester Hours: 0

MIL 498 - MILITARY SCIENCE-VA/A&M

Semester Hours: 2

MIL 499 - MILITARY SCI-SPEC TOPICS/A&M

Semester Hours: 2

Music (MU)

MU 100 - INTRO TO MUSIC LITERATURE

Semester 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

Semester 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 106 - INTRO TO MUSIC TECHNOLOGY

Semester Hour: 1

Introduction to Music Technology provides students with an overview of the technical and scientific aspects of music such as: acoustics, music psychology/sociology, and modern electronics. There will be particular emphasis on the use of electronic devices, MIDI and computer software to facilitate recording, playback, composition, storage, performance and analysis. Offered Fall and Spring semesters only.

MU 108 - INTRODUCTION TO MUSIC THEORY

Semester Hours: 3

Music fundamentals presented in a practical way for students who have no musical training as well as for majors/minors with limited theory knowledge. Mechanical aspects of clefs, notation, scales, intervals, chords, 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 - INTRO ARTS MANAGEMENT

Semester Hours: 3

Designed to explore arts management and administration, focusing primarily on non-profit considerations, but also addressing commercial activities in the arts.

MU 120 - BEGINNING CLASS VOICE

Semester Hour: 1

This course is designed to aid beginning singers in learning the fundamentals of solo singing.

MU 130 - PIANO CLASS

Semester Hour: 1

Techniques of performance, note reading, and basic musicianship.

MU 131 - PIANO CLASS II

Semester Hour: 1

MU 140 - BEGINNING GUITAR CLASS

Semester Hour: 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 - MUSIC FORUM

Semester 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 - MUSIC THEORY I

Semester 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 - MUSIC THEORY II

Semester Hours: 3

Continuation of MU 201. Offered Fall semesters only. Prerequisites: MU 201 and MU 203.

MU 203 - MUSICIANSHIP SKILLS I

Semester Hour: 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

Semester Hour: 1

Continuation of MU 203. Offered Fall semesters only. Prerequisites: MU 201 and MU 203.

MU 205 - JAZZ THEORY

Semester 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. Offered every other Fall semester. Prerequisites: MU 201.

MU 207 - MUSIC TECHNOLOGY I

Semester Hours: 3

Students will learn the basics of using a computer interface to create and edit music, using a software MIDI sequencer and Digital Audio Workstation. Students will learn the basics of MIDI sequencing and music production. Prerequisites: MU 106.

MU 208 - MUSIC TECHNOLOGY II

Semester Hours: 3

Students will learn advanced techniques in digital audio production, including (but not limited to): Advanced MIDI sequencing, audio sampling, and production/mastering. Prerequisites: MU 106, MU 207.

MU 301 - THEORY OF MUSIC III

Semester Hours: 3

A study on chromatic harmony and a continuation of the studies of MU 201 and MU 202. Prerequisites: MU 202 and MU 204.

MU 302 - MUSICAL MATLS OF MODERN ERA

Semester Hours: 3

Systems of tonal organization, compositional procedures, terminology, and analytical methods that related to music since 1900. Offered every other Fall semester only. Prerequisites: MU 301 and MU 303 and MU 304.

MU 303 - MUSICIANSHIP SKILLS III

Semester Hour: 1

Continuation of MU 204. Offered Spring semesters only. Prerequisites: MU 202 and MU 204.

MU 305 - MUSIC TECHNOLOGY III

Semester Hours: 3

This course will focus primarily on analogue and digital audio systems setup and implementation. Mixing consoles, amplifiers, loudspeakers, microphones, keyboards, playback equipment, processing, cabling, configuration, computer hardware and software will be discussed and demonstrated in depth. Prerequisite: MU 106.

MU 306 - MUSIC TECHNOLOGY IV

Semester Hours: 3

An exploration of music technology hardware and software, including and overview of acoustics, MIDI and digital audio data structures, and an introduction to multimedia authoring. Offered every other Spring semester only. Prerequisites: MU 106 and EE 100.

MU 311 - HISTORY OF MUSIC I

Semester Hours: 3

Focus on music as an art in western civilization to 1750. Representative musical works and style. Understanding of musical concepts in view of historical background and cultural context. Offered Fall semesters only. Prerequisites: MU 100 and MU 301.

MU 312 - HISTORY OF MUSIC II

Semester Hours: 3

Focus on music as an art in western civilization from 1750 to the present. Representative musical works and style. Understanding of musical concepts in view of historical background and cultural context. Offered Spring semesters only. Prerequisites: MU 100 and MU 301.

MU 313 - SURVEY OF CHURCH MUSIC

Semester Hours: 3

Explores Christian music from historical and musical perspectives. Prerequisites: MU 100 and MU 301.

MU 314 - THE BEATLES

Semester Hours: 3

The purpose of this course is to familiarize the student with the music, lyrics, recordings, personal and public lives, production techniques, career strategy, social ramifications, and technological impact of the musical group known as The Beatles. The course will provide the student with an appreciation for the music itself, and a broader comprehension of the social, economic, political, and cultural upheavals that gave rise to the musical trends of the Sixties.

MU 316 - HIST & APPRECIATION OF JAZZ

Semester 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. Every other spring semester only. Prerequisite: MU 100.

MU 317 - JAZZ ARRANGING

Semester Hours: 2

This course provides the student with instruction in arranging for small and large jazz ensembles, both instrumental and vocal. Offered every other Spring semester only. Prerequisite: MU 205.

MU 320 - PIANO PEDAGOGY

Semester Hours: 2

Materials, techniques, and practices in teaching beginners and students through lower advanced grades of piano. Practical experience. Offered upon demand. Prerequisite: approval of instructor.

MU 321 - PIANO PEDAGOGY II

Semester Hours: 2

An examination of relevant methods in piano pedagogy and technique for all levels of instruction. The course will also assess the historical achievements made by previous pedagogues in the field of piano pedagogy. Prerequisite: MU 320.

MU 322 - DICTION FOR SINGERS

Semester Hours: 2

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. Offered every Fall semester only. Prerequisite: MUA 111.

MU 325 - CONDUCTING

Semester Hours: 2

Basic techniques of choral and instrumental conducting. Offered Fall semesters only. Prerequisite: MU 301.

MU 399 - SPECIAL TOPICS IN MUSIC

Semester Hours: 3

Special topics in music. Focus and emphasis of topics announced in advance. Offered upon demand.

MU 401 - FORM AND ANALYSIS

Semester Hours: 2

Musical forms and analysis. Offered every other Fall semester only. Prerequisites: MU 303 and 312.

MU 402 - CHURCH MUSIC METDS, MATRL & AD

Semester Hours: 3

Church Music Methods, Materials, and Administration. Prerequisite: MU 301.

MU 404 - MUSIC TECHNOLOGY INDIV PROJECT

Semester Hour: 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. Prerequisite: MU 306.

MU 406 - INTERNSHIP IN MUSIC TECHNOLOGY

Semester Hours: 3

An internship of eight hours per week working in the music technology industry. Offered upon demand. Prerequisite: MU 306.

MU 407 - INTERNSHIP MUSIC BUSINESS

Semester Hours: 3

Internship in Music Business. Prerequisites: MU 100 and MU 110 and MU 301 and MKT 301 and MGT 301 and FIN 410.

MU 408 - INTERNSHIP CHURCH MUSIC

Semester Hours: 3

An internship of nine hours per week working in church music. Prerequisites: MU 100 and MU 301 and MU 313 and MU 402 and MUE 328.

MU 409 - INTERNSHIP GRP PIANO PEDAGOGY

Semester Hour: 1

An internship of three hours per week working with an approved group piano program. Prerequisites: MU 100 and MU 321 and MU 420 and MUE 328.

MU 410 - INTERNSHIP INDIVID PIANO PEDAG

Semester Hours: 3

An internship of nine hours per week working with a local piano teacher. Prerequisites: MU 100 and MU 321 and MU 420 and MUE 328.

MU 411 - INTNSHIP INDVL PIANO PEDAGOGY

Semester Hours: 3

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. Prerequisites: MU 100 and MU 321 and MU 420 and MUE 328.

MU 416 - ORCHESTRATION

Semester Hours: 2

Instruments of the band and orchestra, their ranges, transpositions, and capabilities. Practical experience in arranging for instruments. Offered every other Fall semester only. Prerequisite: MU 302.

MU 420 - PIANO LITERATURE

Semester Hours: 2

Music for string keyboard instruments from the pre-pianoforte period to the present. Representative works from all periods. Offered upon demand. Prerequisites: MU 302 and MU 304 and MU 312.

MU 425 - ADVANCED CONDUCTING

Semester Hours: 2

Review of basic conducting patterns. Emphasis on communication as the role of the conductor. Detailed score preparation. Offered every other Spring semester only. Prerequisite: MU 325.

MU 440 - STUDIO INSTR-VOICE

Semester Hours: 0.5

Music Applied (MUA)

MUA 111 - STUDIO INSTR-VOICE

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 115 - STUDIO INSTR-VOICE

Semester Hour: 1.5

For aspiring music majors who have not yet been accepted as music majors. Prerequisite: permission of instructor.

MUA 121 - STUDIO INSTR-ORGAN

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 125 - STUDIO INSTR IN ORGAN

Semester Hour: 1.5

For aspiring music majors who have not yet been accepted as music majors. Prerequisite: permission of instructor.

MUA 131 - STUDIO INSTR-PIANO

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 135 - STUDIO INSTR-PIANO

Semester Hour: 1.5

For aspiring music majors who have not yet been accepted as music majors. Prerequisite: permission of instructor.

MUA 141 - STUDIO INSTR-GUITAR

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 145 - STUDIO INSTR-GUITAR

Semester Hour: 1.5

For aspiring music majors who have not yet been accepted as music majors. Prerequisite: permission of instructor.

MUA 151 - STUDIO INSTR-STRINGS

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 155 - STUDIO INSTR-STRINGS

Semester Hour: 1.5

For aspiring music majors who have not yet been accepted as music majors. Prerequisite: permission of instructor.

MUA 158 - STUDIO INSTR-STRINGS

Semester Hour: 1

For secondary instrument, instrumental music education students.

MUA 159 - STUDIO INSTR-STRINGS

Semester Hour: 1

For secondary instrument, instrumental music education students.

MUA 161 - STUDIO INSTR-WOODWINDS

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 165 - STUDIO INSTR-WOODWINDS

Semester Hour: 1.5

For aspiring music majors who have not yet been accepted as music majors. Prerequisite: permission of instructor.

MUA 171 - STUDIO INSTR-BRASS

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 175 - STUDIO INSTR-BRASS

Semester Hour: 1.5

For aspiring music majors who have not yet been accepted as music majors. Prerequisite: permission of instructor.

MUA 181 - STUDIO INSTR-PERCUSSION

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 185 - STUDIO INSTR-PERCUSSION

Semester Hour: 1.5

For aspiring music majors who have not yet been accepted as music majors. Prerequisite: permission of instructor.

MUA 191 - STUDIO INSTR-COMPOSITION

Semester Hour: 1

For aspiring music majors who have not yet been accepted as music majors. Prerequisite: permission of instructor.

MUA 195 - STUDIO INSTR-COMPOSITION

Semester Hour: 1.5

For aspiring music majors who have not yet been accepted as music majors. Prerequisite: permission of instructor.

MUA 211 - STUDIO INSTR-VOICE

Semester Hour: 1.5

For music majors' principal instrument. Prerequisite: MUA 111.

MUA 215 - STUDIO INSTR-VOICE

Semester Hours: 2

For music majors' principal instrument.

MUA 217 - STUDIO INSTRUCTION IN VOICE

Semester Hours: 2

For music majors' principal instrument.

MUA 218 - STUDIO INSTRUCTION IN VOICE

Semester Hours: 2

For music majors' principal instrument.

MUA 219 - STUDIO INSTRUCTION IN VOICE

Semester Hours: 2

For music majors' principal instrument.

MUA 221 - STUDIO INSTR-ORGAN

Semester Hour: 1.5

For music majors' principal instrument. Prerequisite: MUA 121.

MUA 223 - STUDIO INSTR-ORGAN

Semester Hour: 1.5

For music majors' principal instrument.

MUA 226 - STUDIO INSTRUCTION-ORGAN

Semester Hours: 2

For music majors' principal instrument.

MUA 227 - STUDIO INSTRUCTION-ORGAN

Semester Hours: 2

For music majors' principal instrument.

MUA 228 - STUDIO INSTRUCTION-ORGAN

Semester Hours: 2

For music majors' principal instrument.

MUA 229 - STUDIO INSTRUCTION-ORGAN

Semester Hours: 2

For music majors' principal instrument.

MUA 231 - STUDIO INSTR-PIANO

Semester Hour: 1.5

For music majors' principal instrument. Prerequisite: MUA 131.

MUA 236 - STUDIO INSTRUCTION-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 237 - STUDIO INSTRUCTION-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 238 - STUDIO INSTRUCTION-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 239 - STUDIO INSTRUCTION-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 241 - STUDIO INSTR-GUITAR

Semester Hour: 1.5

For music majors' principal instrument. Prerequisite: MUA 141.

MUA 246 - STUDIO INSTR-GUITAR

Semester Hours: 2

For music majors' principal instrument.

MUA 247 - STUDIO INSTR-GUITAR

Semester Hours: 2

For music majors' principal instrument.

MUA 248 - STUDIO INSTR-GUITAR

Semester Hours: 2

For music majors' principal instrument.

MUA 249 - STUDIO INSTR-GUITAR

Semester Hours: 2

For music majors' principal instrument.

MUA 251 - STUDIO INSTR-STRINGS

Semester Hour: 1.5

For music majors' principal instrument. Prerequisite: MUA 151.

MUA 256 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 257 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 258 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 259 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 261 - STUDIO INSTR-WOODWINDS

Semester Hour: 1.5

For music majors' principal instrument. Prerequisite: MUA 161.

MUA 268 - STUDIO INSTR-WOODWINDS

Semester Hours: 2

For music majors' principal instrument.

MUA 269 - STUDIO INSTR-WOODWINDS

Semester Hours: 2

For music majors' principal instrument.

MUA 271 - STUDIO INSTR-BRASS

Semester Hour: 1.5

For music majors' principal instrument. Prerequisite: MUA 171.

MUA 276 - STUDIO INSTR-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUA 277 - STUDIO INSTR-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUA 278 - STUDIO INSTR-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUA 279 - STUDIO INSTR-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUA 281 - STUDIO INSTR-PERCUSSION

Semester Hour: 1.5

For music majors' principal instrument. Prerequisite: MUA 181.

MUA 286 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 287 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 288 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 289 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 291 - STUDIO INSTR-COMPOSITION

Semester Hour: 1.5

MUA 311 - STUDIO INSTR-VOICE

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUA 211.

MUA 321 - STUDIO INSTR-ORGAN

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUA 221.

MUA 331 - STUDIO INSTR-PIANO

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUA 231.

MUA 341 - STUDIO INSTR-GUITAR

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUA 241.

MUA 351 - STUDIO INSTR-STRINGS

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUA 251.

MUA 361 - STUDIO INSTR-WOODWINDS

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUA 261.

MUA 371 - STUDIO INSTR-BRASS

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUA 271.

MUA 381 - STUDIO INSTR-PERCUSSION

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUA 281.

MUA 411 - STUDIO INSTRUCTION-VOICE

Semester Hour: 1.5

For music majors' principle instrument. Prerequisite: MUA 211.

MUA 416 - STUDIO INSTR-VOICE

Semester Hours: 2

For music majors' principal instrument.

MUA 417 - STUDIO INSTR-VOICE

Semester Hours: 2

For music majors' principal instrument.

MUA 418 - STUDIO INSTR-VOICE

Semester Hours: 2

For music majors' principal instrument.

MUA 419 - STUDIO INSTR-VOICE

Semester Hours: 2

For music majors' principal instrument.

MUA 421 - STUDIO INSTR-ORGAN

Semester Hour: 1.5

For music majors' principle instrument. Prerequisite: MUA 221.

MUA 422 - STUDIO INSTR-ORGAN

Semester Hours: 2

For music majors' principal instrument.

MUA 426 - STUDIO INSTR-ORGAN

Semester Hours: 2

For music majors' principal instrument.

MUA 427 - STUDIO INSTR-ORGAN

Semester Hours: 2

For music majors' principal instrument.

MUA 428 - STUDIO INSTR-ORGAN

Semester Hours: 2

For music majors' principal instrument.

MUA 429 - STUDIO INSTR-ORGAN

Semester Hours: 2

For music majors' principal instrument.

MUA 431 - STUDIO INSTR-PIANO

Semester Hour: 1.5

For music majors' principle instrument. Prerequisite: MUA 231.

MUA 432 - STUDIO INSTR-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 433 - STUDIO INSTR-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 434 - STUDIO INSTR-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 435 - STUDIO INSTR-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 436 - STUDIO INSTR-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 437 - STUDIO INSTR-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 438 - STUDIO INSTR-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 439 - STUDIO INSTR-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUA 441 - STUDIO INSTR-GUITAR

Semester Hour: 1.5

For music majors' principle instrument. Prerequisite: MUA 241.

MUA 445 - STUDIO INSTR-GUITAR

Semester Hours: 2

For music majors' principal instrument.

MUA 446 - STUDIO INSTR-GUITAR

Semester Hours: 2

For music majors' principal instrument.

MUA 447 - STUDIO INSTR-GUITAR

Semester Hours: 2

For music majors' principal instrument.

MUA 448 - STUDIO INSTR-GUITAR

Semester Hours: 2

For music majors' principal instrument.

MUA 449 - STUDIO INSTR-GUITAR

Semester Hours: 2

For music majors' principal instrument.

MUA 451 - STUDIO INSTR-STRINGS

Semester Hour: 1.5

For music majors' principle instrument. Prerequisite: MUA 251.

MUA 452 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 453 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 454 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 455 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 456 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 457 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 458 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 459 - STUDIO INSTR-STRINGS

Semester Hours: 2

For music majors' principal instrument.

MUA 461 - STUDIO INSTR-WOODWINDS

Semester Hour: 1.5

For music majors' principle instrument. Prerequisite: MUA 271.

MUA 462 - STUDIO INSTR-WOODWINDS

Semester Hours: 2

For music majors' principal instrument.

MUA 467 - STUDIO INSTR-WOODWINDS

Semester Hours: 2

For music majors' principal instrument.

MUA 468 - STUDIO INSTR-WOODWINDS

Semester Hours: 2

For music majors' principal instrument.

MUA 469 - STUDIO INSTR-WOODWINDS

Semester Hours: 2

For music majors' principal instrument.

MUA 471 - STUDIO INSTR-BRASS

Semester Hour: 1.5

For music majors' principle instrument. Prerequisite: MUA 271.

MUA 473 - STUDIO INSTR-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUA 474 - STUDIO INSTR-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUA 475 - STUDIO INSTR-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUA 476 - STUDIO INSTR-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUA 477 - STUDIO INSTR-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUA 478 - STUDIO INSTR-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUA 479 - STUDIO INSTR-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUA 481 - STUDIO INSTR-PERCUSSION

Semester Hour: 1.5

For music majors' principle instrument. Prerequisite: MUA 281.

MUA 482 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 483 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 484 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 485 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 486 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 487 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 488 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 489 - STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUA 491 - STUDIO INSTR-COMPOSITION

Semester Hour: 1.5

For music majors' principal instrument.

MUA 498 - SENIOR RECITAL

Semester Hour: 1.5

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.

MUA 499 - PERFORMANCE EMPHASIS RECITAL

Semester Hour: 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.

Music Education (MUE)

MUE 215 - MUSIC FOR YOUNG CHILD

Semester Hours: 3

For elementary and special education teachers, recreational therapists, church school, or prospective teachers not trained in music. Preparation to teach children ages 3-12 through experience in singing, reading, planning, and presentation. Elementary education majors using music as their second area of study must select MUE 326 rather than MUE 215 for their GER.

MUE 321 - CHORAL/INSTRUMENTAL DIR OBSERV

Semester Hour: 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. Prerequisite: MU 325.

MUE 328 - TEACHING GENERAL MUSIC

Semester Hours: 3

Materials and methods. Emphasis on developing teaching competencies in general music, with an emphasis on the elementary school level.

Prerequisite: MU 301.

MUE 428 - VOCAL/CHORAL METH SEC SCH

Semester 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 and MUE 327 and MU 425.

MUE 429 - ORG & DIR INSTRU GRP SEC SCH

Semester Hours: 3

Reperatoire, procedures for administering and teaching school bands, orchestras and instrumental ensembles. Prerequisites: MUE 326 and MUE 427 and MU 425.

Music Jazz (MUJ)

MUJ 131 - JAZZ STUDIO INSTR-PIANO

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUJ 141 - JAZZ STUDIO INSTR-GUITAR

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUJ 151 - JAZZ STUDIO INSTRUCTION-BASS

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUJ 152 - JAZZ STUDIO INSTR-BASS

Semester Hour: 1.5

MUJ 161 - JAZZ STUDIO INSTR-WOODWINDS

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUJ 171 - JAZZ STUDIO INSTR-BRASS

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUJ 181 - JAZZ STUDIO INST-PERCUSSION

Semester Hour: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUJ 205 - JAZZ THEORY

Semester 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. Offered every other Fall semester. Prerequisites: MU 201.

MUJ 231 - JAZZ STUDIO INSTR-PIANO

Semester Hour: 1.5

For music majors' principal instrument.

MUJ 237 - STUDIO INSTR: JAZZ PIANO

Semester Hours: 2

MUJ 241 - JAZZ STUDIO INST-GUITAR

Semester Hour: 1.5

For music majors' principal instrument.

MUJ 251 - JAZZ STUDIO INSTRUCTION-BASS

Semester Hour: 1.5

For music majors' principal instrument.

MUJ 261 - JAZZ STUDIO INSTR-WOODWINDS

Semester Hour: 1.5

For music majors' principal instrument.

MUJ 265 - JAZZ STUDIO INSTR-WOODWINDS

Semester Hours: 2

For music majors' principal instrument.

MUJ 271 - JAZZ STUDIO INSTR-BRASS

Semester Hour: 1.5

For music majors' principal instrument.

MUJ 281 - JAZZ STUDIO INSTR-PERCUSSION

Semester Hour: 1.5

For music majors' principal instrument.

MUJ 308 - JAZZ IMPROVISATION I

Semester Hours: 2

MUJ 309 - JAZZ IMPROVISATION II

Semester Hours: 2

MUJ 331 - STUDIO INSTR-PIANO

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUJ 231.

MUJ 341 - STUDIO INSTR-GUITAR

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUJ 241.

MUJ 351 - STUDIO INSTR-BASS

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUJ 251.

MUJ 361 - STUDIO INSTR-WOODWINDS

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUJ 261.

MUJ 371 - STUDIO INSTR-BRASS

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUJ 271.

MUJ 381 - STUDIO INSTR-PERCUSSION

Semester Hour: 1.5

For music majors principal instrument. Prerequisite: MUJ 281.

MUJ 431 - JAZZ STUDIO INSTR-PIANO

Semester Hours: 2

For music majors' principal instrument.

MUJ 441 - JAZZ STUDIO INSTR-GUITAR

Semester Hours: 2

For music majors' principal instrument.

MUJ 461 - JAZZ STUDIO INSTR-WOODWINDS

Semester Hours: 2

For music majors' principal instrument.

MUJ 471 - JAZZ STUDIO INST-BRASS

Semester Hours: 2

For music majors' principal instrument.

MUJ 481 - JAZZ STUDIO INSTR-PERCUSSION

Semester Hours: 2

For music majors' principal instrument.

MUJ 498 - SENIOR JAZZ RECITAL

Semester Hour: 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 performance.

Nursing (NUR)

NUR 000 - NURSING-CREDIT BY VALIDATION

Semester Hours: 3-42

NUR 001 - NURSING TESTING BLOCK

Semester Hours: 0

Nursing Testing Block is a common block of time for students in different cohorts to take their examinations.

NUR 102 - MULTIDIMENSIONS OF NURSING

Semester Hours: 3

This course is designed for the student who has declared nursing as a major. Emphasis will be placed on the role of professional nurses working with clients and other health care professionals. The evolution of nursing as a profession will be examined and the student introduced to the health care delivery system.

NUR 201 - MULTIDIM ASPECTS HL CAREER OPT

Semester Hours: 3

This course is designed for the student who wishes to explore a career in the health 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 disease.

NUR 202 - HEALTHY LIVING LIFESPAN

Semester Hours: 3

This class will focus on health and wellness across the lifespan, with an emphasis on promoting healthy living and preventing illness. It is designed to develop health literacy and to identify ways to put healthy ideas into practice. Diverse perceptions and beliefs related to health are explored and strategies to optimize health are presented.

NUR 220 - HEALTH PROMOTION NUR MAJORS

Semester Hours: 3

The focus of this class is on health and high-level wellness across the lifespan, with an emphasis on promoting healthy living and preventing illness. Diverse perceptions and beliefs related to health and wellness are explored, and ways to put healthy ideas into practice are applied. Medical terminology to improve healthcare communication is incorporated into the course.

NUR 301 - CONCEPTS IN NURSING

Semester Hours: 2

This course will focus on development using concepts and theories basic to the art and science of nursing. Students are introduced to the concepts of communication, teaching/learning, clinical decision making, ethical, legal, nursing history, and philosophy for knowledge development of the discipline. Prerequisites with concurrency: NUR 303, 304, 309, and 311.

NUR 302 - NURSING & HEALTH PROMOTION

Semester 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.

NUR 303 - HEALTH ASSESSMENT

Semester Hours: 4

Focus on holistic assessment of culturally diverse clients across the life span. Communication & psychomotor skills are developed in clinical laboratory settings with an emphasis on normal findings and health promotion.

NUR 303L - CLINICAL

Semester Hours: 0

NUR 304 - APP PATHOPHYSIOLOGY LIFESPAN

Semester Hours: 3

The course is designed to help the student build on previous knowledge of anatomy and physiology and microbiology. Adaptations and alterations in health status throughout the lifespan are emphasized. Students explore the implications of lifestyle to pathology within a nursing framework, and learn to relate normal body functioning to the pathophysiological changes that occur in, and as a result of disease.

NUR 305 - NUR PROC MENTAL HLTH/ILLNESS

Semester Hours: 4

Nursing process in the promotion of psychosocial integrity. Emphasis is on the therapeutic use of self through providing interventions for individuals and groups in a variety of settings. Prerequisites: NUR 310 and NUR 312 and NUR 321.

NUR 305L - CLINICAL

Semester Hours: 0

NUR 307 - INQRY TO EVIDNC BASED NURS PRC

Semester Hours: 3

This course identifies various modes of inquiry and critical analysis used in the development of nursing science. Explore evidence based models to examine the evidence from a variety of research designs used to formulate nursing decisions. Emphasis is on identifying and synthesizing the best evidence to solve complex health problems in order to deliver safe, competent nursing care to diverse populations. Prerequisites: NUR 310 and NUR 312 and NUR 321.

NUR 308 - NURS CARE ADULTS ALTER HLTH

Semester Hours: 9

This course focuses on the application of the nursing process in the collaborative nursing management of adult clients experiencing simple to complex physiological health alterations. Clinical experiences provide opportunities for beginning to intermediate clinical reasoning in the acute care environment. The embodiment of professionalism and professional values are emphasized. Prerequisites: NUR 310 and NUR 312 and NUR 321.

NUR 308L - CLINICAL

Semester Hours: 0

NUR 309 - CLINICAL INFORMATICS

Semester Hours: 2

This course is designed to introduce clinical informatics as a tool to improve healthcare systems through safe, ethical, and evidence-based practice. Advances in technology, data management, and decision support software are explored. Competencies in basic computer skills are also included in the course to improve information literacy. Prerequisites with concurrency: NUR 301, 303, 304, and 311.

NUR 310 - PROFESSIONAL PRACTICE NURS I

Semester Hours: 6

This course will begin the process of learning foundational nursing skills to be used in nursing practice. Psychomotor nursing skills needed to assist individuals meet basic human needs will be taught with expectation the student will demonstrate competency in performing skills. Laboratory and clinical experiences are included. Prerequisites: NUR 301, NUR 303, NUR 304, NUR 309, NUR 311.

NUR 310L - CLINICAL

Semester Hours: 0

NUR 311 - CLINICAL CALCULATIONS

Semester Hour: 1

In this course, students will learn to accurately calculate medication dosages. Testing in this course will establish minimal medication calculation proficiency required to progress to the second semester of the nursing program. Prerequisites with concurrency: NUR 301, 304, 303, and 309.

NUR 312 - GERO NURSING CARE

Semester Hours: 3

This course is designed to focus on current health care issues affecting the older adult. Physical, psychological, sociocultural, and spiritual aspects of aging are examined within the context of the family and society. The course applies the nursing process with emphasis on optimal health for the older adult. Prerequisites: NUR 301, 303, 304, 309, and 311. Prerequisite with concurrency: NUR 310 and 321.

NUR 312L - CLINICAL

Semester Hours: 0

This is the clinical component of the Gerontological Nursing Care course. The course will focus on current health care issues affecting the older adult. Physical, psychological, sociocultural, and spiritual aspects of aging are examined within the context of the family and society. The course applies the nursing process with emphasis on optimal health for the older adult.

NUR 321 - PHARMACOLOGY IN NURS

Semester Hours: 3

This course comprises pharmacological concepts incorporating an overview of historical and current issues in drug therapy. Pharmacotherapeutics, pharmacodynamics, pharmacokinetics, contraindications and precautions for prototype drugs for multiple body systems are presented. Major emphasis is placed on nursing management practices using nursing process as well as the nurses' role in optimizing reliable medication administration.

Prerequisites: NUR 301, 303, 304, 309, 311.

NUR 336 - SPIRITUALITY IN NURSING

Semester 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.

NUR 339 - INFO MGMT IN HEALTHCARE

Semester Hours: 3

This course is designed to introduce information management, including decision support systems. The use of information management nomenclature is integrated into the learning activities. The role of the nurse as an advocate in improving patient outcomes using data management is explored. Safety, ethical, and legal concerns are addressed. Prerequisite: NUR 410.

NUR 390 - INDEPENDENT STUDY

Semester Hours: 1-4

Individualized independent study of specific nursing problem under sponsorship of a nursing faculty member with special preparation in the field. Elective.

NUR 400 - SPECIAL TOPICS

Semester Hours: 3

NUR 401 - NURS CARE CRITICALLY ILL ADULT

Semester Hours: 4

This course explores the evidence-based collaborative nursing management of clients experiencing complex physiological health alterations. Clinical experiences will provide opportunities for advanced clinical reasoning in the acute and critical care environments. Prerequisites: NUR 305 and NUR 307 and NUR 308.

NUR 401L - CLINICAL

Semester Hours: 0

NUR 402 - POPULATION BASED HLTH CARE

Semester Hours: 3

Promotion of health, prevention of disease in at-risk aggregate populations. Examines complex problems and health care policy. Open to all university students.

NUR 402L - CLINICAL EXPERIENCE

Semester Hours: 0

NUR 403 - MATERNAL INFANT NURSING

Semester Hours: 4

This course explores internal and external factors, which impact the health of the family during the antepartal, intrapartal, postpartal and neonatal periods of childbearing. Emphasis is placed on nursing care of these clients, normal physiology, pathophysiology, psychological and sociocultural needs, and risk identification and reduction. Prerequisites: NUR 305 and NUR 307 and NUR 308 and NUR 321.

NUR 403L - CLINICAL

Semester Hours: 0

NUR 404 - FAMILY-CENTER NUR CARE CHILDRE

Semester Hours: 4

This course is designed to introduce the concept of family centered pediatric care that is developmentally appropriate for a culturally diverse population. Clinical experiences in selected agencies. Prerequisites: NUR 301 and NUR 307 and NUR 308 and NUR 321.

NUR 404L - CLINICAL

Semester Hours: 0

NUR 405 - COMMUNITY HEALTH NURS

Semester Hours: 4

The course explores the community as client and teaches concepts and knowledge necessary to promote the health of the public and communities. Emphasis is on community health theory, individual, family, and community assessment, aspects of epidemiology, program planning and evaluation, trends and issues, legislation, ethics, research, health care economics and disaster management. Prerequisites: NUR 401 and NUR 403 and NUR 404.

NUR 405L - CLINICAL EXPERIENCE

Semester Hours: 0

NUR 406 - LEADERSHIP & MGMT IN NURSING

Semester 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.

NUR 407 - PROF PRACTICE IN NURSING II

Semester Hours: 8

The focus of this course is the leadership and management functions of professional nursing. Essential skills are communication, interprofessional collaboration, delegation, coordination, and the application of evidence-based practice models. Clinical experiences will focus on performance of the professional nurse role in a concentrated practicum. Prerequisites: NUR 401 and NUR 403 and NUR 404.

NUR 407L - CLINICAL EXPERIENCE

Semester Hours: 0

NUR 408 - PROF PRAC IN NURS III SEMINAR

Semester Hours: 2

The purpose of this class is to facilitate the synthesis of knowledge, the application of critical thinking to decisions about patient care, and to ensure safe and competent nursing practice. Test-taking skills and time management concepts will be applied in preparation of the NCLEX-RN licensure exam. Prerequisites: NUR 407.

NUR 410 - TRANSITION INTO PROFESSIONAL ROLES

Semester Hours: 3

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 learning plan, 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. Nursing credit hours for prior learning will be conferred upon successful completion of this transition course.

NUR 411 - THEORETICAL APPL IN PROF NURS

Semester Hours: 3

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.

NUR 412 - CARE FOR AGGREGATES, FAM & POP

Semester Hours: 7

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. Prerequisites: NUR 339 and NUR 410.

NUR 412L - CLINICAL EXPERIENCE

Semester Hours: 0

NUR 413 - NUR LEADERSHIP PROF PRACT

Semester Hours: 5

4 Course/1 Clinical. Designed for registered nurse students, this 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 indirect/direct practice experience opportunities to apply nursing leadership concepts through a case study experience and in a clinical practice setting by conducting a clinical project. Prerequisite: NUR 410.

NUR 415 - HONORS DIRECTED RESEARCH

Semester Hours: 2

This course allows for implementation of the student's research proposal as developed in the Honors section of NUR 307. The focus is on data collection and preliminary data analysis. The seminar format will provide students access to expert researchers.

NUR 416 - HONORS RESEARCH SEMINAR

Semester Hour: 1

The focus of this seminar is completion of final research report, as begun in NUR 307 and NUR 415.

NUR 417 - NURS CARE VUL POP

Semester Hours: 4

This course investigates factors related to increased vulnerability arising from threats to well-being for selected populations. Factors will include individual characteristics and conditions (such as profound and chronic illnesses, genetic factors, health behaviors), those attributable to group identity (such as age or socioeconomic status), and those due to environmental exposures (such as high risk occupations, exposure to toxins and pollution, and occurrences of nature). Students will examine strategies aimed at risk reduction and improvement in disparities in outcomes. Relevant professional and agency/organizational resources are explored. Prerequisite: NUR 410.

NUR 418 - GLOBAL HEALTH: INTERN'L STUDY

Semester Hours: 3

This course will focus on global health concepts and issues, and on selected international health care systems in comparison to the U.S. health care system. These systems will be examined and analyzed in relation to economic, social, cultural, policy, and environmental influences. Culmination of the course will center on international experiences with health care facilities, historical and cultural influences, and policy making bodies in another country. This course is an accepted elective in the nursing program (not all electives are offered each year).

NUR 419 - SCHOLRY INQUIRY IN NURSING PRA

Semester 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.

NUR 420 - EVIDENCE BASED NURS PRACTICE

Semester 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. Structured for the registered nurse student.

NUR 421 - AC CARE NURS RNBSN

Semester Hours: 3

The nursing process is applied to clients experiencing physiological health alterations requiring complex and collaborative nursing strategies and appropriate resource management. Application experiences are focused on conducting comprehensive and focused assessments of clients in the acute care environment. Prerequisite: NUR 410.

NUR 422 - COMMUNITY HEALTH FOR PRCTNG RN

Semester Hours: 5

4 course/1 clinical. This course is designed for registered nurses to apply theoretical concepts related to primary, secondary, and tertiary care of families and aggregates. Emphasis is on application of the nursing process in promoting community health for at-risk populations. Application of direct/indirect practice experience activities are designed to meet individual learning needs of the registered nurse student in delivering and managing care of selected families with emphasis on the aggregate. Prerequisite: NUR 410.

NUR 423 - EVID BASED RN

Semester Hours: 3

This course fosters the application of the best clinical evidence into practice in order to promote improvement in healthcare experiences and patient outcomes. Various modes of scientific inquiry used in the development of nursing science are incorporated into a survey of research techniques, methodologies, and ethical concerns. This will enable students to select and evaluate appropriate information relevant to evidence based practice. Students will develop skills in the use of electronic databases to facilitate acquisition of current information. Emphasis is placed on the critical analysis of evidence to be used in formulating nursing decisions and the design of client care guidelines. Prerequisite: NUR 410.

NUR 426 - SPACE LIFE SCIENCES

Semester Hours: 3

Theories and concepts of contemporary issues in health and nursing related to space life sciences.

NUR 427 - INTRODUCTION TO FORENSICS

Semester 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. Elective, open to all university students.

NUR 428 - GERONTOLOGICAL NURSING

Semester Hours: 3

Nursing care of older adults in multiple settings. Issues and trends are incorporated.

NUR 430 - HLTH CARE WKFR:ISS/LDRSH STRAT

Semester Hours: 3

Description and analysis of contemporary issues regarding the health care workforce. Particular focus will be placed on the multifaceted nature of health care 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.

NUR 434 - PALLIATIVE CARE

Semester 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, emotional, social cultural and spiritual needs of individuals and their families. A course focus will be 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

Semester 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. Elective, open to all university students.

NUR 439 - NURSING MEDICAL MISSIONS

Semester Hours: 3

This course will focus on global health and humanitarian concepts and issues, and the nursing care needed to impact those issues. These issues will be examined and analyzed in relation to the mission country's economic, social, cultural, policy and environmental influences. Culmination of the course will center on international experiences with supervised nursing care for a medical mission in another country. This course is an accepted elective in the Nursing program.

Optical Engineering (OPE)

OPE 451 - OPTOELECTRONICS

Semester Hours: 3

Basic concepts for understanding electro-optic devices and systems. Blackbody radiation; light sources; quantum and thermal detector, noise in detectors; optical heterodyning; acoustooptic, magneto-optic, and electro-optic modulation. (Same as EE 451) Prerequisites: EE 307 and EE 315.

OPE 453 - LASER SYSTEMS

Semester 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.

OPE 454 - OPTICAL FIBER COMMUNICATIONS

Semester 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. (Same as EE 454) Prerequisites: (EE 307 or PH 432) and (EE 382 or CPE 381).

OPE 456 - PHOTONICS LABORATORY

Semester Hours: 3

Photonic devices, wave nature of light, diffraction, spectral measurements, refractive index, single mode and multimode optical fibers, simple optical communication systems, fiber optic sensors, cast study. Prerequisites: OPE 451.

OPE 459 - OPTICAL ENGINEERING DESIGN I

Semester 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 and OPE 456.

OPE 460 - OPTICAL ENGINEERING DESIGN II

Semester 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.

Optics (OPT)

OPT 341 - GEOMETRICAL OPTICS

Semester Hours: 3

Introduces geometrical optics. The nature of light, basic radiometry, rays and waves, 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. Prerequisite: PH 113. Prerequisite with concurrency: PH 305 and MA 244.

OPT 342 - PHYSICAL OPTICS

Semester Hours: 3

Electromagnetic waves, superposition of waves, interference of light, Young's double slit experiment, Michelson interferometer, Fabry-Perot interferometer, coherence, diffraction gratings, polarization and its matrix treatment, and polarization generation. Offered Spring. Prerequisite with concurrency: OPT 341.

OPT 411 - GEOMETRICAL OPTICS LAB

Semester Hours: 2

Introduces optical laboratory techniques, focus and alignment with incoherent and coherent sources, the nodal slide, thin lenses, thick lenses, lens systems, the effects of aperture and stops, reflection, refraction and dispersion, aberrations, elements of radiometry. Offered Fall. Prerequisite with concurrency: OPT 341.

OPT 412 - PHYSICAL OPTICS LAB

Semester Hours: 2

Introduces physical optics phenomena, Young's double slit experiment, Lloyd's mirror, Fresnel biprism, Newton's rings, intensity distribution in fringe systems, Michelson and Fabry-Perot interferometers, Fresnel and Fraunhofer diffraction, diffractions and diffraction gratings. Prerequisite with concurrency: OPT 341.

OPT 441 - OPTICAL SYSTEMS

Semester 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. Offered Fall, even years. Prerequisite: OPT 342.

OPT 442 - INTERFERENCE & DIFFRACTION

Semester Hours: 3

Two beam interference, multiple beam interference, optical testing. Fraunhofer diffraction, Fresnel diffraction, the Fourier transform, Fourier methods in optics, Coherence, Holography.

OPT 444 - OPTOELECTRONICS

Semester Hours: 3

Reviews polarized light, propagation and modulation of light using effects of electro and acousto optics, Kerr, and Faraday. Photo-detection, signal processing, and signal-to-noise ratios. Design/analysis of beam scanners, various optical spectrum analyzers, sensors, and communication systems. Prerequisite: OPT 342.

OPT 445 - INTRODUCTION TO LASERS

Semester Hours: 3

Introduces 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. Offered Fall, odd years. Prerequisite: PH 432. Prerequisite with concurrency: PH 351.

OPT 446 - RADIOMETRY, DETECTORS, SOURCES

Semester Hours: 3

Theory and practice of radiometry and photometry. Blackbody radiation and Lambertian sources. 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: OPT 342, MA 238, and PH 112.

OPT 447 - POLARIZED LIGHT & POLARIMETRY

Semester Hours: 3

Linear, circular, and elliptical polarization of light. Mueller and Jones calculi, Stokes vectors, measuring polarized light, polarization properties of crystals and thin films, polarization ray tracing. Offered Fall, odd years. Prerequisite: OPT 342.

Philosophy (PHL)

PHL 101 - INTRODUCTION TO PHILOSOPHY

Semester Hours: 3

Introduction to philosophical reflection focusing upon central problems in the major branches of the western tradition: metaphysics, epistemology and value theory.

PHL 102 - INTRO TO ETHICS

Semester 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 103 - INTRODUCTION TO LOGIC

Semester Hours: 3

Methodology of formal and informal reasoning.

PHL 150 - TECH, SCIENCE & HUMAN VALUES

Semester Hours: 3

A philosophical examination of the intersection of human values with science and technology. Questions include: what exists, the nature and extent of knowledge, and moral problems posed by technical and scientific change.

PHL 220 - CRIT THINKING FOR INTEL ANALYS

Semester Hours: 3

Examines critical reasoning strategies designed to correct cognitive biases and improve tradecraft skills in the context of intelligence analysis.

PHL 301 - ANCIENT PHILOSOPHY

Semester Hours: 3

Survey of classical philosophy from the Pre-Socratics through Aristotle. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 302 - MODERN PHILOSOPHY

Semester Hours: 3

Survey of the British and Continental traditions from Descartes through Kant. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 303 - CONTINENTAL PHILOSOPHY

Semester Hours: 3

Examination of important trends in the Continental tradition from nineteenth through twenty-first century thought.

PHL 310 - PHILOSOPHY OF ART

Semester Hours: 3

Major aesthetic theories of the western tradition, may include visual or non-visual arts. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 311 - PHILOSOPHY OF SCIENCE

Semester Hours: 3

Critical assessment of the historical and logical foundations of the natural and theoretical sciences. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 312 - AMERICAN PHILOSOPHY

Semester Hours: 3

Survey of American thought with emphasis upon the development of pragmatism in the work of Pierce, James, and Dewey. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 314 - ASIAN PHILOSOPHY

Semester Hours: 3

Survey of philosophical traditions from Asia, such as various schools of Buddhism and Hinduism, Confucianism, Daoism. Topics may include: conceptions of human nature and the good life, the nature of the self and its relation to society, comparisons to philosophies from Europe and North America. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 317 - PHILOSOPHY OF MIND

Semester Hours: 3

A philosophical examination of a range of models, theories, and arguments concerning the nature of mind and its relationship to the physical world. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 320 - SYMBOLIC LOGIC

Semester Hours: 3

Symbolic deductive logic, including propositional calculus (truth-functional logic), predicate calculus (propositional functions and quantification), and the logic of relations. Prerequisite: PHL 201.

PHL 330 - CLASSICAL POLITICAL PHILOSOPHY

Semester Hours: 3

Careful analysis of the roots of political inquiry in selected works of ancient and medieval political philosophers. Major themes include the search for a just social order, the proper relationship between the citizen and the state, and other fundamental concepts of western political institutions. Prerequisite: PHL 101 or PHL 102 or PHL 202 or PSC 101.

PHL 332 - MODERN POLITICAL PHILOSOPHY

Semester 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. Prerequisite: PHL 101 or PHL 102 or PHL 202 or PSC 101.

PHL 335 - FEMINIST PHILOSOPHY

Semester Hours: 3

Philosophical examination of issues related to feminism and feminist theory. Topics may include: women in the history of philosophy, contemporary feminist political theory, feminist ethics, feminist epistemology, or gender theory (including racial and sexual identity). Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 337 - PHILOSOPHY OF RACE

Semester Hours: 3

Philosophical examination of the nature and importance of race. Topics may include: the debate between essentialist and constructionist views of race, the political importance of race, and the intersection of race and other forms of identity. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 385 - SELECTED TOPICS

Semester Hours: 3

Intensive examination of particular problems, periods, or movements in the history of philosophy. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 395 - RESEARCH SEMINAR

Semester Hours: 3

Intensive examination of particular problems, periods, or movements in the history of philosophy. Intensive examination of selected topics leading to the preparation of a substantial philosophical paper. Required of all majors. May be taken twice for credit. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 397 - PHILOSOPHY INTERNSHIP

Semester Hours: 1-3

A supervised experience in a professional environment enhanced by a student's background in philosophy. Paid or unpaid. Prerequisites: 18 hrs of PHL, JR/SR standing, minimum 3.0 GPA in PHL Major, approval of department chair.

PHL 399 - DIR STUDY IN PHILOSOPHY

Semester Hours: 1-3

Independent study in an area of philosophy selected in consultation with faculty advisor. Requires approval of department chair. Prerequisite: 3 hrs of PHL, except PHL 201.

PHL 401 - METAPHYSICS

Semester Hours: 3

Critical examination of traditional and contemporary responses to questions about the nature of reality. Prerequisite: 6 hrs of PHL, except PHL 201.

PHL 402 - EPISTEMOLOGY

Semester 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. Prerequisite: 6 hrs of PHL, except PHL 201.

PHL 403 - ADV MORAL PHILOSOPHY

Semester Hours: 3

Critical examination of significant works in moral and political philosophy such as the relationship between morality and human nature, the individual and the state, and the consequences of actions. Prerequisite: 6 hrs of PHL, except PHL 201.

PHL 438 - CONTEMPORARY POLITICAL THOUGHT

Semester 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. Prerequisite: 6 hrs of PHL or PSC, except PHL 201.

Physics (PH)

PH 100 - CONCEPTUAL PHYSICS

Semester Hours: 4

Classical and modern physics survey course. Approach physical laws conceptually and intuitively, with minimal mathematics. Motion, gravitation, energy, electricity and magnetism, quantum mechanics, physics of everyday phenomena, philosophical and historical implications. Offered Spring.

PH 100L - CONCEPTUAL PHYSICS LAB

Semester Hours: 0

PH 101 - GENERAL PHYSICS I

Semester 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. Offered Fall.

PH 101L - GENERAL PHYSICS I LAB

Semester Hours: 0

PH 101R - RECITATION

Semester Hours: 0

PH 102 - GENERAL PHYSICS II

Semester Hours: 4

Continuation of PH 101. Electrostatics, currents, magnetic phenomena, relativity, waves, quantum nature of matter. Laboratory included. Offered Spring. Prerequisite: PH 101.

PH 102L - GENERAL PHYSICS LAB II

Semester Hours: 0

PH 102R - RECITATION

Semester Hours: 0

PH 110 - FRONTIERS IN SCIENCE

Semester Hours: 3

Introduces frontiers and problems of modern physical science. Physicist present the role of physics in diverse careers and physics fields. Introduction to physics applications and future employment opportunities motivates students to master skills required in undergraduate studies. Offered Fall.

Prerequisite with concurrency: MA 171.

PH 111 - GEN PHYSICS W/CALCULUS I

Semester Hours: 3

For science and engineering students. Basic laws of physics and their application to specific problems: vectors, Newtonian mechanics, energy, conservation laws, simple harmonic motion, statics, fluids. Offered all terms. Prerequisite: MA 171 Corequisite: PH 114.

PH 111R - RECITATION

Semester Hours: 0

PH 112 - GEN PHYSICS W/CALC II

Semester Hours: 3

Continuation of PH 111. Heat and thermodynamics, basic electricity, electric and magnetic fields. Offered all terms. Prerequisite: MA 172, PH 111, PH 114. Corequisite: PH 115.

PH 112R - RECITATION

Semester Hours: 0

PH 113 - GEN PHYSICS W/CALC III

Semester Hours: 3

Continuation of PH 111 and 112. Wave motion, optics, relativity, quantum effects, atomic and nuclear structure, and elementary particles. Offered all terms. Prerequisite: MA 201 (or higher), PH 112, and PH 115. Corequisite: PH 116.

PH 113R - RECITATION

Semester Hours: 0

PH 114 - GENERAL PHYSICS LAB I

Semester Hour: 1

Laboratory instruction in support of material covered in PH 111. Offered all terms. Corequisite: PH 111.

PH 115 - GENERAL PHYSICS LAB II

Semester Hour: 1

Laboratory instruction in support of material covered in PH 112. Offered all terms. Corequisite: PH 112.

PH 116 - GENERAL PHYSICS LAB III

Semester Hour: 1

Laboratory instruction in support of material covered in PH 113. Offered all terms. Corequisite: PH 113.

PH 251 - SPECIAL RELATIVITY

Semester Hour: 1

Einstein's theory of special relativity. Invariance, geometry of Minkowski spacetime, non-Euclidean geometry; Principle of Relativity; clock synchronization; Lorentz transformations; counter-intuitive effects measured in relative motion; casualty and the speed of light; relativistic dynamics.

Prerequisite: PH 112 and MA 172. Prerequisite with concurrency: PH 113.

PH 301 - INTERMEDIATE MECHANICS

Semester Hours: 3

Reviews Newtonian mechanics, natural and driven oscillations, variational calculus and Lagrange's equations, application to central force motion, rigid body rotation and coupled oscillators. Offered Spring. Prerequisite: PH 111 and either PH 305 or MA 238.

PH 305 - MATH METHODS IN PHYSICS

Semester Hours: 3

Applied 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. Offered Spring. Prerequisite: PH 112.

PH 306 - APPLIED PHYSICS

Semester Hours: 3

Computational and numerical techniques for problem solving. Applications to classical mechanics, electrodynamics, quantum mechanics, optics, astrophysics. Offered Fall. Prerequisite: PH 305, (CS 102 or CPE 112 or CS 121) and (MA 238 or MA 244 or MA 324).

PH 310 - INTERMEDIATE LAB I

Semester Hours: 2

Experiments in classical physics. Introduction to statistical methods. Offered Fall. Prerequisites: PH 113 or 116.

PH 311 - INTERMEDIATE LAB II

Semester Hours: 2

Experiments in modern physics. Offered Spring. Prerequisite: PH 251 and PH 310.

PH 337 - ELECTRONICS

Semester 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. Offered Fall, odd years. Prerequisite: PH 112.

PH 351 - INTRODUCTION TO MODERN PHYSICS

Semester Hours: 3

Kinetic theory, Blackbody radiation, Quantum physics: wave packets, the uncertainty principle, Schrodinger's equation and solutions for simple systems, application to atomic, nuclear, and solid-state physics. Offered Fall. Prerequisite: PH 113, and either MA 238 or 244. Prerequisite with concurrency: PH 251.

PH 416 - SENIOR LABORATORY

Semester Hours: 2

Advanced experimental techniques in various sub-fields of physics. Offered Fall, Spring. Prerequisite: PH 311.

PH 420 - SENIOR THESIS

Semester Hours: 3

Research performed under direction of a faculty member. Final research report required. Offered all terms.

PH 421 - THERMAL & STATISTICAL PHYSICS

Semester 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. Offered Spring, even years. Prerequisite: PH 351. Prerequisite with concurrency: PH 301 and PH 306.

PH 431 - INTERM ELECTRICI & MAGNETISM I

Semester Hours: 3

Electostatics: electric fields, electric potential, Poisson's equation. Electric fields in matter. Magnetostatics: currents, magnetic fields. Magnetic fields in matter. Prerequisite: PH 305 and MA 201. Prerequisite with concurrency: MA 238.

PH 432 - INTERM ELECTRIC & MAGNETISM II

Semester Hours: 3

Continuation of PH 431. Maxwell's equations for time-varying fields. Electromagnetic waves. AC circuits. Radiation. Relativistic electrodynamics. Offered Spring, odd years. Prerequisite: PH 431.

PH 451 - INTRO QUANTUM MECHANICS I

Semester 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. Offered Fall. Prerequisite: PH 305, PH 351, and (MA 244 or MA 238) and PH 306 with concurrency.

PH 452 - INTRO QUANTUM MECHANICS II

Semester Hours: 3

Multiparticle systems. Atomic structure. Approximation methods. Scattering. Applications to nuclear, atomic, and molecular systems. Offered Spring. Prerequisite: PH 451.

PH 453 - INTRO TO PARTICLE PHYSICS

Semester Hours: 3

Surveys elementary particle physics, 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. Prerequisite with concurrency: PH 451.

PH 474 - INTRO TO GENERAL RELATIVITY

Semester Hours: 3

Introduces general relativity and gravitational physics as inferred from the behavior of particles and light rays for a selection of spacetimes. Major properties of black holes, wormholes, gravitational waves. Physics First approach, and introduces new math as required for discussion of physics. Prerequisite: PH 251 and PH 301.

PH 480 - SELECTED TOPICS

Semester Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, and space physics. Offered all terms. Prerequisite: PH 113 and MA 201.

PH 489 - SELECTED TOPICS

Semester Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Offered all terms. Prerequisites: PH 113 or 116 and MA 201.

PH 499 - PHYSICS PRACTICUM

Semester Hours: 3

"Capstone" course designed to provide real-world research experience for graduation seniors. Students work individually with faculty members on projects. Requires oral presentation and final research report. Offered all terms. Required courses on the POS must be taken prior to, or concurrently with, this course.

Political Science (PSC)

PSC 101 - INTRO TO AMERICAN GOVERNMENT

Semester Hours: 3

What motivates individuals and groups to act politically? This course introduces students to political structures, decision-making, and public policy in the U.S. The role of history in the development of current institutional structures and current political developments will be considered.

PSC 102 - INTRO TO COMPARATIVE POLITICS

Semester Hours: 3

In this class we explore ways to compare countries and political systems. We study a wide variety of countries for a better understanding of political dynamics around the world. This includes countries at various stages of industrialization and democratization, in different regions of the globe.

PSC 103 - INTRO TO STATE & LOCAL GOVT

Semester Hours: 3

Surveys the principles, forms, functions, and processes of state and local governments in the context of the American federal system, with specific emphasis on the political environment. Students will better understand the major functions of -and the issues facing- state and local governments.

PSC 260 - INTRODUCTION TO INTERNATIONAL RELATIONS

Semester Hours: 3

Examination of the basic factors underlying the conduct of international relations, focusing on conflict and changes taking place due to globalization. This course also seeks to stimulate intellectual curiosity, enhance critical thinking, and improve oral and writing skills.

PSC 300 - INTRO SOCIAL SCIENCE STATISTIC

Semester Hours: 3

This course covers basic statistical concepts, techniques, and the language of statistics; simple statistical modeling correlation and regression analysis; and nonlinear models and categorical models. Students will apply appropriate methods to analyze real world problems.

PSC 302 - THE AMERICAN CONGRESS

Semester Hours: 3

Studies the organization and role of the Congress, its leadership, internal processes, and relationships with other parts of the political system. The goal is to understand why Congress looks and acts the way it does, whose interests are represented, and how and why policies emerge as they do. Prerequisite: PSC 101.

PSC 304 - AMERICAN PRESIDENCY

Semester Hours: 3

Examination of the institution of the American presidency, its power, and the forces that shape it. Focus on developing students' ability to think conceptually and critically about the presidency, the president's role in the the political system, and American politics in general. Prerequisite: PSC 101.

PSC 309 - POLI PARTIES/INTEREST GR

Semester Hours: 3

A survey of major linkages between citizens and government, this course studies the formation, organization, activities, and impacts of political parties and interest groups - and factors affecting them. Students will think critically about these institutions and their roles in the American system. Prerequisite: PSC 101.

PSC 330 - CLASSI POLITI PHILOSOPHY

Semester Hours: 3

Careful analysis of the roots of political inquiry in selected works of ancient and medieval political philosophers. Major themes include the search for a just social order, the proper relationship between the citizen and the state, and other fundamental concepts of western political institutions. Prerequisite: PSC 101 or PHL 101 or PHL 102 or PHL 202 or permission of instructor.

PSC 332 - MODERN POLITICAL PHILOSO

Semester 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. Prerequisite: PSC 101 or PHL 101 or PHL 102 or PHL 202 or permission of instructor.

PSC 334 - AMER POLITICAL THOUGHT

Semester 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. Prerequisite: PSC 101.

PSC 399 - CURRENT AFFAIRS

Semester Hour: 1

An examination of current national and international issues. Focus is on developing critical reading, listening, and writing skills. The course may be repeated up to three times.

PSC 420 - FEDERALISM & INTERGOV RELATION

Semester Hours: 3

Designed to help students navigate complex relationships among the 90,000+ government in the U.S., this course examines the framework of federalism and the tools available to governments to influence public policy outcomes. Students will investigate the impacts of these relationships on policy. Prerequisite: PSC 101.

PSC 436 - POLITICAL IDEOLOGIES

Semester Hours: 3

Critical examination of the philosophical foundations and political ethics of contemporary political ideologies. Among the major ideologies studied will be relevant examples of conservatism, liberalism, Marxism, Nazism, and religion, such as liberation theology and Islamism. Prerequisite: PSC 101.

PSC 438 - CONTEMPORARY POLITICAL THOUGHT

Semester 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.

PSC 440 - REGIONAL STUDIES

Semester Hours: 3

This class compares and examines the politics of Asia, Latin America, the Middle East, or Africa, depending on the term. We focus on select countries of themes within each region as part of our study of political structures, history, and culture, for a deeper understanding of each area. Prerequisites: PSC 101 and PSC 102.

PSC 451 - LAW, COURTS, & PUBLIC POLICY

Semester Hours: 3

Examines the role of the courts in the making of public policy in the United States, with an emphasis on the use of the courts by interest groups seeking to achieve specific policy goals. Prerequisite: PSC 101.

PSC 452 - AMER CONSTITUTIONAL LAW

Semester Hours: 3

Examination of the structure of the federal government and its powers through an analysis of leading cases from the Supreme Court. Topics include federalism, separation of powers, and the proper role and decision-making process of the Supreme Court. Prerequisite: PSC 101.

PSC 454 - CIVIL LIBERTIES

Semester Hours: 3

Examines the relationship between the government and individuals in American society through an analysis of Supreme Court cases. The focus is on contemporary questions about the rights of individuals and appropriate limits to freedom of action set by government. Prerequisite: PSC 101.

PSC 462 - DECISION-MAKING FORGN & SEC POLY

Semester Hours: 3

An examination of the history, culture, policies, and structures shaping the development of U.S. foreign and national security policies. Special attention will be placed on the roles of Congress, National Security Council, Defense Department, State Department, and the intelligence community. Prerequisite: PSC 101.

PSC 464 - AMERICAN FOREIGN POLICY

Semester Hours: 3

An examination of the substance of contemporary U.S. foreign policies and the goals the country seeks to achieve around the world. Students will attempt to evaluate the effectiveness of those policies and examine why it is often difficult for the country to achieve its goals. Prerequisite: PSC 101.

PSC 466 - NATIONAL SECURITY STRGY & POLY

Semester Hours: 3

An examination of current U.S. national security strategy and policy. The course will review current strategy and policy documents, examine specific responses to the variety of threats facing the United States, and evaluate whether those policies are effective at achieving their goals. Prerequisite: PSC 101.

PSC 470 - ISSUES IN SECURITY POLICY

Semester Hours: 3

Examination of select security-related policy issues. The content of this course will vary during different terms, and students may take the course multiple times so long as the content differs. Prerequisite: PSC 101.

PSC 480 - ADVANCED TOPICS IN PSC

Semester Hours: 3

Select topics in local, state, national and world politics. This course may be repeated for credit as long as content of the course has changed.

PSC 484 - SENIOR SEMINAR

Semester Hours: 3

This class engages students in an advanced examination of the subfields of political science that are offered by the department. The course may be repeated with different faculty for up to 6 hours of credit. Prerequisites: PSC 101 and PSC 102.

PSC 495 - INTERNSHIP IN GOVERNMENT

Semester Hours: 1-6

Students may receive academic credit for an internship with a local, state, or federal governmental agency, or with political, legal, or public policy related organizations. Prerequisite: Instructor Permission.

PSC 498 - DIRECTED READINGS & RESEARCH

Semester Hours: 3

Supervised in-depth readings and/or individual research in an area of specialized interest to both student and instructor. Open to all students who have completed 15 semester hours in Political Science and have permission of the instructor.

Professional Studies (PRO)

PRO 280 - PRIVATE PILOT GROUND SCHOOL

Semester Hours: 3

Prepares student for FAA Private Pilot written examination. Provides student with necessary knowledge to progress into primary pilot flight training. A kit for approximately \$150 must be purchased.

PRO 301 - THRY & PRAC ADULT LEARNING

Semester Hours: 3

This course presents an overview of five foundational learning theories and related research in adult education and development. The conceptual framework is centered on discovering what motivates the adult learner and the impact social perspectives have on adult learning through analysis and discussion. Students will define competencies needed for success in academic study and professional leadership, in setting educational goals, and in planning a learning experience to achieve them. Emphasis is placed on issues unique to adult re-entry students and the university services available to support nontraditional students.

PRO 310 - ACADEMIC WRITING PROFESS STUDI

Semester Hours: 3

Students will learn academic writing skills by engaging in the process of academic inquiry and argument. The course will cover a broad perspective of writing by exploring various writing and research styles used through different academic professions. Prerequisites: EH 102 or EH 105.

PRO 320 - INDS PERSPECT & CRITICAL THNKG

Semester Hours: 3

Interdisciplinary studies fosters foundational knowledge acquisition by which individuals draw on multiple disciplinary perspectives and integrate their insights and modes of thinking to advance the studies and the fundamental development of critical and analytical thinking skills. Complex issues are addressed from multi-faceted perspectives that stimulate problem solving, problem defining and problem posing. Emphasis is placed on how to synthesize evidence drawn from multiple sources as a basis for informed decision-making.

PRO 325 - INDS RESEARCH & APPLICATIONS

Semester Hours: 3

Interdisciplinary research is a contemporary decision-making process for transcending the scope of a single discipline or program to develop insights that offer bold advances in knowledge, solutions to urgent societal problems, an edge in technological innovations, and a more integrative knowledge of multidisciplinary theories and concepts. This course introduces the primary drivers for interdisciplinary research and examines the interdisciplinary research process. Students will apply an integrated model for conducting research that draws on multiple disciplines. Prerequisites: PRO 310 and PRO 320.

PRO 398 - SPEC TOPICS: INTERDISC STUDIES

Semester Hours: 3

Course uses an interdisciplinary approach to draw on intersecting and divergent knowledge from a variety of scholarly disciplines in order to create an in-depth and multi-faceted understanding of a particular instructor chosen issue, topic or problem. Prerequisite: EH 102.

PRO 399 - INDEP STUDY: INTERDISC STUDIES

Semester Hours: 3

Course allows individual students to pursue an interdisciplinary topic of interest which is not otherwise available and may involve any combination of readings assignments, tutorials, lectures, papers, presentations, or field/laboratory study (determined in consultation with instructor). Prerequisite: PRO 325.

PRO 498 - INQUIRY AND LEARNING

Semester Hours: 3

Inquiry-based learning accelerates understanding, fosters critical thinking skills, and facilitates self-direction and discovery. Using this method, students will identify an interdisciplinary problem related to their approved concentration area, perform the foundational research, and formulate a research proposal. This is the first of a two-semester progression to complete a Capstone research thesis/project in PRO 499. Prerequisite: PRO 325.

PRO 499 - CAPSTONE EXP: RSCH THESIS/PROJ

Semester Hours: 3

Students majoring in Professional Studies are required to complete a senior research thesis in their approved interdisciplinary concentration. This Capstone course requires the student to demonstrate his/her ability to integrate the core knowledge and skills gained in their interdisciplinary areas of study using inquiry-based learning methods. Research is conducted and a thesis-style paper is written and orally presented. Prerequisite: PRO 498 with minimum grade of C-.

Psychology (PY)

PY 101 - GENERAL PSYCHOLOGY I

Semester Hours: 3

Introduction to methods and research findings in the field. Topics include learning, memory, cognition, human development, personality theories, and abnormal behavior. Credit for PY 101 may be obtained by either Advanced Placement (AP) or the College Level Examination Program (CLEP).

PY 102 - APPLICATIONS IN PSYCHOLOGY

Semester 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 and attending lectures. Prerequisite: PY 101.

PY 105 - GEN EXPERIMENTAL PSYCHOLOGY

Semester Hours: 4

PY 201 - LIFE-SPAN DEVELOPMENT

Semester Hours: 3

Examination of the psychological, social, and physical factors that affect human behavior and development from conception to death. Prerequisite: PY 101.

PY 300 - PSYCHOLOGICAL STATISTICS

Semester Hours: 3

Introduction to psychological statistics, with an emphasis on quantitative analysis of experimental data. Topics covered include probability, descriptive statistics, and hypothesis testing. Prerequisite: MA 107 or MA 110 or MA 112 or MA 113 or MA 115 or MA 120 or MA 171. Corequisite: PY 300L.

PY 300L - PSYCHOLOGICAL STATISTICS LAB

Semester Hour: 1

This course is an introduction to analyzing data with computerized statistical software. This 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. Corequisite: PY 300.

PY 301 - PERSONALITY

Semester Hours: 3

Examinations of various theories of personality with possible implications for research. Prerequisite: PY 102.

PY 302 - EXPERIMENTAL PSYCHOLOGY

Semester Hours: 4

Design and execution of experiments in psychology. Data analysis and manuscript preparation. Prerequisite: PY 102 and PY 300 and PY 300L OR AHS 300.

PY 303 - PY RESEARCH METHODS

Semester Hours: 3

Students will learn the fundamentals of psychological research - how to form research questions and hypotheses, select an appropriate design to ethically address specific research questions, and how to critically evaluate research and findings. Student will also be taught about creating surveys, interviewing and observing participants. Prerequisites: PY 101, PY 102, PY 300 and PY 300L.

PY 310 - CHILD PSYCHOLOGY

Semester Hours: 3

PY 316 - PERCEPTION

Semester Hours: 3

Examines sensory systems and elements of perception. Topics include vision research, audition, chemical senses, and body sensations. Prerequisite: PY 102.

PY 317 - PHILOSOPHY OF MIND

Semester Hours: 3

The problem of the nature of mind and its relationship to the physical world has been a perennial concern of philosophy. This course examines, theories, and arguments concerning the nature of mind. Prerequisite: PY 102.

PY 324 - WORK DESIGN

Semester Hours: 3

Introduces the portion of the design process that uses basic principles of methods analysis and ergonomics to fit a task to the human operator. Methods analysis topics include: work measurement, job analysis, and job evaluation. Prerequisite: PY 300 or ISE 390.

PY 330 - NONVERBAL COMMUNICATION

Semester Hours: 3

Examines the diversity of human nonverbal behavior and its influences on everyday communication experiences. Same as CM 330. Prerequisite: PY 101.

PY 333 - PY OF ADJUSTMENT & ADAPTATION

Semester Hours: 3

PY 333 will explore psychological approaches to understanding, managing, and modifying our physical and emotional well-being. Students will learn ways to apply psychological principles and concepts to enhance coping with various issues of adulthood. Relationships with others, the environment and the self will be examined. Prerequisites: PY 101 and PY 102.

PY 375 - SOCIAL PSYCHOLOGY

Semester 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. Prerequisite: PY 101 or SOC 100.

PY 399 - PROFESSIONAL DEV FOR PSY MAJOR

Semester Hour: 1

Development of skills related to graduate work and to occupations in psychology. Career and internship exploration, resume and graduate school exploration. Exposure to work and research related topics, such as teamwork and ethics. Prerequisite: PY 102.

PY 400 - INTRO TO CLINICAL & COUNSELING

Semester Hours: 3

PY 400 introduces clinical/counseling psychology and professional psychology. History of diagnosis and treatment, theoretical models in counseling, contemporary practice models, research basis of clinical/counseling psychology, empirically validated therapies, and doctoral program models are covered. Prerequisite: PY 101 and Sophomore standing or higher.

PY 402 - INDUSTRIAL & ORGANIZA PSY

Semester 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. Prerequisite: PY 102.

PY 403 - HUMAN FACTORS PSYCHOLOGY

Semester Hours: 3

Human performance in human-technology-environment systems. Includes consideration of human capabilities and limitations as related to controls and displays. Open to students who have completed 15 hours of psychology. Prerequisite: PY 102.

PY 404 - THEORIES OF COUNSELING

Semester Hours: 3

This course is designed to introduce theories of psychotherapy and the process of psychotherapy and counseling. This course is a survey of counseling/psychotherapy models and techniques with emphasis on Empirically Validated Therapies (EVT) and traditional models with substantial support in the research and clinical literature.

PY 405 - PSYCHOPHARMACOLOGY

Semester Hours: 3

Introduction to drug classification and action with emphasis on physiological psychological interactions. Open to students who have completed 15 hours of psychology. Prerequisite: PY 102.

PY 406 - PSYCHOLOGY OF WOMEN

Semester 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, and victimization of women. Open to students who have completed 15 hours of psychology. Senior Standing Prerequisite: PY 102.

PY 407 - CROSS-CULTURAL PSYCHOLOGY

Semester Hours: 3

Examines psychological similarities and differences between members of industrialized and non-industrialized cultures. Comparisons will include development, social interaction, and perception. Open to students who have completed 15 hours of psychology. Senior Standing. Prerequisite: PY 102.

PY 408 - TEAMWORK & TEAM PROCESSES

Semester 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. The types of research designs that are typically used in team research are addressed. Junior Standing.

PY 409 - PSYCHOLOGY OF AGING

Semester Hours: 3

PY 409 examines psychological processes in adulthood and aging. Emphasis is placed on contemporary theories, methodological issues, and how psychological, biological, social, and environmental factors interact to predict growth, maintenance, or decline in abilities throughout adulthood and aging. Prerequisite: PY 101.

PY 414 - HUMAN RESEARCH:LEARNING

Semester Hours: 4

Analysis of learning principles from simple relationships with animals to the complexities of human language and problem solving. Prerequisite: PY 102.

PY 415 - DEVELOPMENTAL PSYCHOLOGY

Semester Hours: 3

Examines sensory systems and elements of perception. Topics include vision research, audition, chemical senses, and body sensations. Prerequisite: PY 102.

PY 420 - SPECIAL TOPICS

Semester 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. Prerequisite: PY 102.

PY 422 - INDIVIDUAL RESEARCH

Semester 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. Prerequisite: PY 102.

PY 426 - HISTORY & SYSTEMS IN PSY

Semester 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. Prerequisite: PY 102.

PY 434 - PSYCHOLOGY AND LAW

Semester 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 can contribute to a better understanding of issues related to law. Open to students who have completed 15 hours of psychology. Prerequisite: PY 302.

PY 435 - PSYCHOPATHOLOGY

Semester 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. Prerequisite: PY 102.

PY 436 - BIOLOGICAL PSYCHOLOGY

Semester 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 STRESS & ILLNESS

Semester 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. Prerequisite: PY 102.

PY 480 - COGNITION

Semester 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. Prerequisite: PY 102.

PY 488 - PY SERVICES INTERNSHIP

Semester Hours: 1-3

This course provides a supervised experience in a professional environment for students to apply their psychological skills to projects outside the classroom, facilitate their entry into the job market in psychological services after graduation, and enhance their pre-professional experience.

Prerequisites: 18 hrs of Psychology courses; junior or senior standing; minimum 2.5 GPA in major, chair's approval.

PY 490 - READINGS IN PSYCHOLOGY

Semester 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. Prerequisite: PY 102.

PY 491 - SPECIAL TOPICS IN PSYCHO

Semester Hour: 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. Prerequisite: PY 102.

PY 492 - SPECIAL TOPICS IN PSYCHO

Semester 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. Prerequisite: PY 102.

PY 498 - HUMAN RESEARCH I

Semester 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. Offered Fall Semester only. Prerequisite: PY 302.

PY 499 - HUMAN RESEARCH II

Semester Hours: 3

Continuation of PY 498. Open to students who have completed 15 hours of psychology. Prerequisite: PY 498 and approval of instructor. Offered Spring Semester only.

Sociology (SOC)

SOC 100 - INTRO TO SOCIOLOGY

Semester Hours: 3

An introduction to the critical and scientific study of society, culture, social institutions and social change. Illuminates the social and cultural context of our lives and is useful for exploring contemporary social issues, problems and change in society.

SOC 102 - ANALYSIS OF SOCIAL PROBLEMS

Semester Hours: 3

Application of the sociological perspective to understanding important contemporary social issues and the social actions and policies that attempt to address them. This course will explore different approaches to understanding the causes of social problems as well as social responses to them. Prerequisite: SOC 100.

SOC 105 - INTRO CULTURAL ANTHROPOLOGY

Semester Hours: 3

Cultural anthropology is one of the four sub-fields of anthropology concerned with a deeper understanding of cultural differences. This course examines cultural diversity in human behavior, social institutions, belief systems, and cultural change from a global and comparative perspective.

SOC 150 - SOCIOLOGICAL PERSP TECH & SCI

Semester 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.

SOC 206 - MARRIAGE AND FAMILY

Semester Hours: 3

Explores family forms and functions across history and across cultures. Students will learn how the family affects and is affected by other social institutions, recent trends in the American family, the contexts in which marriage and families evolve, and key inequalities within and between families. Prerequisite: SOC 100.

SOC 301 - RESEARCH METHODS

Semester Hours: 3

The object of this course is for students to be able to read, interpret, and explain scientific research in social science. Course covers key elements and process of sociological research methods, both qualitative and quantitative.

SOC 302 - SOCIOLOGICAL THEORY

Semester Hours: 3

This course traces the development of major trends of sociological theory, past and present, and major theoretical problem areas. It also addresses how the socio-historical context within which the texts were written influences the issues and ideas expressed. Prerequisite: SOC 100.

SOC 303 - STATISTICS/SOCIAL SCIENCES

Semester Hours: 3

Introduction to the basic quantitative data analysis techniques used by social scientists. Explore the ways researchers use statistics to examine and test ideas about the social world. In the lab, students learn how to use the statistical software SPSS to analyze social science datasets. Prerequisite: SOC 100 and one of the following math courses: MA 107, MA 110, MA 112, MA 113, MA 115, MA 120, MA 171.

SOC 304 - STATISTICS LAB

Semester Hour: 1

SOC 306 - SOCIOLOGY OF GENDER

Semester Hours: 3

Explores how social relationships create, structure and reinforce gender differences and inequalities. Students will learn about the social construction of gender, gender socialization, gender roles, and gender inequalities in income, poverty, occupation, and violence. Prerequisite: SOC 100.

SOC 307 - SOCIOLOGY OF LAW

Semester Hours: 3

This course examines the relationship between law and society from a variety of theoretical perspectives. Topics include the social organization of legal institutions, cultural meanings of law, and social interactions among different actors in the legal context (police, lawyers, judges, legislators, etc). Prerequisite: SOC 100.

SOC 319 - DEVIANCE & SOCIAL CONTROL

Semester 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. Prerequisite: SOC 100.

SOC 320 - SOCIOLOGY OF RELIGION

Semester Hours: 3

Study of religion as a social phenomenon. The course examines sociological theories of religious behavior, religious beliefs, religion as a social institution, religious organization, new religious movements, and religion and social change.

SOC 330 - RACE AND ETHNICITY

Semester Hours: 3

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. Prerequisite: SOC 100.

SOC 340 - SPECIAL TOPICS

Semester 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. Prerequisite: SOC 100.

SOC 350 - SOCIAL STRATIFICATION

Semester Hours: 3

This course explores the causes and consequences of social stratification (focusing on economic inequality) in the United States, including: wealth and income disparities, labor markets, elites/power, impact of gender and race, privilege and oppression, and economic and social welfare policy. Prerequisite: SOC 100.

SOC 369 - ENVIRONMENTAL SOCIOLOGY

Semester Hours: 3

Examines the ways in which society and the natural environment interact and shape each other. This course engages with the major debates in the field of environmental sociology in order to better understand the challenges and options humans face as we head further into global environmental crisis.

Prerequisite: SOC 100.

SOC 375 - SOCIAL PSYCHOLOGY

Semester 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. Prerequisites: SOC 100 or PY 101.

SOC 376 - MASS MEDIA IN AMERICA

Semester Hours: 3

Mass communication theory, history of American mass media, and criticism of contemporary forms and functions of mass media of communication in the U.S. Prerequisite: SOC 100.

SOC 390 - READINGS & INDIVIDUAL RES

Semester 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. Prerequisite: SOC 100.

SOC 395 - COMMUNITY SERVICES INTERNSHIP

Semester Hours: 3

An experiential-learning course for students who envision working in social service organizations. Internship opportunity is initiated by student and course includes an academic component of readings and assignments agreed upon by student, organizational representative and the internship Coordinator. Prerequisite: SOC 100.

SOC 415 - SOCIOLOGY OF GLOBALIZATION

Semester 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. Prerequisite: SOC 100.

SOC 425 - SOCIOLOGY OF EDUCATION

Semester Hours: 3

This course examines education systems and policies from a sociological perspective. We ask what and how students learn, the function of schools in society, results of recent policy decisions, and how educational systems interact with political, economic, cultural and family institutions. Prerequisite: SOC 100 and Junior or Senior Standing.

SOC 431 - ADVANCED SPECIAL TOPICS

Semester Hours: 3

Special topics of current sociological interest. Course title, credit hours and prerequisites will appear in course schedule. May be taken more than once for credit as long as subtitles differ. Different from SOC 340 Special Topics in terms of level of expectations and/or, prerequisites. Prerequisite: SOC 100.

SOC 435 - SOCIOLOGY OF SOCIAL MOVEMENTS

Semester Hours: 3

This course focuses on a variety of issues related to social movements, including questions about the origins and causes of social movements, the cultural, social and political contexts that impact movements, how movements mobilize people, and the use of strategies and tactics. Prerequisite: SOC 100 AND EITHER SOC 202 OR 300 OR 301.

SOC 439 - COMPLEX ORG INDUSTRIAL SOCIETY

Semester Hours: 3

Mainstream and critical sociological theories for understanding complex organizations in industrial society. Explores historical development, structure and processes, contradictions and conflict, and alternative forms of organizations in contemporary society. Prerequisite: SOC 100.

SOC 444 - SOCIOLOGY OF CULTURE

Semester Hours: 3

Examines the cultural dimensions of important social processes including race, class, gender, power, and resistance. Theoretical and empirical analyses of both high and popular cultural forms and processes of cultural production in various social settings. Prerequisite: SOC 100.

SOC 455 - SOC OF WORK & OCCUPATION

Semester 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, work-leisure relationship. Prerequisite: SOC 100.

SOC 469 - ENVIRONMENTAL JUSTICE

Semester Hours: 3

Examination of (1) how social, economic, and political processes at the local and global levels contribute the distribution of both environmental 'goods' (e.g., clean air and water) and environmental 'bad's (e.g., toxic waste and pollution); (2) the principles and strategies of the environmental justice movement; (3) the interrelations between local and global level processes and their impact upon environmental inequality and the efforts and opportunities of the environmental justice movement. Prerequisites: SOC 100.

SOC 480 - SOCIOLOGY SCIENCE & TECHNOLOGY

Semester Hours: 3

Explores how social relations produce scientific knowledge, the role of science in politics, how men and women move through careers in science differently, how technologies are socially constructed, and the relationship between culture, technology, and the evolution of civilizations. Prerequisite: SOC 100.

SOC 495 - SENIOR CAPSTONE SEMINAR

Semester Hours: 3

Senior majors employ skills and knowledge acquired from courses to develop independent research projects. Course is designed to guide the research process with a focus on literature review, hypothesis development, data collection and analysis, and writing of a research article or formal report resulting from an internship. Prerequisite: SOC 301.

Statistics (ST)

ST 281 - ELEMENTS OF STAT ANALYSIS

Semester Hours: 3

Descriptive statistics, fundamentals of probability theory, fundamentals of statistical inference, including estimation and hypothesis testing, and use of typical statistical package such as MINITAB. Prerequisites: MA 113 or MA 115 or Level 2 Placement.

ST 287 - APPLIED STATISTICS I

Semester Hours: 3

ST 487 - INTRO TO MATH STATISTICS

Semester Hours: 3

Brief review of basic probability theory, sampling distributions, estimations, hypothesis testing, experimental design, correlation and regression, analysis of variance, and nonparametric statistics. Prerequisites: MA 201 and either MA 385 or ISE 390.

Theatre (TH)

TH 100 - STAGECRAFT

Semester Hours: 3

This course will provide students with the basic knowledge of stage construction, its practices, and implementation. Additional hands-on experience will be gained by working outside of class hours in the scene shop assisting in the construction and installation of main-stage productions.

TH 110 - VOICE AND DICTION

Semester Hours: 3

Examines and practices methods of adjusting vocal articulation, tone, pitch, pace, volume, resonance, and pronunciation for improving or changing voice quality and accents. Understanding the vocal instrument prepares students for acting and for positive self-presentation in the real world.

TH 122 - THEATRE APPRECIATION

Semester Hours: 3

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

TH 150 - SCRIPT ANALYSIS

Semester Hours: 3

This course is a hands-on look into script analysis, using plays from the western theatre canon, some of which will be produced by UAH Theatre during the school year. There will be individual and group work in script analysis, culminating in a full script analysis project at the end of the semester.

TH 221 - ACTING

Semester Hours: 3

This course explores the foundations of acting through an understanding of basic techniques including scene study, script analysis, improvisation, and physical and vocal work. Offered every semester.

TH 225 - ELEMENTS OF THEATRE PRODUCTION

Semester 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. Offered every Spring. Prerequisite: TH 122 or CM 122 or permission of instructor.

TH 321 - ACTING II

Semester Hours: 3

Acting II is a Stanislavsky-based class which will further the growth of skills learned in Acting I, as it applies to more complex characterization. Class work will include sensory exercises, relaxation, concentration, imagination, improvisation, character analysis, and scene work. Prerequisite: TH 221.

TH 322 - THEATRE HISTORY I

Semester 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. Offered every two years.

TH 323 - THEATRE HISTORY II

Semester Hours: 3

Explores the development of theatre art from its origins as rituals around the world to French neoclassicism and Moliere with particular emphasis on the Greeks, Shakespeare, and his contemporaries. Offered every two years.

TH 324 - MODERN AMERICAN THEATRE

Semester Hours: 3

This course is a seminar-style study of current American theatre and plays written in the 21st century. To that end, we will read and write about 8 current American plays, and other articles from theatre journals. At the end of the class, students will understand and be able to explicate in writing, spoken presentation, and/or through creative activity, the present, and possible future impacts of current American theatre on American society.

TH 330 - STAGE MANAGEMENT

Semester Hours: 3

This course concerns the role of the Stage Manager in theatrical productions. It focuses on the stage manager's duties, responsibilities, and procedures from pre-production to post-production. It explores the functions of various members of the production team and how the stage manager's interaction with each member of this team varies. It considers the role of the stage manager as the hub of communication for a production. Prerequisites: TH 122 and TH 225.

TH 340 - SPECIAL TOPICS IN THEATRE

Semester Hours: 3

Topics announced in advance. Representative topics include playwriting, directing, and ancient Greek theatre. May be repeated twice for credit.

TH 355 - SCENE DESIGN

Semester Hours: 3

This class introduces students to the many facets, both artistic and engineering-based, of scene design for the theatre including: history, research, design, stage, direction, technical direction, scenic art and props. Prerequisites: TH 100 and TH 225.

TH 375 - SOUND DESIGN

Semester Hours: 3

This course offers an exploration of the sound design process for the theatre. Script analysis and creating a design concept will underline the structure of the course. The students will have the opportunity to use a DAW (digital audio workstation) and various computer software programs including QLab. The course includes an overview of digital audio data structures, "plug-ins", processing, equalization and standard solutions for interfacing external devices with a computer. The students will participate in two productions and gain valuable hands-on experience. There will be an emphasis on the creative possibilities of sound design for the theatre and multimedia. Prerequisites: TH 225.

TH 390 - TEACHING THEATRE

Semester Hours: 3

This course is designed to help students develop the skills required to coach and direct student actors, focusing on best practices in teaching the fundamentals of directing, including various assessment rubrics and adapting activities to different age groups. The course emphasizes learning by doing. Prerequisite: TH 221.

TH 400 - INTERNSHIP IN THEATRE

Semester Hours: 1-3

Practical experience in the workplace allows the student to apply principles, theories, and skills learned in Theatre Program courses. Arranged by the student with consent of the director of the Theatre Program, the student meets regularly with a faculty advisor, keeps a log of activities, and submits a report on the internship. Prerequisite: Senior Standing with TH major, and permission of instructor.

TH 421 - ACTING III

Semester Hours: 3

This class explores non-realist acting techniques, as a way to expand understanding of different performance and period styles. Students will work in historical periods from the Italian and Elizabethan renaissances and more contemporary styles. Prerequisite: TH 321.

TH 425 - THEATRE MAINSTAGE

Semester Hours: 1-3

This course provides students with an opportunity to experience the complete process of theater 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. Offered every semester.

TH 431 - SR SEM THEA THEORY/RESEARCH

Semester Hours: 3

Senior capstone course involving either a scholarly project or an approved communication-intensive internship combined with a comprehensive examination. Prerequisites: senior standing with TH major, and approval of instructor.

TH 465 - DIRECTING

Semester Hours: 3

In this course, students will develop their skills in theatrical directing and production using script analysis, visual composition, design, and communication. Students will complete hands-on directing scene projects, supplemented with written analysis, dramaturgical research, and design images. Prerequisites: TH 105, and TH 322 or TH 323.

TH 475 - ENTREPRENEURSHIP

Semester Hours: 3

This course explores the current state of the entertainment industry's job market. Students from design, performance, video production, and dramaturgy build and refine the materials they will need to be employed within the entertainment industry. Prerequisites: TH 421, or TH 390, or TH 355, or TH 322 & TH 323.

TH 480 - DRAMATURGY

Semester Hours: 3

Study of the fundamental skills and practical collaborative processes needed to dramaturg a work of theater. Prerequisites: TH 150 and either TH 322 or TH 323.

Womens and Gender Studies (WGS)

WGS 200 - INTRO WOMEN'S & GENDER STUDIES

Semester Hours: 3

Focusing on gender as a fundamental category of meaning, the course will introduce methods and approaches to Women's and Gender Studies in a variety of disciplines, examining the pervasive and often unacknowledged ways that gender changes our social institutions, individual knowledge, and interpersonal relationships. The course includes guest lectures by many of our faculty teaching courses in the Women's and Gender Studies minor.

WGS 340 - SPECIAL TOPICS

Semester Hours: 1-3

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

WGS 499 - INDEPENDENT STUDY

Semester Hours: 1-3

World Languages and Cultures (WLC)

WLC 101A - INTRO FOREIGN LANG I: ARABIC

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 101F - INTRO FOREIGN LANG I:FRENCH

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 101G - INTRO FOREIGN LANG I:GERMAN

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 101J - INTRO FOREIGN LANG I:JAPANESE

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 101MS - INTRO TO MEDICAL SPANISH

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts with special emphasis on medical terminology and tasks. Conducted in the target language. No prerequisites.

WLC 101R - INTRO FOREIGN LANG I:RUSSIAN

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 101S - INTRO FOREIGN LANG I: SPANISH

Semester Hours: 3

Teaches beginning listening, speaking, reading and writing within cultural contexts. Conducted in the target language. No prerequisites.

WLC 102A - INTRO FOREIGN LANG II: ARABIC

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101A or placement by exam.

WLC 102F - INTRO FOREIGN LANG II:FRENCH

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101F or placement by exam.

WLC 102G - INTRO FOREIGN LANG II:GERMAN

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101G or placement by exam.

WLC 102J - INTRO FOREIGN LANG II:JAPANESE

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101J or placement by exam.

WLC 102MS - INTRO TO MEDICAL SPANISH II

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts with special emphasis on medical terminology and tasks. Conducted in the target language. Prerequisites: WLC 101MS.

WLC 102R - INTRO FOREIGN LANG II:RUSSIAN

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101R or placement by exam.

WLC 102S - INTRO FOREIGN LANG II:SPANISH

Semester Hours: 3

Teaches beginning listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 101S or placement by exam.

WLC 199A - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in world languages, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 199F - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in foreign language, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 199G - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in foreign language, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 199J - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in world languages, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 199R - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in foreign language, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 199S - SPECIAL TOPICS

Semester Hours: 3

Study of special topics in foreign language, literature, or culture on campus or abroad. Prerequisites: Placement by exam.

WLC 201A - INTERM FOREIGN LANG I: ARABIC

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102A or placement by exam.

WLC 201F - INTERM FOREIGN LANG:FRENCH

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102F or placement by exam.

WLC 201G - INTERM FOREIGN LANG:GERMAN

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102G or placement by exam.

WLC 201J - INTERM FOREIGN LANG: JAPANESE

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102 or placement by exam.

WLC 201R - INTERM FOREIGN LANG:RUSSIAN

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102R or placement by exam.

WLC 201S - INTERM FOREIGN LANG:SPANISH

Semester Hours: 3

Teaches intermediate listening, speaking, reading, and writing within cultural contexts. Conducted in the target language. Prerequisite: WLC 102S or placement by exam.

WLC 202A - INTERM FOREIGN LANG II: ARABIC

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201A or placement by exam.

WLC 202F - INTERM FOREIGN LANG II:FRENCH

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201F or placement by exam.

WLC 202G - INTERM FOREIGN LANG II:GERMAN

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201G or placement by exam.

WLC 202J - INTERM FORGN LANG II:JAPANESE

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201J or placement by exam.

WLC 202R - INTERM FOREIGN LANG II:RUSSIAN

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201R or placement by exam.

WLC 202S - INTERM FOREIGN LANG II:SPANISH

Semester Hours: 3

Teaches listening, speaking, reading and writing within cultural contexts. Conducted in the target language. Prerequisites: WLC 201S or placement by exam.

WLC 204 - INTERNATIONAL CINEMA

Semester Hours: 3

Analyzes foreign language films centered on changing themes, such as gender issues, family, religion, children and society, the arts. Conducted in English. No prerequisite.

WLC 301A - CONVERSATION: ARABIC

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202A or placement by instructor.

WLC 301F - CONVERSATION:FRENCH

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202F or placement by exam.

WLC 301G - CONVERSATION:GERMAN

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202G or placement by exam.

WLC 301J - CONVERSATION:JAPANESE

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202J or placement by exam.

WLC 301R - CONVERSATION:RUSSIAN

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202R or placement by exam.

WLC 301S - CONVERSATION:SPANISH

Semester Hours: 3

Teaches conversational communication through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202S or placement by exam.

WLC 302F - COMPOSITION:FRENCH

Semester Hours: 3

Teaches writing skills through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202F or placement by exam.

WLC 302G - COMPOSITION:GERMAN

Semester Hours: 3

Teaches writing skills through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202G or placement by exam.

WLC 302R - COMPOSITION:RUSSIAN

Semester Hours: 3

Teaches writing skills through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202R or placement by exam.

WLC 302S - COMPOSITION:SPANISH

Semester Hours: 3

Teaches writing skills through cultural texts and media. Conducted in the target language. Prerequisite: WLC 202S or placement by exam.

WLC 303F - FOREIGN LANG LIFE & PROF:FRENC

Semester Hours: 3

Teaches foreign language skills for careers in business, technology, politics, etc. Conducted in the target language. Prerequisite: WLC 202F or by placement.

WLC 303G - FOREIGN LANG LIFE & PROF:GERMA

Semester Hours: 3

Teaches foreign language skills for careers in business, technology, politics, etc. Conducted in the target language. Prerequisite: WLC 202G or by placement.

WLC 303R - FOREIGN LANG LIFE & PROF:RUSSI

Semester Hours: 3

Teaches foreign language skills for careers in business, technology, politics, etc. Conducted in the target language. Prerequisite: WLC 202R or by placement.

WLC 303S - FOREIGN LANG LIFE & PROF:SPANI

Semester Hours: 3

Teaches foreign language skills for careers in business, technology, politics, etc. Conducted in the target language. Prerequisite: WLC 202S or by placement.

WLC 304F - CULTURE:FRENCH

Semester Hours: 3

Teaches the arts, histories, social customs, and values of the target culture. Conducted in the target language. Prerequisites: WLC 301F or WLC 302F.

WLC 304G - CULTURE:GERMAN

Semester Hours: 3

Teaches the arts, histories, social customs, and values of the target culture. Conducted in the target language. Prerequisites: WLC 301G or WLC 302G.

WLC 304R - CULTURE:RUSSIAN

Semester Hours: 3

Teaches the arts, histories, social customs, and values of the target culture. Conducted in the target language. Prerequisites: WLC 301R or WLC 302R.

WLC 304S - CULTURE:SPANISH

Semester Hours: 3

Teaches the arts, histories, social customs, and values of the target culture. Conducted in the target language. Prerequisites: WLC 301S or WLC 302S.

WLC 305F - INTRO TO LITERATURE:FRENCH

Semester Hours: 3

Introduces the literature of the target language in cultural contexts. Conducted in the target language. Prerequisite: WLC 301F or WLC 302F.

WLC 305G - INTRO TO LITERATURE:GERMAN

Semester Hours: 3

Introduces the literature of the target language in cultural contexts. Conducted in the target language. Prerequisite: WLC 301G or WLC 302G.

WLC 305R - INTRO TO LITERATURE:RUSSIAN

Semester Hours: 3

Introduces the literature of the target language in cultural contexts. Conducted in the target language. Prerequisite: WLC 301R or WLC 302R.

WLC 305S - INTRO TO LITERATURE:SPANISH

Semester Hours: 3

Introduces the literature of the target language in cultural contexts. Conducted in the target language. Prerequisite: WLC 301S or WLC 302S.

WLC 404F - TEXTS & CONTEXTS:SEM LIT:FRENC

Semester Hours: 3

In-depth study of authors, genres, or movements in cultural contexts. Conducted in the target language. May be repeated when taught with a different topic. Prerequisite: WLC 301F or WLC 302F.

WLC 404G - TEXTS & CONTEXTS:SEM LIT/GERMA

Semester Hours: 3

In-depth study of authors, genres, or movements in cultural contexts. Conducted in the target language. May be repeated when taught with a different topic. Prerequisite: WLC 301G or WLC 302G.

WLC 404R - TEXTS & CONTEXTS:SEM LIT:RUSSI

Semester Hours: 3

In-depth study of authors, genres, or movements in cultural contexts. Conducted in the target language. May be repeated when taught with a different topic. Prerequisite: WLC 301R or WLC 302R. O.

WLC 404S - TEXTS & CONTEXTS:SEM LIT:SPANI

Semester Hours: 3

In-depth study of authors, genres, or movements in cultural contexts. Conducted in the target language. May be repeated when taught with a different topic. Prerequisite: WLC 301S or WLC 302S.

WLC 410 - INT'L INTERN:COMP LANG/CULT

Semester Hours: 3-6

Capstone for majors, offering practical experience in commercial or public organizations domestically or abroad. Conducted in English. Prerequisite: WLC 303.

WLC 499F - INDEPENDENT STUDY:FRENCH

Semester Hours: 3

Independent study and/or study abroad. Prerequisite: WLC 202F.

WLC 499G - INDEPENDENT STUDY:GERMAN

Semester Hours: 3

Independent study and/or study abroad. Prerequisite: WLC 202G.

WLC 499R - INDEPENDENT STUDY:RUSSIAN

Semester Hours: 3

Independent study and/or study abroad. Prerequisite: WLC 202R.

WLC 499S - INDEPENDENT STUDY:SPANISH

Semester Hours: 3

Independent study and/or study abroad. Prerequisite: WLC 202S.

Faculty

Faculty

(Date refers to original appointment to the university.)

A

- Adams, Ellise**, Associate Professor, Nursing, 2006, PhD, Texas Women's University.
- Adams, Marsha**, Dean and Professor, Nursing, 2014, PhD, University of Alabama at Birmingham.
- Adan, Drew**, Lecturer, Library, 2017, MLIS, Simmons Graduate School of Library and Information Science.
- Adcock, Lawana**, Lecturer, Biological Sciences, 2016, PhD, Alabama AM University.
- Ai, Shangbing**, Associate Professor, Math, 2002, PhD, University of Pittsburgh.
- Al-Hamdan, Ashraf**, Clinical Assistant Professor, Civil and Environmental Engineering, 2007, PhD, University of Illinois at Chicago.
- Alewine, Henry**, Associate Professor, Accounting, 2010, PhD, University of Kentucky.
- Alexander, Susan**, Associate Professor, Nursing, 2009, DNP, University of Alabama in Huntsville.
- Allen, David**, Professor, Economics, 1994, PhD, University of Arkansas.
- Allen, Mary Beth**, Lecturer, Computer Science, 2017, M.S., Auburn University.
- Allport, Christopher**, Associate Professor, Accounting, 2005, PhD, Virginia Tech.
- Altenkirch, Robert**, President, Professor, Mechanical and Aerospace Engineering, 2011, PhD, Purdue.
- Amiri, Azita**, Assistant Professor, Nursing, 2012, PhD, University of Alabama at Birmingham.
- Anderson, Michael**, Professor, Civil and Environmental Engineering, 1998, PhD, Iowa State University.
- Argentina, Vincent**, Assistant Professor, Art, Art History Design, 2014, MFA, University of Georgia.
- Armentrout, Daniel**, Lecturer, Mechanical and Aerospace Engineering, 2012, PhD, University of Denver.
- Aultman, Anna**, Clinical Assistant Professor, Nursing, 2018, MSN, University of Alabama.
- Aygun, Ramazan**, Associate Professor, Computer Science, 2003, PhD, New York State University.

B

- Baginski, Melissa**, Clinical Assistant Professor, Nursing, 2009, MSN, University of Virginia.
- Baird, James**, Professor, Chemistry, 1982, PhD, Harvard.
- Baker, Karen**, Lecturer, Communication Arts, 2018, MFA, University of Alabama.
- Baldwin, Katie**, Assistant Professor, Art, Art History Design, 2013, MFA, University of the Arts, Pennsylvania.
- Balla, Angela**, Associate Professor, English, 2006, PhD, University of Michigan-Ann Arbor.
- Banish, R. Michael**, Associate Professor, Chemical and Materials Engineering, 1999, PhD, University of Utah.
- Bao, Yeqing**, Associate Dean, Professor, Marketing, 2001, PhD, Virginia Polytechnic Institute and State University.
- Bao, Yongchuan**, Associate Professor, Marketing, 2014, PhD, University of Southern California.
- Barnby, Elizabeth**, Clinical Associate Professor, Nursing, 2009, DNP, University of Alabama in Huntsville.
- Barnes, Dilcu**, Clinical Assistant Professor, Management, 2017, PhD, Auburn University.
- Baudry, Jerome**, Professor, Biological Sciences, 2017, PhD, University of Paris - Sorbonne.
- Baun, Dylan**, Assistant Professor, History, 2016, PhD, The University of Arizona.

Beck, Monica, Clinical Assistant Professor, Nursing, 2009, MSN, University of Alabama in Huntsville.

Benton, Anna, Clinical Instructor, Nursing, 2008, MSN, University of Alabama in Huntsville.

Berbrier, Mitchell, Professor, Sociology, 1996, PhD, Marquette University.

Berkowitz, David, Professor, Marketing, 1996, PhD, University of Alabama.

Betancourt, José, Associate Professor, Art, Art History Design, 2006, MFA, Hunter College.

Bianchi, Ann, Associate Professor, Nursing, 2007, PhD, Texas Women's University.

Bitzer, Phillip, Associate Professor, Atmospheric Science, 2011, PhD, University of Alabama in Huntsville.

Blackmon, James, Research Professor, Mechanical and Aerospace Engineering, 2001, PhD, University of California.

Bolen, Ron, Clinical Instructor, Nursing, 2017, MSN, University of Alabama.

Bollinger, Laurel, Professor, English, 1993, PhD, Princeton.

Bonamente, Massimiliano, Professor, Physics, 2002, PhD, University of Alabama in Huntsville.

Bowman, Elizabeth, Lecturer, Math, 2001, MA, University of Alabama in Huntsville.

Bowman, Ronald, Lecturer, Electrical and Computer Engineering, 2005, MSEE, Clemson University.

Boykin, Timothy, Professor, Electrical and Computer Engineering, 1992, PhD, Stanford University.

Bridges, Lindsay, Clinical Instructor, Nursing, 2003, MSN, Jacksonville State University.

Brothers, Rebecca, Lecturer, Library, 2017, MA, University of Washington.

Budisalih, Kimberley, Clinical Instructor, Nursing, 2017, MSN, Samford University.

Buksa, Irena, Associate Professor, World Languages and Cultures, 1990, DA, Syracuse.

Burel, Joshua, Assistant Professor, Music, 2017, PhD, Florida State University.

Burnett, John, Associate Professor, Finance, 1992, PhD, University of Alabama.

Burns, Laird, Associate Professor, Management Science, 2009, PhD, Michigan State.

Bushman, Karissa, Lecturer, Art, Art History Design, 2015, PhD, University of Iowa.

Byler, Kendall, Lecturer, Chemistry, PhD, Friedrich-Alexander Universität Erlangen-Nürnberg.

C

Caires, Angela, Clinical Associate Professor, Nursing, 2012, MSN, University of Alabama in Huntsville.

Carey, Lawrence, Associate Professor, Atmospheric Science, 2012, PhD, Colorado State University.

Carey, Matthew, Assistant Professor, Music, 2016, DMA, Texas Tech University.

Carmen, Christina, Clinical Associate Professor, Mechanical and Aerospace Engineering, 2006, PhD, University of Alabama in Huntsville.

Cassibry, Jason, Associate Professor, Mechanical and Aerospace Engineering, 2004, PhD, University of Alabama in Huntsville.

Cate-Gibson, Stephanie Ryan, Lecturer, Intensive Language Center, 2009, MA, North Carolina Central University.

Choup, Anne Marie, Associate Professor, Political Science, 2007, PhD, University of North Carolina at Chapel Hill.

Christopher, Sundar, Dean and Professor, Atmospheric Science, 1997, PhD, Colorado State.

Christy, John, Distinguished Professor, Atmospheric Science, 1991, PhD, Illinois.

Chronis, Themistoklis, Clinical Assistant Professor, Physics, 2017, PhD, University of Connecticut.

Chung, Haeyong, Assistant Professor, Computer Science, 2015, PhD, Virginia Tech.

Clemmons, Tammy, Clinical Instructor, Nursing, 2006, MSN, University of Alabama in Huntsville.

Cling, Andrew, Professor, Philosophy, 1988, PhD, Vanderbilt.

Coby, Jim, Lecturer, English, 2016, PhD, University of Louisiana.

Coe, David, Associate Professor, Electrical and Computer Engineering, 2002, PhD, Georgia Institute of Technology.

Coffey, Sharon, Clinical Assistant Professor, Nursing, 2016, DNP, University of Alabama in Huntsville.

Coleman, Richard, Lecturer, Computer Science, 2013, PhD, University of Florida.

Collopy, Paul, Professor, Industrial Systems Engineering, 2013, PhD, Stanford University.

Conners, Ryan T., Assistant Professor, Kinesiology, 2015, PhD, Middle Tennessee State University.

Conway, Joseph, Associate Professor, English, 2011, PhD, Washington University in St. Louis.

Cooper, Judy, Lecturer, Biological Sciences, 2015, M.S., University of Alabama in Huntsville.

Crook, Genevieve, Lecturer, Math, 1989, MA, University of Alabama in Huntsville.

Cross, Heather, Lecturer, English, 2007, MA, University of Alabama in Huntsville.

Cruz-Vera, Luis, Associate Professor, Biological Sciences, 2007, PhD, CINVESTAV-IPN, Mexico.

Culumber, Zachary, Assistant Professor, Biological Sciences, 2018, PhD, Texas AM University.

Curtis, Christine, Provost, Professor, Chemical and Materials Engineering, 2014, PhD, Florida State University.

D

Davis, Rebecca, Clinical Assistant Professor, Nursing, 2009, MSN, University of Alabama in Huntsville.

Delugach, Harry, Associate Professor, Computer Science, 1990, PhD, University of Virginia.

Deverapalli, Chakri, Director IT, Lecturer, Information Systems, 2008, MBA, University of Alabama in Huntsville.

Devlin, Anna, Assistant Professor, Management Science, 2014, PhD, University of Maryland.

Dillihunt, Monica, Associate Professor, Education, 2004, PhD, Howard University.

Doty, Johnna, Lecturer, Music, 2012, MFA, Boston University.

Doty, Johnna, Lecturer, Communication Arts, 2012, MFA, Boston University.

Duan, Lingze, Associate Professor, Physics, 2007, PhD, University of Maryland.

E

Elliott, Jeremy M., Assistant Professor, Kinesiology, 2015, PhD, University of Georgia.

Elsamadicy, Abdalla, Lecturer, Physics, 2002, PhD, Alabama AM University.

Emich, Cheryl, Clinical Assistant Professor, Nursing, 2013, MSN, University of Alabama.

English, Jennifer, Associate Professor, Electrical and Computer Engineering, 2000, PhD, Georgia Institute of Technology.

Etzkorn, Letha, Professor, Computer Science, 1993, PhD, University of Alabama in Huntsville.

F

Fahimi, Farbod, Associate Professor, Mechanical and Aerospace Engineering, 2010, PhD, Sharif U Tech, Tehran.

Fikes, David, Lecturer, Mechanical and Aerospace Engineering, 2016, MS, University of Tennessee - Knoxville.

Fischer, Jeremy, Assistant Professor, Philosophy, 2014, PhD, University of Washington.

Florinski, Vladimir, Associate Professor, Space Science, 2008, PhD, University of Arizona.

Fong, Eric, Associate Professor, Management, 2004, PhD, University of Florida.

Foster, John, Department Chair, Chemistry, 2017, PhD, Aston University.

Foster, Melissa, Clinical Assistant Professor, Nursing, 2012, DNP, University of Alabama in Huntsville.

Foy, Anna, Assistant Professor, English, 2012, PhD, University of Pennsylvania.

Frederick, Robert, Professor, Mechanical and Aerospace Engineering, 1991, PhD, Purdue.

Frendi, Kader, Professor, Mechanical and Aerospace Engineering, 1999, PhD, Brown University.

Friedman, Susan, Lecturer, English, 2008, PhD, University of South Florida.

Frith, Karen, Professor, Nursing, 2007, PhD, Georgia State University.

Frost, Alanna, Associate Professor, English, 2008, PhD, University of Louisville.

G

Gaede, Rhonda, Associate Professor, Electrical and Computer Engineering, 1992, PhD, University of Texas-Austin.

Gandila, Andrei, Assistant Professor, History, 2013, PhD, University of Florida.

Gentry, Sheila, Clinical Instructor, Nursing, 2018, MSN, University of Alabama in Huntsville.

George, Michael, Associate Professor, Chemistry, 1997, PhD, Arizona State University.

Gholston, Sampson, Associate Professor, Industrial Systems Engineering, 1997, PhD, University of Alabama in Huntsville.

Gilchrist-Petty, Eletra, Associate Professor, Communication Arts, 2008, PhD, University of Memphis.

Goebel, Rolf, Professor, World Languages and Cultures, 1985, PhD, University of Maryland.

Gorur, Ravi, Professor, Electrical and Computer Engineering, 2015, PhD, University of Windsor.

Graves, Sara, Professor, Computer Science, 1978, PhD, University of Alabama in Huntsville.

Greene, Jason, Dean and Professor, Finance, 2016, PhD, Indiana University.

Greene, Michelle, Lecturer, Chemistry, 2016, PhD, Indiana University.

Gregory, Don, Distinguished Professor, Physics, 1992, PhD, University of Alabama in Huntsville.

Griffin, Robert, Associate Professor, Atmospheric Science, 2012, PhD, Penn State University.

Grimsley, Reagan, Lecturer, Library, 2017, MA, The University of Southern Mississippi.

Guerin, Amy, Assistant Professor, Theatre, 2016, MFA, University of Houston.

Guerra, Donna, Clinical Assistant Professor, Nursing, 2015, EdD, University of Alabama in Huntsville.

Gunn, Sinceree, Lecturer, English, 2003, MA, University of Alabama in Huntsville.

Guo, Junpeng, Professor, Electrical and Computer Engineering, 2005, PhD, University of Illinois.

Gupta, Jatinder, Professor and Eminent Scholar, Information Systems, 2002, PhD, Texa Tech University.

Gyasi, Kwaku, Associate Professor, World Languages and Cultures, 1999, PhD, Ohio State University.

H

Haleem, Kirolos, Lecturer, Civil and Environmental Engineering, 2016, PhD, University of Central Florida.

Hamilton, Frances, Assistant Professor, Education, 2014, PhD, Tennessee State University.

Han, Qingyuan, Associate Professor, Atmospheric Science, 1997, PhD, Columbia University.

Harfouch, John, Assistant Professor, Philosophy, 2014, PhD, Penn State University.

Harwell, David, Associate Professor, Theatre, 2005, MFA, University of Illinois.

Hawk, Kathleen, Associate Professor, Political Science, 1998, PhD, University of Alabama.

Hazeli, Kavan, Assistant Professor, Mechanical and Aerospace Engineering, 2016, PhD, Drexel University.

Heerikhuisen, Jacob, Associate Professor, Space Science, 2008, PhD, University of Waikato, New Zealand.

Heikes, Deborah, Professor, Philosophy, 1998, PhD, University of Illinois.

Herrin, Kristen, Clinical Assistant Professor, Nursing, 2004, DNP, University of Alabama in Huntsville.

Hile, Kimberly, Assistant Professor, Education, 2017, PhD, University of Illinois.

Hite, Dennis, Lecturer, Electrical and Computer Engineering, 2005, MSE, University of Alabama in Huntsville.

Ho, Fat, Professor, Electrical and Computer Engineering, 1980, PhD, Southern Illinois University.

Hollingsworth, Angela, Clinical Assistant Professor, Nursing, 2016, DNP, University of South Alabama.

Hollingsworth, Donald (Keith), Professor, Mechanical and Aerospace Engineering, 2011, PhD, Stanford University.

Hoy, Haley, Associate Professor, Nursing, 2006, PhD, Vanderbilt University.

Hsu, Liwu, Associate Professor, Marketing, 2012, PhD, Boston University.

Hu, Leiqiu, Assistant Professor, Atmospheric Science, 2017, PhD, University of Kansas, Lawrence.

Hu, Qiang, Associate Professor, Space Science, 2012, PhD, Dartmouth.

Huang, Wenzhang, Professor, Math, 1994, PhD, Claremont Graduate School.

Hubbell, Gaines, Assistant Professor, English, 2015, PhD, Rensselaer Polytechnic Institute.

Hunter, Amy, Clinical Assistant Professor, Nursing, 2014, DNP, University of Alabama in Huntsville.

I

Ishak, Sherif, Professor, Civil and Environmental Engineering, 2017, PhD, University of Central Florida.

J

Jayawardena, Surangi, Assistant Professor, Chemistry, 2017, PhD, University of Massachusetts-Lowell.

Johnson, David, Associate Professor, History, 2005, PhD, Washington University in St. Louis.

Johnson, Kathryn, Professor, Art, Art History Design, 2003, MFA, University of Georgia.

Johnson, Molly, Associate Professor, History, 2003, PhD, University of Illinois.

Johnson, Terri, Lecturer, Math, 2011, PhD, University of Alabama in Huntsville.

Joiner, Laurie, Associate Professor, Electrical and Computer Engineering, 1998, PhD, Clemson University.

Jones, Holly, Associate Professor, English, 2006, PhD, Penn State University.

Jones, Keith, Associate Professor, Art, Art History Design, 1996, MFA, Louisiana Tech University.

Jones, Nicholas, Professor, Philosophy, 2007, PhD, Ohio State University.

Jovanov, Emil, Associate Professor, Electrical and Computer Engineering, 1998, PhD, University of Belgrade.

Joyce, Lillian, Associate Professor, Art, Art History Design, 1997, PhD, University of California, Los Angeles.

K

Kaiura, Leslie, Assistant Professor, World Languages and Cultures, 2007, PhD, University of Virginia.

Kang, Chang-kwon, Assistant Professor, Mechanical and Aerospace Engineering, 2013, PhD, University of Michigan.

Kanistras, Konstantinos, Assistant Professor, Mechanical and Aerospace Engineering, 2017, PhD, University of Denver.

Kansakar, Siroj, Lecturer, Math, 2012, PhD, University of Alabama in Huntsville.

Keller, Karl, Lecturer, World Languages and Cultures, 2007, MA, University of Alabama.

Kendall, Denise, Lecturer, Biological Sciences, 2017, PhD, University of Tennessee Knoxville.

Knight, Kyle, Associate Professor, Sociology, 2012, PhD, Washington State University.

Knupp, Kevin, Professor, Atmospheric Science, 1991, PhD, Colorado State University.

Kulick, Jeffrey, Professor, Electrical and Computer Engineering, 1990, PhD, University of Pennsylvania.

Kunin, Boris, Associate Professor, Math, 1992, PhD, University of Illinois - Chicago.

Kvach, John, Associate Professor, History, 2008, PhD, University of Tennessee at Knoxville.

Kyle, David, Lecturer, Education, 2004, M.A., University of North Alabama.

L

Lampley, Sandra, Assistant Professor, Education, 2016, PhD, Middle Tennessee State.

Landrum, David, Associate Professor, Mechanical and Aerospace Engineering, 1992, PhD, North Carolina State University.

Lang, Joshua, Lecturer, Chemistry, 2016, PhD, University of Alabama in Huntsville.

Lanius, Candice, Assistant Professor, Communication Arts, 2016, Rensselaer Polytechnic Institute.

Lanz, Amelia, Clinical Assistant Professor, Nursing, 2012, EdD, University of Alabama in Huntsville.

Le Roux, Jakobus, Associate Professor, Space Science, 2008, PhD, Potchefstroom.

Lee, J. Seth, Lecturer, English, 2017, PhD, University of Kentucky.

Lee, Shanhu, Associate Professor, Atmospheric Science, 2015, PhD, University of Tokyo.

Lee, Yeolan, Assistant Professor, Management, 2013, PhD, Ohio State University.

Lei, Yu, Assistant Professor, Chemical and Materials Engineering, 2013, PhD, U of Ill, Chicago (UIC).

Lenahan, Shelley, Lecturer, Math, 2004, MA, Texas AM.

Li, Gang, Associate Professor, Space Science, 2008, PhD, Indiana University-Bloomington.

Li, Wei, Associate Professor, Computer Science, 1996, PhD, Virginia Polytechnic Institute State University.

Li, Xiaotong, Professor, Information Systems, 2001, PhD, University of Mississippi.

Lieu, Richard, Distinguished Professor, Physics, 1995, PhD, Imperial College - London.

Ligrani, Phillip, Professor, Mechanical and Aerospace Engineering, 2014, PhD, Stanford University.

Lin, Mark, Associate Professor, Mechanical and Aerospace Engineering, 2000, PhD, Virginia Polytechnic Institute.

Lindquist, Robert, Professor, Electrical and Computer Engineering, 2003, PhD, Pennsylvania State University.

Lioce, Bonnie (Lori), Clinical Associate Professor, Nursing, 2014, DNP, University of Alabama in Huntsville.

Liu, Jianqing, Assistant Professor, Electrical and Computer Engineering, 2018, PhD, University of Florida.

Love-Rutledge, Sharifa, Assistant Professor, Chemistry, 2017, PhD, The University of Alabama.

Lynch, Thuy, Assistant Professor, Nursing, 2017, PhD, University of Alabama.

M

MacGregor, Gordon, Assistant Professor, Biological Sciences, 2010, PhD, University of Dundee, Scotland.

MacKenzie, William (Ivey), Associate Dean and Associate Professor, Management, 2010, PhD, University South Carolina.

Magnuson, Roy, Associate Professor, Biological Sciences, 1999, PhD, Massachusetts Institute of Technology.

Mahafza, Hamsa, Lecturer, Education, 2017, PhD, University of Texas at San Antonio.

Mahalingam, Brinda, Lecturer, Economics, 2012, PhD, University of Colorado.

Mahalingam, Shankar, Dean and Professor, Mechanical and Aerospace Engineering, 2010, PhD, Stanford University.

Maier, Linda, Professor, World Languages and Cultures, 1993, PhD, University of Virginia.

Malak, Natalie, Assistant Professor, Economics, 2018, PhD, McMaster University.

Manasco, Michael, Lecturer, Library, 2012, MLIS, University of Alabama.

Marinova, Sophia, Associate Professor, Management, 2014, PhD, University of Maryland.

Marschalk, Lacy, Lecturer, English, 2014, PhD, Auburn University.

Mathis, Shannon L., Assistant Professor, Kinesiology, 2011, PhD, Middle Tennessee State University.

Mayeur, Jason, Assistant Professor, Mechanical and Aerospace Engineering, 2018, PhD, Georgia Institute of Technology.

McClellan, Lynn, Clinical Associate Professor, Nursing, 2017, DNP, University of Alabama at Birmingham.

McDavid, Nicole, Lecturer, Communication Arts, 2015, MA, Auburn University.

McFeeters, Robert, Associate Professor, Chemistry, 2008, PhD, Cornell.

McGinnis, Michael, Lecturer, English, 2015, PhD, Wayne State University.

McLaughlin, Erin, Lecturer, Management, 2017, PhD, University of North Texas.

Meade, Whitney, Assistant Professor, Education, 2011, PhD, Auburn University.

Mecikalski, John, Professor, Atmospheric Science, 2004, PhD, University of Wisconsin-Milwaukee.

Mendelson, Tobias, Clinical Assistant Professor, Accounting, 2017, JD, Samford University.

Mendenhall, Eric, Assistant Professor, Biological Sciences, 2013, PhD, University of Minnesota.

Menon, Vineetha, Assistant Professor, Computer Science, 2017, PhD, Mississippi State University.

Mesmer, Bryan, Assistant Professor, Industrial Systems Engineering, 2014, PhD, University of Buffalo.

Messimer, Sherri, Associate Professor, Industrial Systems Engineering, 1989, PhD, Texas AM.

Milenkovic, Aleksander, Professor, Electrical and Computer Engineering, 2001, PhD, University of Belgrade.

Miller, James, Professor, Physics, 1994, PhD, Maryland.

Mok, Wai Yin, Professor, Information Systems, 2001, PhD, Brigham Young University.

Moore, David, Lecturer, Library, 2002, MLS, University of Alabama.

Morales, Claudio, Professor, Math, 1982, PhD, University of Iowa.

Morgan, Tracie, Clinical Instructor, Nursing, 2016, MSN, University of Alabama in Huntsville.

Moriarity, Debra, Professor, Biological Sciences, 1984, PhD, Temple University.

Morphew, S. Melissa, Clinical Associate Professor, Professional and Continuing Studies, 2016, PhD, University of Georgia.

Morris, Tommy, Professor, Electrical and Computer Engineering, 2015, PhD, Southern Methodist.

Morrison, Katherine, Clinical Instructor, Nursing, 2017, MSN, Samford.

Mukherjee, Anusree, Assistant Professor, Chemistry, 2013, PhD, University of Minnesota.

Mukherjee, Tathagata, Assistant Professor, Computer Science, 2018, PhD, Florida State University.

Mullins, Frank, Associate Professor, Management, 2017, PhD, Syracuse University.

N

Nair, Udaysankar, Associate Professor, Atmospheric Science, 2011, PhD, Colorado State University.

Naviaux, Julie, Lecturer, English, 2016, PhD, University of Kentucky.

Nelson, George, Associate Professor, Mechanical and Aerospace Engineering, 2012, PhD, Georgia Tech.

Nelson, Jeffrey, Associate Professor, English, 1990, PhD, Chicago.

Neuschatz, Jeffrey, Professor, Psychology, 2000, PhD, Binghamton University.

Newchurch, Michael, Professor, Atmospheric Science, 1994, PhD, Georgia Institute of Technology.

Newman, Timothy, Professor, Computer Science, 1994, PhD, Michigan State.

Ng, Joseph, Professor, Biological Sciences, 1998, PhD, University of California, Riverside.

Ng, Ka Man (Melody), Assistant Professor, Music, 2013, PhD, University of Wisconsin.

Ng, Yeow Chye, Assistant Professor, Nursing, 2013, PhD, University of Alabama at Birmingham.

Niemiller, Matthew, Assistant Professor, Biological Sciences, 2017, PhD, University of Tennessee.

Nikoo, Elham, Lecturer, Art, Art History Design, 2018, MFA, Virginia Tech.

Norris, Casey, Clinical Assistant Professor, Nursing, 2014, MSN, Clemson University.

O

O'Brien, Jason, Associate Professor, Education, 2008, PhD, University of South Florida.

O'Keefe, Louise, Assistant Professor, Nursing, 2006, PhD, University of Alabama at Birmingham.

Olson, Charlotte, Lecturer, Library, 2007, MFA, University of Florida.

O'Neal, Pamela, Associate Professor, Nursing, 2005, PhD, Virginia Commonwealth University.

Ong, Belinda, Lecturer, Library, 2004, PhD, University of Kentucky.

Orman, Wafa, Associate Dean and Associate Professor, Economics, 2008, PhD, University of Arizona.

P

Pacino, Nicole, Assistant Professor, History, 2013, PhD, University of California, Santa Barbara.

Palmer, Jennifer, Clinical Instructor, Nursing, 2015, EdD, University of Alabama.

Pan, David, Associate Professor, Electrical and Computer Engineering, 2002, PhD, University of Southern California.

Park, Jae, Associate Professor, Information Systems, 2015, PhD, George Mason University.

Patnayakuni, Ravi, Associate Professor, Information Systems, 2004, DBA, Southern Illinois University.

Patterson, LaToya, Clinical Instructor, Nursing, 2014, MSN, University of Alabama in Huntsville.

Pekker, Mark, Professor, Math, 1987, PhD, Cornell.

Peng, Chao, Assistant Professor, Computer Science, 2014, PhD, Virginia Tech.

Petnga, Leonard, Assistant Professor, Industrial Systems Engineering, 2017, PhD, University of Maryland.

Petty, Mikel, Associate Professor, Computer Science, 2005, PhD, University of Central Florida.

Pogorelov, Nickolai, Professor, Space Science, 2008, PhD, Russian Academy of Sciences.

Poole, Jarmel, Clinical Instructor, Nursing, 2017, MSN, University of North Alabama.

Popp, Katie, Lecturer, Math, 2016, MA, University of Alabama at Birmingham.

Pottenger, John, Professor, Political Science, 1986, PhD, University of Maryland.

Pour, Maria, Assistant Professor, Electrical and Computer Engineering, 2015, PhD, University of Manitoba.

Preece, Robert, Associate Professor, Space Science, 2001, PhD, University of Maryland at College Park.

Price, Jodi, Associate Professor, Psychology, 2008, PhD, Georgia Institute of Technology.

Primeau, Marlena, Clinical Associate Professor, Nursing, 2004, DNP, University of Alabama in Huntsville.

Q

Que, Tingting, Assistant Professor, Finance, 2014, PhD, University of Iowa.

Quick, Beth, Dean and Professor, Education, 2013, Ed.D, Vanderbilt University.

R

Ragsdale, Christopher, Associate Professor, Music, 2006, DMA, University of Miami, Florida.

Rahman, Tauhidur, Assistant Professor, Electrical and Computer Engineering, 2017, PhD, University of Florida.

Ramachandran, Kerrin, Lecturer, Intensive Language Center, 2011, MA, University of Alabama in Huntsville.

Ranganath, Heggere, Professor, Computer Science, 1982, PhD, Auburn University.

Rani, Sarma, Associate Professor, Mechanical and Aerospace Engineering, 2011, PhD, U of Illinois-Urbana-Champaign.

Ravindran, Sivaguru, Professor, Math, 1999, PhD, Simon Fraser University, British Columbia.

Ray, Biswajit, Assistant Professor, Electrical and Computer Engineering, 2016, PhD, Purdue University.

Reeves, Andree, Associate Professor, Political Science, 1992, PhD, Rice University.

Reynolds, Mark, Clinical Assistant Professor, Nursing, 2009, DNP, University of Alabama in Huntsville.

Robinson, Joy, Assistant Professor, English, 2014, PhD, Illinois Institute of Technology.

Rochowiak, Daniel, Associate Professor, Computer Science, 1984, PhD, Notre Dame.

Roh, Kyung-Ho, Assistant Professor, Chemical and Materials Engineering, 2016, PhD, University of Michigan.

Roller, Sarah, Assistant Professor, Education, 2016, PhD, Michigan State.

Rose-Green, Ena, Associate Professor, Accounting, 2008, PhD, Florida State University.

Rountree, J. Clarke, Professor, Communication Arts, 1993, PhD, University of Iowa.

S

Sadeghi, Seyed, Associate Professor, Physics, 2007, PhD, University of British Columbia.

Salman, Abdullahi, Assistant Professor, Civil and Environmental Engineering, 2018, PhD, Michigan Technological University.

Sanders, Carolyn, Professor, Music, 1990, DMA, Florida State University.

Saunders, John, Lecturer, Communication Arts, 2017, PhD, The Pennsylvania State University.

Schneider, Judith, Professor, Mechanical and Aerospace Engineering, 2015, PhD, University of California-Davis.

Scholz, Carmen, Professor, Chemistry, 1998, PhD, University of Technology, Dresden Germany.

Schwertfeger, Ron, Lecturer, Library, 2014, MA, University of Alabama.

Sears, Christine, Associate Professor, History, 2007, PhD, University of Delaware.

Seemann, Eric, Associate Professor, Psychology, 2003, PhD, Louisiana Tech University.

Setzer, Mary, Lecturer, Chemistry, 2005, MS, University of Alabama in Huntsville.

Sever, Thomas, Professor, Atmospheric Science, 2008, PhD, University of Colorado-Boulder.

Sheldon, Pavica, Associate Professor, Communication Arts, 2011, PhD, Louisiana State University.

Shen, Milton, Associate Professor, Accounting, 2011, PhD, University of Kentucky.

Shotorban, Babak, Associate Professor, Mechanical and Aerospace Engineering, 2008, PhD, University Illinois-Chicago.

Showalter, Darlene, Clinical Associate Professor, Nursing, 1998, DNP, University of Alabama in Huntsville.

Shtessel, Yuri, Professor, Electrical and Computer Engineering, 1993, PhD, Chelyabinsk/Russia.

Simon, Richard, Assistant Professor, Sociology, 2013, PhD, Penn State University.

Sims, Jennifer, Assistant Professor, Sociology, 2017, PhD, University of Wisconsin - Madison.

Sitaraman, Bhavani, Associate Professor, Sociology, 1993, PhD, University of Massachusetts.

Skelley, Dana, Lecturer, Education, 2017, EdD, The University of Memphis.

Slavin, Laura, Lecturer, Library, 2017, MA, Lincoln Memorial University School of Business.

Smeal, Mary Alice, Professor, Math, 2015, PhD, Auburn University.

Smith, Derrick, Associate Professor and Department Chair, Education, 2008, EdD, Texas Tech University.

Smith, Eric, Professor, English, 2006, PhD, University of Florida.

Smith, Lenora, Clinical Assistant Professor, Nursing, 2013, PhD, Medical University of South Carolina.

Sommerkamp, Sandy, Clinical Assistant Professor, Nursing, 2011, MSN, Jacksonville State University.

Spencer, Sharon, Clinical Assistant Professor, Nursing, 2012, MSN, University of New Orleans.

St. John, Caron, Professor, Management, 2010, PhD, Georgia State University.

Stallsmith, Bruce, Associate Professor, Biological Sciences, 1999, PhD, University of Massachusetts.

Steidl, Christina, Associate Professor, Sociology, 2012, PhD, Emory University.

Stewart, David, Associate Professor, Art, Art History Design, 1989, PhD, Boston University.

Storer, Sallyann, Clinical Assistant Professor, Nursing, 2017, DNP, University of Alabama in Huntsville.

Strong, Carol, Lecturer, Physics, 1993, PhD, University of Alabama in Huntsville.

Sullivan, Veronica, Clinical Assistant Professor, Nursing, 2017, DNP, University of Alabama in Huntsville.

Sun, Ming, Associate Professor, Physics, 2014, PhD, Harvard.

Swain, James, Professor, Industrial Systems Engineering, 1992, PhD, Purdue.

Sysoeva, Tatyana, Assistant Professor, Biological Sciences, 2018, PhD, The Pennsylvania State University.

T

Tantaris, Richard, Lecturer, Mechanical and Aerospace Engineering, 2017, PhD, Vanderbilt University.

Taylor, Chris, Assistant Professor, Art, Art History Design, 2014, MFA, Alfred University.

Taylor, W. Joseph, Associate Professor, English, 2010, PhD, University of Texas.

Thomas, Chad, Associate Professor, English, 2011, PhD, University of Michigan.

Thomas, Chad, Associate Professor, Theatre, 2011, PhD, University of Michigan.

Thomas, Dale, Professor, Industrial Systems Engineering, 2015, PhD, University of Alabama in Huntsville.

Thornton, Tracy, Clinical Assistant Professor, Nursing, 2013, MSN, University of Alabama in Huntsville.

Torres, Aurora, Assistant Professor, Psychology, 1995, PhD, University of Oklahoma.

Tseng, Fan, Department Chair, Professor, Management Science, 1984, PhD, University of Texas.

Twigg, Pamela, Lecturer, Chemistry, 2014, PhD, Florida State University.

V

Vadrevu, Anuradha, MA, Math, 2017, MA, Mississippi State University.

Veasey, Roxie, Lecturer, Art, Art History Design, 2005, MFA, University of Georgia.

Verlaan, Wolfram, Associate Professor, Education, 2012, ABD, Texas AM.

Vogler, Bernhard, Associate Professor, Chemistry, 2001, PhD, University of Tuebingen.

W

Waddell, Emanuel, Associate Professor, Chemistry, 2004, PhD, Louisiana State University.

Wade, Ryan, Lecturer, Atmospheric Science, 2014, MS, University of Alabama in Huntsville.

Wang, Gang, Associate Professor, Mechanical and Aerospace Engineering, 2010, PhD, University of Maryland.

Waring, Stephen, Professor, History, 1988, PhD, University of Iowa.

Watson, John, Assistant Professor, Communication Arts, 2018, PhD, Louisiana State University.

Weber, Anna, Lecturer, English, 2012, MFA, Purdue.

Weber, Ryan, Associate Professor, English, 2011, PhD, Purdue.

Weger, Kristin, Assistant Professor, Psychology, 2017, PhD, Otto-Friedrich-University.

Weimer, Jeffrey, Associate Professor, Chemistry, 1990, PhD, Massachusetts Institute of Technology.

Weimer, Jeffrey, Associate Professor, Chemical and Materials Engineering, 1990, PhD, Massachusetts Institute of Technology.

Weir, Colleen, Lecturer, English, 2016, PhD, Catholic University of America.

Weisskopf, Mary Ellen, Assistant Professor, Computer Science, 1983, PhD, University of Alabama in Huntsville.

Wells, Earl, Professor, Electrical and Computer Engineering, 1992, PhD, University of Alabama.

Wessling, Francis, Professor, Mechanical and Aerospace Engineering, 1988, PhD, University of Minnesota.

Whitehead, Paul N., Assistant Professor, Kinesiology, 2017, PhD, University of Pittsburgh.

White, Allen, Department Chair and Professor, Economics, 1988, PhD, University of Illinois-Urbana.

Wilkerson, William, Dean, Philosophy, 1997, PhD, Purdue.

Word-Allbritton, Andrea, Clinical Assistant Professor, Education, 2002, EdD, University of Alabama, Tuscaloosa.

Wren, Brent, Associate Provost and Professor, Marketing, 1994, PhD, University of Memphis.

Wu, Dongsheng, Associate Professor, Math, 2006, PhD, Michigan State University.

Wu, Tingting, Assistant Professor, Civil and Environmental Engineering, 2014, PhD, University of Florida.

X

Xing, Xuejing, Professor, Finance, 2007, PhD, University of Missouri-Columbia.

Xu, Gabe, Associate Professor, Mechanical and Aerospace Engineering, 2012, PhD, Georgia Tech.

Y

Yoo, Seong-Moo, Associate Professor, Electrical and Computer Engineering, 2001, PhD, Texas University.

Z

Zank, Gary, Distinguished Professor, Space Science, 2008, PhD, University of Kwazulu Natal.

Zhang, Guangsheng, Assistant Professor, Mechanical and Aerospace Engineering, 2017, PhD, Xi'an Jiaotong University.

Zhang, Guo-Hui, Associate Professor, Math, 1993, PhD, Southern Illinois University.

Zhang, Huaming, Associate Professor, Computer Science, 2005, PhD, State University of New York at Buffalo.

Zhang, Jing, Assistant Professor, Accounting, 2014, PhD, McGill University.

Zhao, Shuang, Assistant Professor, Political Science, 2015, PhD, Indiana University, Bloomington.

Zhao, Shuang, Assistant Professor, Atmospheric Science, 2015, PhD, Indiana University, Bloomington.

Zheng, Dianhan, Assistant Professor, Psychology, 2015, PhD, University of Houston.

Zhou, Hongyu, Assistant Professor, Civil and Environmental Engineering, 2014, PhD, Arizona State University.

Zhu, Feng, Associate Professor, Computer Science, 2005, PhD, Michigan State University.

Financial Information

In the following section you will find information pertaining to financial aspects of attending UAH including how you will be billed, how to pay your bill, estimated cost of tuition and other fees, and information regarding financial aid options. The cost of attendance for students at The University of Alabama in Huntsville will vary by their course of study, personal needs, and place of residence. Please note that all fees, charges, and costs detailed in this catalog are subject to change without notice. Financial obligations must be satisfied by the established deadlines. For additional information or questions please contact the Bursar's Office (www.uah.edu/bursar).

Billing and Payment Procedure

Tuition, fees and all associated charges are to be paid in full by the first official day of the semester (click here (<http://catalog.uah.edu/general-information/academic-calendars>) to find first official day of semester). Acceptable forms of payment are:

- Cash
- Personal Checks
- Money Orders
- Cashier's Checks
- Traveler's Checks
- Electronic Checks
- Credit Cards/Debit Cards (VISA, MasterCard, American Express, or Discover - 2.75% service fee applies)

Payments may be made online through the student account, in person at the Bursar's Office (SSB 123), or by phone at 256.824.2732. Students who do not pay their bill in full by the first day of the semester are assessed a \$50.00 late fee. Students who do not pay their bill in full by the end of the second week of classes may be dropped from class rolls and their enrollment canceled. The University assumes no responsibility for students who attend classes without official enrollment. For summer sessions, please check dates in the Academic Calendar (<http://catalog.uah.edu/general-information/academic-calendars>) and on the UAH website (<http://www.uah.edu/registrar/calendars>).

Mail payments to:

The University of Alabama in Huntsville
Bursar's Office
Student Services Building, Room 123
Huntsville, AL 35899-5050

Installment Plans

Installment plans are available to students fall and spring semesters for the management of that semester's costs. UAH partners with Tuition Management Systems (TMS) to offer student installment plan accounts. A student may set up a plan or give access to others so they may establish a plan on the student's behalf. Two plans are available - a 4 payment plan or a 5 payment plan. There is a \$50.00 fee to establish a plan and the fee is

due at the time the plan is initiated. Once a plan is established, all payments are to be made to TMS. Should you need to adjust your plan, contact TMS at 800-336-0528. For more information, or to set up an installment plan, click here (<http://www.uah.edu/bursar/installment-plans>).

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 student accounts that have past due balances. This hold prevents students from receiving grades and transcripts and from registering for another semester at UAH. 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

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	\$40.00
Vehicle registration	\$120.00
Summer only vehicle registration	\$40.00
College of Nursing	
Nursing Badge	\$5.00
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 the UAH website (<http://www.uah.edu/registrar/calendars>) for summer dates. A student desiring to drop one or more classes may do so on the UAH online registration site or by submitting a drop request form to the Records and Registration Office, SSB 120. The date of the drop request is the date the written request is received at the Records and Registration Office.

Financial Aid

Students who apply for financial aid are responsible for completing the necessary paperwork far enough in advance to assure aid is received in a timely manner. For further information, please check with the Office of Financial Aid, Student Services Building, Suite 124.

Undergraduate Student Aid

UAH has several programs to assist students in financing their college education. Comprehensive, updated information on all financial aid offered through the Office of Financial Aid is available online at www.uah.edu/financialaid. It includes detailed information about types of aid, eligibility guidelines, application procedures, criteria for awards, disbursement methods and regulations, and institutional policy followed in administration of aid. Additional information and necessary forms are available online and in the Office of Financial Aid.

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. UAH helps qualified students find employment, scholarships, and loans as resources permit.

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 (apply online at <https://fafsa.ed.gov/>). The priority dates are the dates by which completed scholarship applications are certain to be included in the first round of review and by which the Free Application for Federal Student Aid (FAFSA) can be processed in a timely manner. A new FAFSA application must be submitted each year aid is requested.

Types of Financial Aid

Scholarships

(See the Financial Aid (<http://www.uah.edu/admissions/undergraduate/financial-aid/scholarships>) website (<http://www.uah.edu/admissions/undergraduate/financial-aid/scholarships>) for Scholarship listings)

Loans

UAH participates in the William D. Ford Federal Direct Loan program. Student loan funds are made available directly from the U.S. Department of Education. 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 what is needed to meet expenses. Additional information regarding eligibility amounts, loan limits, application procedures and suggested application timelines may be found online at www.uah.edu/financialaid. This and other valuable information regarding the financial aid process is available in the Office of Financial Aid.

Grants

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. demonstrate financial need (for most programs);
2. be a U.S. citizen or an eligible noncitizen;
3. have a valid Social Security number (with the exception of students from the Republic of the Marshall Islands, Federated States of Micronesia, or the Republic of Palau);
4. be registered with Selective Service, (<https://studentaid.ed.gov/eligibility/basic-criteria/#selective-service>) if you're a male (you must register between the ages of 18 and 25);
5. be enrolled or accepted for enrollment as a regular student in an eligible degree or certificate program;
6. be enrolled at least half-time to be eligible for Direct Loan Program funds;
7. maintain satisfactory academic progress in college or career school;
8. sign statements on the *Free Application for Federal Student Aid* (FAFSA[®]) stating that
 - you are not in default on a federal student loan and do not owe money on a federal student grant and
 - you will use federal student aid only for educational purposes; and
9. show you're qualified to obtain a college or career school education by
 - having a high school diploma or a recognized equivalent such as a General Educational Development (GED) certificate or
 - completing a high school education in a homeschool setting approved under state law.

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 and be eligible for the Federal Pell Grant Program. 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 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 Financial Aid for information regarding eligibility, application, selection, and awards procedures.

Federal Work-Study Program

The Federal Work-Study Program provides employment for students who need financial assistance. A participating student works part-time on campus or in a non-profit agency while attending the University. In determining eligibility, preference will be given to students with the greatest financial need.

Return of Federal Financial Aid

Federally funded financial aid (Pell, SEOG, Direct Loans) awarded to a student who withdraws from all classes after registration but before the end of the refund period, or who earns no passing grades for a specific term, must be repaid to the respective program source. When withdrawal or reduction of class load occurs after the end of the refund period, all tuition charges will be paid from the awarded aid and any remaining aid must be repaid to the respective aid source. Specific regulations governing this policy may be found online at www.uah.edu/financialaid.

Housing Semester Rates

Central Campus Residence Hall (CCH)

Available for 1st Year Students

Private Bedroom in 4-person suite	\$3,260
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Frank Franz Hall (FFH)

Honors First Year Student Housing

Private bedroom in 4-person suite	\$3,350
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North Campus Residence Hall (NCH)

1st Year Student Overflow, Early Fall Sports Athletes, and Upperclassmen with Charger Excellence Scholarships

Private bedroom in 4-person suite	\$3,475
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Studio Suite (one-bedroom suite)	\$3,715
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Charger Village (CGV)

Available for 2nd Year Students

Private Bedroom in 4-person suite	\$3,515
Private Bedroom in 2-person suite	\$3,625
Studio Suite (One-bedroom suite)	\$3,790

Southeast Campus Housing (SCH)

Available for Sophomores, non 1st Year Charger Excellence Scholarships, Upperclassmen, and Graduate Students

Private Bedroom in 3-bedroom suite (Graduate Students and Student Families - 12 month contract)	\$2,810
One Bedroom Unfurnished	\$8,280*
One Bedroom Furnished	\$8,900**

Fraternity and Sorority Housing (FSH)

Available for 2nd Year and Upperclassmen

Private Bedroom in 10-bedroom house	\$3,280
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Off Campus Apartments

Available for 2nd Year (non-scholarship) and Upperclassmen (non-scholarship)

Private Bedroom in an Apartment*	\$3,625
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*Ashford Terrace, Emerald Ridge, Highland Point, or Waterford Square

¹ Payable \$2,760 Fall semester, \$2,760 Spring semester, \$2,760 Summer semester

² Payable \$2,967 Fall semester, \$2,967 Spring semester, \$2,967 Summer semester

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

Meal Plan Rates

2018 - 2019 Meal Plan Options

*These meal plan options and prices are per semester beginning August 2018 and January 2019.

Option # 1 - \$1625

21 Meals per week + \$200 Charger Bucks per Semester

This option meets the First-Year Residents' Requirement.

Option #1 provides 21 meals per week. 21 meals allow you to eat each and every meal served in the Charger Cafe, Gardenvue Cafe, or in Sandella's throughout the week!

If, on occasion, you wish to dine elsewhere, this plan includes \$200 in Charger Bucks that can be used for purchases at Chick-fil-A, Papa John's, Sandella's, Charger Brew, Dunkin' Donuts, World of Wings, Burrito Bowl, Blue's Tech Hall, Mein Bowl, the C-Store, or the Gardenvue Cafe.

Option # 2 - \$1625

14 Meals per week + \$300 Charger Bucks per Semester

This option meets the First-Year Residents' Requirement.

Option #2 provides 14 meals per week. As our most popular meal plan, 14 meals evens out to 2 meals a day to be used in the Charger Cafe, Gardenvue Cafe, or Sandella's, perfect for hungry residents on the go!

Of course, #2 provides more Charger Bucks - giving students more flexibility and spending power when it comes to our resident and retail dining options: Chick-fil-A, Papa John's, Sandella's, Charger Brew, Dunkin' Donuts, World of Wings, Burrito Bowl, Blue's Tech Hall, Mein Bowl, the C-Store, or the Gardenvue Cafe!

This is the default option for the meal plan requirement for all freshmen students living in on-campus housing should students not request a change by the end of the 2nd week of classes each semester.

Option # 3 - \$1625

10 Meals per week + \$500 Charger Bucks per Semester

This option meets the First-Year Residents' Requirement.

Option #3 provides 10 meals per week. Planning to eat at more retail locations? Need a take-out option for lunch? This is the plan for you!

Option #3 still gives students a meal per day in the Charger Cafe, Gardenvue Cafe, or in Sandella's, as well as \$500 in Charger Bucks to spend at Chick-fil-A, Papa John's, Sandella's, Charger Brew, Dunkin' Donuts, World of Wings, Burrito Bowl, Blue's Tech Hall, Mein Bowl, the C-Store, and the Gardenvue Cafe!

Option # 4 - \$1625

95 Meals per Semester + \$700 Charger Bucks per Semester

This option meets the First-Year Residents' Requirement.

Option #4 provides 95 pre-paid meals per semester in the Charger Cafe, Gardenvue Cafe, or in Sandella's. These meals reset at the end of each semester.

With the most Charger Bucks of any plan, this option provides the student with maximum flexibility and spending power at Chick-fil-A, Papa John's, Sandella's, Charger Brew, Dunkin' Donuts, World of Wings, Burrito Bowl, Blue's Tech Hall, Mein Bowl, the C-Store, and the Gardenvue Cafe!

Option # 5 - \$555 Dining Dollars per semester

This option meets the Upperclassmen Resident's Requirement.

Option #5 provides \$555 in Dining Dollars to be used at Chick-fil-A, Papa John's, Sandella's, Charger Brew, the Charger Cafe, Dunkin' Donuts, World of Wings, Burrito Bowl, Blue's Tech Hall, Mein Bowl, the C-Store, and the Gardenvue Cafe. Unlike Charger Bucks, Dining Dollar Funds roll over from the fall to spring semester and expire at the end of each spring semester.

This is the default option for the meal plan requirement for Upperclassmen living in on-campus housing in North Campus or Charger Village Residence should a student not request a change or decide to choose a meal plan of greater value by the end of the 2nd week of classes each semester.

Option # 6 - \$325 Dining Dollars per semester

This option meets the off-campus students', SCH, and FRSO Residents' Requirement.

Option #6 provides \$325 in Dining Dollars that can be used at any on-campus dining location including Chick-fil-A, Papa John's, Sandella's, Charger Brew, the Charger Cafe, Dunkin' Donuts, World of Wings, Burrito Bowl, Blue's Tech Hall, Mein Bowl, the C-Store, and the Gardenvue Cafe. Dining Dollar Funds roll over from fall to spring semester and expire at the end of the academic year.

This is the default option for the meal plan requirement for students living in on-campus housing in Southeast Campus or Greek Housing should students not request a change by the end of the 2nd week of classes each semester.

This is the default option for the meal plan requirement for full-time students not living on-campus should students not request a change or decided to choose a meal plan of greater value by the end of the 2nd week of classes each semester.

Option # 7 - \$570

5 Meals per week + \$175 Charger Bucks per Semester

This option meets the Upperclassmen Resident's Requirement, the off-campus students', SCH, and FRSO Residents' Requirement.

Option #7 provides 5 meals per week in the Charger Cafe plus \$175 worth of Charger Bucks to be used at any on-campus dining location including: Chick-fil-A, Papa John's Sandella's Charger Brew, Dunkin' Donuts, World of Wings, Burrito Bowl, Blue's Tech Hall, Mein Bowl, the C-Store, and the Gardenvue Cafe. Meals and Charger Bucks reset at the end of each semester.

Option # 8 - \$570

70 Meals per Semester + \$150 Charger Bucks / Semester

This option meets the Upperclassmen Resident's Requirement, the off-campus students', SCH, and FRSO Residents' Requirement.

Option #8 provides 70 meals in the Charger Cafe plus \$150 worth of Charger Bucks to use in any of on-campus dining locations including: Chick-fil-A, Papa John's, Sandella's, Charger Brew, Dunkin' Donuts, World of Wings, Burrito Bowl, Blue's Tech Hall, Mein Bowl, the C-Store and the Gardenview Cafe. Meals and Charger Bucks reset at the end of each semester. Get the most bang for your buck with this plan!

Tuition and Fees

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 fees at the June meeting. These fees do not apply to any short term, off-campus, or noncredit offering. For additional information on these courses, see section on College of Professional and Continuing Studies. Current fees are available on the web at www.uah.edu.

Undergraduate Hours	Resident	Non-Resident
1	490.00	1104.00
2	871.00	1938.00
3	1251.00	2772.00
4	1632.00	3606.00
5	2013.00	4440.00
6	2394.00	5274.00
7	2774.00	6108.00
8	3155.00	6942.00
9	3536.00	7776.00
10	3917.00	8610.00
11	4297.00	9444.00
12-18	4678.00	10278.00
19	5098.00	11261.00
20	5518.00	12244.00

Each additional semester hour is \$420.00 for in-state students and \$983.00 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.

Facilities Fee

\$10 per hour

**The above tuition and fee rates apply to audited courses.

2017-18 Campus Course and Other Instructional Fees

College of Arts, Humanities, and Social Sciences - \$21 per hour

AMS, ARH, ARS, CL, CM, EH, EHL, GS, GY, HY, MU, MUA, MUE, MUJ, MUX, PHL, PSC, PY, SOC, TH, WLC, WGS

ARS - additional \$10 fee per hour

TH - additional \$10 fee per hour

MU - Studio Fee of \$50 per hour

MU 100 - additional \$10 fee per hour

College of Business - \$20 per hour

ACC, BLS, ECN, FIN, IS, MGT, MKT, MSC

College of Education - \$21 per hour

ED, EDC, HPE, KIN

HPE courses have additional fees per course as follows:

1 credit hour course - \$100

2 credit hour course - \$125

3 credit hour course - \$150

College of Education Additional Fees per Course

ED 301	\$100.00
ED 493	\$400.00
ED 497	\$400.00
ED 499	\$400.00
ED 501	\$100.00
ED 698	\$400.00
ED 699	\$400.00
HPE 156	\$75.00
HPE 157	\$75.00
HPE 167	\$100.00
HPE 172	\$45.00
HPE 173	\$45.00
HPE 174	\$50.00
HPE 200	\$90.00
HPE 220	\$90.00
HPE 221	\$25.00

College of Engineering- \$42 per hour

CE, CHE, CPE, EE, EM, ISE, MAE, MTS, OPE, OSE

Honors College

Student Service Fee - \$175 per semester

Office of International Services

International Fee (Fall and Spring Semesters) - \$150 per semester

International Fee (Summer Semester) - \$25 each 5-week term

International Fee (Summer Semester) - \$50 each 10-week term

J Visa Processing Fee - \$100 per request

College of Nursing - \$43 per hour

NUR

HESI Exam Fee for 408-20 - \$153

College of Professional and Continuing Studies - \$21 per hour

PRO, ECH

College of Science - \$28 per hour

AST, ATS, BSE, BYS, CH, CS, ESS, MA, MS (*Summer only*), MOD, OPT, PH, SPA, ST

Academic Transcript Fee

\$10 per request

Listener's License

First Course, if taken in the Fall - \$250

First Course, if taken in the Spring - \$210

First Course, if taken in the Summer - \$170

First Course fees include a parking permit

Each Additional Course \$130

Credit by Departmental Exam

\$10 per hour

2017-18 Other Fees

Parking Permit

Fall Semester Purchase - \$120 (valid 09/01/17 to 08/31/18)

Spring Semester Purchase - \$80 (valid through 8/31/18)

Summer Term Purchase - \$40 (valid through 8/31/18)

Meal Plans

Required Meal Plans (<https://www.uah.edu/chargercard/meal-plans/requirements>)

Charger ID Cards

New Students - \$10

Replacement Card - \$25

2017-18 Intensive Language and Culture Program Rate Tuition

ILC - \$250 per hour

2017-18 Distance Learner Rate Tuition

Students enrolled in online courses only during a semester/term are charged the distance learner rate. Students who are enrolled in on-campus courses and in on-campus/blended courses during a semester/term or are taking online courses while also taking on-campus courses during a semester/term are charged the campus rate, including the Facilities Fee, associated Campus Course Fees and Other Instructional Fees.

Undergraduate Courses

Degree Programs, Certificate Programs, and Non-Degree Seeking Students - \$373 per credit hour

Alabama PACT Program 2017-18

The Alabama PACT Program will pay at the following rates:

Hours	Resident
1	\$405.63
2	720.46
3	1035.29
4	1350.12
5	1664.95
6	1979.78
7	2294.61
8	2609.44
9	2924.27
10	3239.10
11	3553.95
12	3868.78
13	4051.53
14	4234.30
15	4417.07
16	4599.84
17	4713.92
18	4965.38
19	5148.14
20	5330.91

Policies and Procedures

The University of Alabama in Huntsville has various policies and procedures that guide our faculty, staff, and students. This section of the catalog provides detailed information on these policies, with which you should be familiar. Failure to read and comply with the policies listed here will not exempt a student from being held accountable to them. Additional policies are listed in the Student Handbook (<http://www.uah.edu/student-support/student->

conduct/handbook). Please note that the policies identified in this catalog do not represent an entire repository of university policies, as colleges and departments may implement policies that are not listed here. In addition, policies may be amended throughout the year.

Academic Achievement

Honor Scholar

An undergraduate student in good standing earning 12 or more 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 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 UAH. Honors will be determined by the GPA for the last 60 semester hours of coursework taken at UAH or the overall GPA for all coursework taken at UAH, whichever is higher. The academic terms containing the last 60 semester hours of coursework taken at UAH will be identified and the GPA of all UAH 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 GPA above the Academic Action Threshold (AAT), which varies according to classification. For freshmen and sophomore students, the AAT is 1.9; for juniors and above, the AAT is 2.0. A student whose semester GPA at UAH 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 UAH 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 UAH 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 UAH 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 UAH. If the student at that time has earned a 2.00 on all UAH coursework, the Conditional/Probational classification will be changed to regular student status. The deadlines to submit a petition for readmission to the Registrar's Office (SSB 120) 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 Executive Vice President for Academic Affairs, in that order. Students classified as "special" will be routed through the most appropriate academic dean. Students should contact their major advisor for assistance. The decision of the Provost is final.

Transcripts

There are two ways to request an official UAH transcript.

1. Fill out the transcript request form (<http://www.uah.edu/images/admissions/Registrar/Charger%20Central/Forms/offtran071116.pdf>). The completed form and payment information can be sent via fax to 256.824.7780 ([http://catalog.uah.edu/undergrad/policies-procedures/academic-achievement/tel:\(256\)%20824-7780](http://catalog.uah.edu/undergrad/policies-procedures/academic-achievement/tel:(256)%20824-7780)), scanned and emailed to registrar@uah.edu, mailed to our office, or dropped off in-person.
2. You can also request electronic or paper official transcripts through the National Student Clearinghouse (https://www.studentclearinghouse.org/secure_area/Transcript/login.asp?FICEcode=00105500).
 - o In order to send PDF transcripts, you must request them through the link above.

Please note: effective August 1, 2016, a 3% convenience fee will be added to all credit/debit card payments. However, if you use the National Student Clearinghouse (https://www.studentclearinghouse.org/secure_area/Transcript/login.asp?FICEcode=00105500) to request transcripts, you will *not* be charged the convenience fee.

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	Graduate
600-699	Graduate
700-799	Graduate, Ph.D. level

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 UAH.

Academic Honesty

Plagiarism and other forms of cheating are subject to penalties as outlined in the Student Handbook (<http://www.uah.edu/dos/student-conduct/handbook>).

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 at <http://www.uah.edu/registrar/commencement/apply-to-graduate>. 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 at the end of each semester or during commencement ceremonies.

Total Degree Requirements

1. Minimum Degree Requirements

o Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Science in Business Administration, and the Bachelor of Arts or Bachelor of Science in Professional Studies have a minimum of 120 semester hours.

o Bachelor of Arts in Education or Bachelor of Science in Education have a minimum of 123 semester hours.

o Bachelor of Science in Nursing has a minimum of 126 semester hours.

o Bachelor of Science has a minimum of 128 semester hours.

o The Bachelor of Science in Aerospace Engineering, Bachelor of Science in Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Computer Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Industrial and Systems Engineering, and the Bachelor of Science in Mechanical Engineering have a minimum of 128 semester hours.

o Bachelor of Science in Optical Engineering requires 129 semester hours. (No students will be admitted after fall 2018).

2. A minimum of 25% of the total requirements and 12 of the last 18 semester hours must be completed at UAH.

3. 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 UAH in a student's program (6 semester hours in the major and 6 semester hours in the minor or cognate studies).

4. A minimum of 30% of the total degree requirements must be taken in courses numbered 300 or above (39 semester hours for a 128 semester hour requirement).

5. The maximum amount of correspondence or credit by examination allowed towards a bachelor's degree is 50% of the degree requirements.

6. An overall average of C is required for all courses taken at UAH; and in all courses in the major discipline taken at UAH; and in all courses in the minor discipline taken at UAH or in all courses listed in the cognate studies option taken at UAH.

7. A maximum of 50% of a degree program may be earned from a junior, community or two-year college. Requests for exceptions must be in writing and approved by the Dean of the College in which the student is enrolled.

8. Additional requirements for each degree are described in the appropriate sections of this catalog.

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 UAH. 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 Registrar's Office. 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 Registrar's Office.

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.

The term "education records (http://www.uah.edu/registrar/ferpa/#educational_record)" under FERPA includes generally any record, whether in a printed, handwritten, audio, video, or computer media format, maintained by the University and containing information related to a student in his/her role as a student (<http://www.uah.edu/registrar/ferpa/#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 campus police, 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 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 education record an explanatory statement about 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 personally identifiable information (http://www.uah.edu/registrar/ferpa/#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—University personnel 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; or disclosure in connection with a health or safety emergency. Under the first exception, "University personnel (http://www.uah.edu/registrar/ferpa/#university_official)" includes any UAH employee, and a "legitimate educational interest (http://www.uah.edu/registrar/ferpa/#legitimate_educational_interest)" means that the employee has a need for access to the record to perform appropriate tasks clearly within the area of responsibility of the employee, 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 other party to have access to it without the student's consent.

The University may also release what is called "directory information (http://www.uah.edu/registrar/ferpa/#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, e-mail address, date and place of birth, enrollment status (full-time or part time), major field of study, participation in officially recognized activities and sports, dates of attendance, degrees and awards 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 completing a form provided for this purpose in the Office of Student Records.

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 Executive Vice President for Academic Affairs. The student may also file a complaint with the Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue, SW, Washington, DC 20202-5920.

Course Repeat Policy

Students should be aware that repeated or forgiven courses and their assigned grades will remain on the transcript, and employers or graduate schools may choose to use those grades and recalculate a student's GPA. Repeats and forgiven courses may not be looked upon favorably by some employers and by professional or graduate schools.

Students shall be allowed to repeat no more than three (3) courses with grade replacement, and to forgive no more than three (3) courses. Definitions of "course repeat" and "course forgiveness" and specific policies and procedures for each are described below.

COURSE REPETITION

Students repeat a course when they retake a course they have already taken. They may repeat the course to improve their grade or to obtain a better understanding of the course material. For undergraduates, the original grade remains on the transcript but is not calculated into the cumulative GPA. Undergraduates may have three repeats in which the new grade is used to calculate the cumulative GPA. Graduate students are allowed only one repeat in which the new grade is used to calculate the cumulative GPA. For any additional courses repeated, beyond three for undergraduate students and beyond one for graduate students, both the original and the repeated grades appear on the transcript and both are calculated into the cumulative GPA. Repeated courses may count toward the requirements of students' majors. (Example: an undergraduate student fails Calculus A, but repeats it because s/he needs this course for his/he major. Upon the second attempt, the student earns a passing grade and continues with the course of study).

Students may repeat a course in order to achieve a passing grade or an improved understanding.

- Students may not replace a grade with a W.
- Students may not repeat a course for which they have higher-level credit. For example, a student cannot repeat Pre-Calculus Trigonometry after s/he has credit for Calculus.
- For the first three courses repeated, the original grade will not be calculated into the student's cumulative grade point average. Each course repeat counts against the maximum of three course repeats that can replace the previous grade. For example, a student may use all three repeats in a single course or in three 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 semester hours earned in the repeated courses or final repeated course when multiple repeats are used for one course count toward graduation and are averaged into the student's GPA.
- After three course repeats, all other courses repeated at UAH will result in both the original grade and the course repeat grade being calculated into the student's GPA.
- This course repeat policy will be automatically applied unless the student files for an exemption when registering. The Course Repeat form can be downloaded from the Office of the Registrar (<https://www.uah.edu/registrar/forms/general>). They are also available in person in the Student Services Building, Room 120. Call 256.824.7777 or email registrar@uah.edu if you have any questions.

COURSE FORGIVENESS

Students have a course forgiven when the grade from that course no longer figures into their cumulative GPA, although it remains on their transcript. Forgiven courses may not count toward the requirements of a student's major. (Example: a student fails Calculus A, but has it forgiven upon request of the student because s/he changes to a major in a different college that does not require Calculus A. The grade from this course is no longer included in the student's cumulative GPA, although the course and the original grade still appear on the transcript as forgiven).

Only undergraduates may apply for course forgiveness.

- Students may forgive any three courses, provided that they are not required for their major.
- Any forgiven courses and the assigned grades remain on the transcript, but the grades are not calculated into the student's cumulative grade point average.
- Forgiveness cannot be used for classes in which an F was earned for academic dishonesty.
- Forgiveness is retroactive but must be done before graduation.
- Forgiveness does not apply to pass/fail courses.
- Students cannot transfer an equivalent course from another institution after a course is forgiven.
- Forgiveness cannot be unforgiven. (The grade for a forgiven course cannot be restored once forgiveness for that course has been approved.)
- Students apply for grade forgiveness by downloading the Course Forgiveness form from the Office of the Registrar (<https://www.uah.edu/registrar/forms/general>). Forms are also available in person in the Student Services Building, Room 120. Call 256.824.7777 or email registrar@uah.edu if you have any questions.

Double Major/Dual Degree/Second Bachelor's Degree

A student may choose to have a double major and earn one degree. The following policy applies to those students who wish to earn two degrees simultaneously or sequentially to a first 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).

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. If a minor is required for a major, then 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.

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 UAH coursework,
3. complete minimum degree requirements of 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 UAH after having earned a first degree at UAH 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 (Charger Foundations requirements are satisfied through the first degree),
2. earn at least an average grade of C in all UAH coursework,
3. complete a minimum of 25% of the total degree requirements at UAH 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 semester 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 UAH 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 UAH above the requirements for the first bachelor's degree or all coursework taken at UAH 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.

Registration

Dates, times, procedures and eligibility conditions for registration are published on the UAH 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 the Registrar 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 (<http://catalog.uah.edu/general-information/academic-calendars>).)

In addition, the University offers a Maymester term that begins after the Spring term and before the Summer term. Maymester is a 3 week term with the same contact time as a regular semester course. Maymester credit courses are intense and require significant effort on the part the instructor and the student. Departments carefully select courses that are suitable for this fast pace, and students registering for Maymester courses should be good academic standing. Students may only register for one course during Maymester and Maymasters are considered part of the Summer academic term. The policies for registration, payment, grading, etc. are the same as for other summer courses.

A semester 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 semester 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 semester 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 semester 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 semester 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 semester 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 semester hours each semester. Students should take between 30 and 33 semester 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 semester hours or more, including concurrent enrollment at other institutions and online 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 UAH 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 BYS 119L; PH 102 and PH 102L; CPE 211 and CPE 211L; CE 370 and CE 370L; MAE 311 and MAE 311L; NUR 660 and NUR 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	0-30
Sophomore	31-60
Junior	61-90
Senior	91 and up

Schedule Adjustments

After the beginning of an academic term, students seeking to change their course schedules must follow the Schedule Adjustment Process. Schedule adjustments fall into seven categories: Drop/Add, Late Addition, Credit/Audit, Withdrawal, Late Withdrawal, Retroactive Withdrawal, and Medical Withdrawal. The following definitions and procedures will govern the Schedule Adjustment Process.

Drop/Add

After classes have begun, students should consult with their academic advisor and other university officials for advice and approval before making any schedule changes. Students are advised to check the impact of dropping courses on things like financial aid, athletics eligibility, visa status, etc.

Through the sixth day of classes for a ten-week or fifteen-week semester, fourth day of a seven-week semester, or third day of a six-week or shorter semester, students may Add a course through the web-registration process, by meeting with their advisor, or by submitting a Registration/Schedule Adjustment form to the Office of the Registrar.

Through the sixth day of classes for a ten- or fifteen-week semester, fourth day of a seven-week semester, third day of a six week or shorter semester, students may Drop any or all courses from their schedule and receive a refund of tuition and fees associated with the dropped courses.

Late Addition

In rare circumstances a student may have a legitimate and substantial need to register, add a class or change a class section after the deadline (i.e., Last Day to Add a Class). In these instances the student must complete the Registration/Schedule Adjustment form, with recommendations (approval/non-approval) from the instructor and the chair of the department that offers the course. The Office of the Registrar will process the request once approvals are obtained.

New international students who want to register after the deadline must obtain approval from the International Student Advisor, and in the case of graduate students, the Graduate Dean. Approvals for late registration for new international students will include the respective academic units.

Credit to Audit

A student is permitted to change a course from credit to audit through the fourth week of a fifteen-week semester, the third week of a seven- or ten-week semester, and the second week of a five-week or shorter semester. 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

After the Drop/Add period a student may Withdraw from any course and receive a grade of W. The deadline for Withdrawal is the end of the tenth week of a fifteen-semester, end of the seventh-week of a ten-week session, the end of the fifth week of a seven-week session, the end of the third week of a five-week semester, or the end of the second week of a semester shorter than five weeks.

Withdrawal is accomplished by either 1) executing a withdrawal on the registration website or 2) by submitting a Registration/Schedule Adjustment form to the Office of the Registrar. No signatures or approvals are required for a Withdrawal, but students should consult with appropriate officials to determine the impact that withdrawing from a course may have on financial aid, athletics eligibility, visa status, etc.

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.

Late Withdrawal

After the Withdrawal period, a student may request a Late Withdrawal from a course 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.

Students requesting a Late Withdrawal must submit the Late Withdrawal Form, along a written explanation of the extenuating circumstances and any appropriate documentation, to the Dean of Students for review. If the Dean of Students believes sufficient evidence exists to warrant a Late Withdrawal, the withdrawal request is forwarded to the Dean of the college in which the student is enrolled (minus personal documentation) for consideration.

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.

Retroactive Withdrawal

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 use the Retroactive Withdrawal form, and include clear and documented evidence whenever possible. The Dean of Students verifies the documentation and 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.

Medical Withdrawal

Students may at times experience medical hardships that prevent them from attending class and necessitate a withdrawal. Decisions on whether to award a Drop, Withdrawal, Refund, etc. must include sufficient documentation to justify the request. In such cases the student should contact the Dean of Students office for assistance.

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.

Course Forgiveness and 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; hence, they should avoid the need for repeats.

Students may repeat any course an unlimited number of times in order to achieve a passing grade or an improved understanding of the course material.

One course may be repeated with the previous grade excluded from the calculation of the student's grade-point average. The student must declare such a course repeat before the end of the regular registration period for the semester in which the course will be repeated. Only a course for which the student has received a grade of C, D, or F may be repeated under this option. When withdrawing from a course that has been declared as a course repeat, the previous grade will still be used in the computation of the GPA, and the course will not count toward the maximum of one repeat. Until a grade other than W is reported, the previous grade will be used for the GPA. The transcript will show both the original grades and the course repeat

grades, but only the grade points and semester hours earned in the repeated course will count toward graduation and will be averaged into the student's GPA. Concurrent registration for multiple sections of a course is not allowed.

For all other courses repeated at UAH, both the original grade and the course repeat grade will show on the transcript and will be calculated in the student's GPA.

A student wishing to exercise the option of repeating a course with grade replacement must file the intent to do so in the Office of the Registrar before the end of regular registration using a Graduate Course Repeat form.

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 the Registrar 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.)

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	Graduate
600-699	Graduate
700-799	Graduate, Ph.D. level

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 the Registrar 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 the Registrar 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 (SSB 120) 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. **P-F policies vary from college to college; consult your advisor before selecting this option.**

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, as well as the rest of the Charger Foundations, (p. 30) may not be taken P-F. Departments may limit the P-F to courses outside the department or college.

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 fourth examinations rescheduled.

Student Grade Report

At the completion of each semester, a report of final grades is available for viewing using myuah.uah.edu.

Grade Point Average

The grade point average (GPA) is computed by dividing the total number of quality points earned at UAH by the total number of semester hours attempted at UAH (transfer grades are not included). Courses in which a grade of NC, W, P, S, X or AU is assigned are not included.

Change of College

Students who are pursuing a program of study in one college at UAH and desire to change to a program in another college may petition to do so by making application at the Office of the Registrar. 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.

Student Athletes

Student athletes must declare a major and follow an academic plan by the beginning of the third academic year or fifth academic semester.

Support Services

The University of Alabama in Huntsville provides a wide range of support services designed to help students succeed throughout their college career and after. Our Student Success Center is staffed with tutors and academic coaches who offer assistance in a variety of subjects, while the Student Health Center keeps our students performing at their best. We even have Career Services to help them plan for life after graduation. Information on the services we offer to enhance the college experience can be found in this section of the catalog.

Academic Support Services

Student Success Center (SSC)

M. Louis Salmon Library First Floor
www.uah.edu/ssc
ssc@uah.edu

256-824-2478

The Student Success Center (SSC) provides academic support programs that empower individuals to realize their potential as self-directed learners and professionals. The SSC is located in M. Louis Salmon Library. To learn more about any of our programs, visit the SSC website (<http://www.uah.edu/ssc>) or call 256-824-2478.

Tutoring Programs

The Tutoring Programs consist of Academic Coaching, Content Tutoring, and Writing Tutoring. The goal of the Tutoring Programs is to work with UAH students not only on content, but also on study and learning strategies so that students can become independent learners. The programs provide academic assistance to students in-person and online through one-on-one and small group sessions with up to three classmates.

Academic Coaching helps students improve their performance in and out of class by offering sessions on study, learning, and self-management strategies. During a session, coaches and students work together to create an action plan.

Content Tutoring provides academic assistance for students in a variety of subjects. Tutors work with students on course content and developing study and learning strategies during a session.

Writing Tutoring helps students become more confident and successful writers. Writing tutors use peer consultations at any point in the writing process to encourage writers to identify and develop their own writing skills.

To make an appointment or learn more about our programs, visit the Tutoring Programs website (<https://www.uah.edu/ssc/tutoring>) or call 256-824-2478.

Peer Assisted Study Sessions (PASS)

The Peer Assisted Study Sessions (PASS) Program provides academic support for students enrolled in specifically designated classes that are considered historically difficult. PASS leaders are UAH students who have previously and successfully completed the course. They attend class lectures along with currently enrolled students and facilitate group study sessions two to three times per week outside of class. PASS provides an active learning environment through sessions that focus on both course content and learning strategies. To find out more about the program, or to view the current PASS schedule, students can visit the PASS website (<http://www.uah.edu/ssc/pass-program>) or call 256-824-2478.

College Academic Support Centers

College of Business Administration

The Office of Academic Assistance is located in the Business Administration Building, room 102. Advisement and tutoring arrangements may be scheduled by phone at 256.824.6024 or by email at undergradbiz@uah.edu.

College of Engineering

The College of Engineering Student Affairs Office is located in the Engineering Building, room 157. The office offers comprehensive advising services and coordinates tutoring when requested. Phone 256.824.6877 for information.

College of Arts, Humanities, and Social Sciences

The Academic Advisors for the College of Arts, Humanities, and Social Sciences are Mr. Frank Bell and Ms. Jana Savanapridi, are located in the Conference Training Center (CTC) 113. CAHS students who have not filed a Program of Study must meet with Mr. Bell or Ms. Savanapridi for schedule planning before registering. Call for an appointment at 256.824.2867 (bellf@uah.edu or jms0014@uah.edu) The College maintains two libraries: A Sociology Library in CTC 203 and a Women's and Gender Studies Resource Center library in CTC 111.

College of Nursing

Student advisement is conducted in the College of Nursing, Suite 227 by Ms. Laura Mann, Director of Admissions and Advisement or by Ms. Janiece Smith, Academic Advisor. Students who are not registered nurses pursuing a Bachelor of Science in Nursing (BSN) should visit the office for advisement about pre-requisite courses and for answers about admission requirements. Appointments with Ms. Mann can be set up by calling the Office of Undergraduate Nursing Programs at 256-824-6742 or by online scheduling at <https://www.uah.edu/nursing/degree-programs/bsn>. Students who are registered nurses completing degree requirements for a BSN can contact Ms. Janiece Smith, CON Academic Advisor by calling 256-824-6742 or by email at jas0031@uah.edu.

College of Science

The College of Science Academic Advisers, Ms. Morgan Lewis and Ms. Jennifer Bradley are located in the Materials Science Building room 206C and may be reached at scienceadvising@uah.edu or 256.824.6605. Science advising is provided for College of Science undergraduate students in conjunction with departmental advising. Each department in the College of Science provides its own student services, including tutoring and specialized support centers that support major and non-major courses in biology, chemistry, computer science, mathematics, and physics. Information can be obtained in the departmental offices.

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 256.824.6470, 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 on the lower level of the Shelby Center in Room 006, 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 256.824.6470, or visit our website at www.math.uah.edu.

Calculus Workshop

UAH's calculus workshop provides academic assistance to students at any level of calculus. No fee is charged and no grade is given. The workshop encourages students to work in groups on problems presented by graduate teaching assistants. Workshop participants get away from standard homework problems and see how math is used in the real world. This promotes teamwork, a sense of belonging to a community of math peers, and developing friendships which extend beyond the workshop.

Physics Success Center

The Physics 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-going tutoring.

UAH Police Department

The UAH Police Department works diligently to promote the security of our campus community through a variety of services and programs, which are conducive to the support of the University's learning environment.

More information on UAH security policies and procedures can be found in the University's Annual Security Report (http://www.uah.edu/images/administrative/police/safety/asr_2016.pdf).

Security Tips

Get to know these valuable tips (<http://www.uah.edu/police/programs/campus-security/157-facilities-operations/2262-police-campus-security-tips>) that will help ensure your security on, and off, the UAH campus.

Reporting Crime

It is the policy of the university to strongly encourage students, employees, and visitors to UAH to promptly contact the university police, or if they wish, the Huntsville Police Department, about any criminal activities, accidents, or medical emergencies occurring on campus. Reporting a crime does not mean an individual must take legal action – it may, however, help law enforcement stop further incidents as well as help them keep the community informed about criminal activity.

To make a report in person, an individual should go to the UAH Police Department, which is located in the Intermodal Facility, 501 John Wright Drive (Parking Garage). To make a report by phone, call 256-824-6596 and describe the situation to the communications operator. In emergency situations, including fires and medical emergencies, call 911 or UAHPD at 256-824-6911. All 911 calls made from campus phones go directly to the UAH Police Department; all cell phone 911 calls are routed to UAHPD through the Madison County 911 center.

Campus Security Authorities

A person may also report a crime to certain individuals who have been designated as a Campus Security Authority (CSA). These individuals include the Director of Housing and senior Housing Office staff members, Residence Directors, the Dean of Students, the Director of Judicial Affairs, the Director of Student Activities, the Director of Greek Life, the Director of Student Leadership Development and Service Learning, the Director of Athletics or any coach, Staff in the Student Health Center, the Vice President of Diversity, the Associate Provost, the Associate Vice President for Human Resources, or other UAH officials with significant responsibility for student and campus activities. Upon request, the CSA may assist the reporting individual in contacting the University Police about an incident.

In some cases, the reporting person may wish to remain anonymous or a victim may not want to involve the police. The CSA will record the information on a special form that will be forwarded to the Chief of Police. The Chief will evaluate the information and determine if other actions required under Federal law may have to be taken. The reporting person will likely not be contacted. All such incident reports will help the University take steps to make the campus safer. They will be used, in particular, to determine whether there is a pattern of crime involving a particular location, offender, or method;

to provide the basis for alerting the campus community about crimes posing a danger to students or employees; and to compile the crime statistics included in this annual report.

KNOW WHAT TO DO: Emergency Preparedness at UAH

As an on-going effort, UAH has developed an Emergency Management Plan. Part of the plan is to inform our community of how to respond in the event of an emergency. Knowing what to do in an emergency situation will help keep the UAH community safe and secure. Each department/unit should also have an up-to-date Building Emergency Action Plan that includes information on assembly areas, shelter locations, hazardous materials storage, and building-specific emergency contacts. We encourage you to familiarize yourself with the Emergency Action Guidebook (http://www.uah.edu/images/administrative/facilities/oep/emergency_guidebook.pdf) and the building-specific emergency action plan(s) for each building you regularly visit.

Information Technology Services

Campus Technologies

The Office of Information Technology (<http://oit.uah.edu>) (OIT) offers technological expertise and service to UAH faculty, students, and staff. OIT maintains many online resources such as Banner, UAH's enterprise resource program. Banner components, such as those used by the Bursar's and the Registrar's office, are integral to the success of UAH. Other online resources maintained by OIT include:

- A portal to access most UAH online resources - myUAH (<http://my.uah.edu>)
- G Suite for Education (<http://google.uah.edu>) - Google Mail, Calendar, Drive, and more
- A self-service password reset site, <http://reset.uah.edu>
- The OIT User Services portal (<http://oitportal.uah.edu>) where you can change your known password, import your course schedule onto your Google calendar, and more

Enhanced Learning

The Enhanced Teaching and Learning Group (ETL) includes Online Learning (<https://www.uah.edu/online-learning>) and Academic Technologies. The Online Learning team offers instructional design, online course development training, and more. The Academic Technologies team supports the following and more:

- Canvas (<http://canvas.uah.edu>), UAH's online learning management system
- Panopto, UAH's Lecture Capture solution
- TurningPoint/Clickers (from Turning Technologies), an engagement and assessment solution for real-time student participation during classes
- Classroom Technology, including audio-visual equipment
- Video Conferencing Services
- Qualtrics, UAH's online survey solution
- Respondus LockDown Browser and Respondus Monitor

Technical Support

The OIT Help Desk is available for remote support 24/7/365 at 256-824-3333. Between 9 and 5 on weekdays that the university is open, the Help Desk is available via email at helpdesk@uah.edu or at the Salmon Library.

Classroom Technology Support is available 7:30 am - 7:30 pm Monday through Friday at (256) 513-7492. Support for Canvas and related technologies is available 24/7 by calling 1-844-219-5802 (students) or 1-833-519-8478 (faculty). Support via chat is available from within Canvas (click "Help" > "Chat with Canvas Support").

With so many online resources, it is important for each student to know his or her Charger ID and password (<https://www.uah.edu/oit/services/charger-id-and-password>). OIT offers account management support.

Networks and Telecommunications

Wireless network access is available for all students via the eduroam wireless network. Campus residents may take advantage of wired network access and telecommunications access from OIT.

Desktop Software

OIT makes a number of software programs available at no cost for faculty, staff, and students via Chargerware at <http://chargerware.uah.edu>.

Students have access to state-of-the-art computer labs in each college as well as open labs in the Salmon library. The computers in these labs offer software products not distributed to students via Chargerware.

Campus Printing

Students, as well as visitors and guests, have access to the printing kiosks located around campus. Click here for more information. (https://uah.edusupportcenter.com/sims/helpcenter/common/layout/SelfhelpArticleView.seam?inst_name=uahhd&article_id=2137-1529043)

Student Facilities and Services

University Housing

The University of Alabama in Huntsville (UAH) 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 Central Campus Residence Hall (CCH), Frank Franz Hall (FFH), or North Campus residence Hall (NCH). 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 Charger Village (CGV), Southeast Campus Housing (SCH), and the Off Campus Apartments (OCA). Students who are of at least junior status or 21 years of age may apply to Southeast Campus Housing (SCH), or Off Campus Apartments (OCA). Upperclassmen assignments are based on availability of space. CCH, FFH, CGV and NCH all have private rooms designed for students who are physically challenged.

All Housing and Residence Life suites have basic cable television connection and a dedicated telephone line, except for the suites in Charger Village where there is one dedicated phone line in each common room. Each bedroom has a computer hookup that provides access to UAH's mainframe and the Internet. Housing and Residence Life offers wireless service throughout all of its facilities.

All residence halls are convenient to the Salmon Library, the University Fitness Center, Charger Union, and all classroom facilities. 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 a loftable extra-long twin bed, a wardrobe or closet, a chest of drawers, a desk and chair. Suites are furnished with a sofa, accent tables, and lounge chairs. CCH has a mini kitchen with a small refrigerator, microwave and sink. FFH, NCH, and CGV have a mini kitchen with an apartment-size refrigerator, microwave and sink. Laundry facilities, a recreation/meeting room, study lounges, and mail service are available in each residence hall. Access to all halls except SCH is by an electronic smart card.

Southeast Campus Housing (SCH) consists of a cluster of nine three-story buildings located on John Wright Drive near the University Fitness Center and most engineering and science classrooms. Private bedrooms in three-bedroom suites are available in Southeast Campus Housing. 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 UAH is eligible for an assignment in University Housing. Housing and Residence Life applications are 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.), the date of receipt of the application, commitment fee, and availability of housing.

All single students sign an academic year room contract (Fall semester-early May). Housing charges are due when tuition is due each academic semester. Summer housing for single students is available in Frank Franz Hall, Southeast Campus Housing, or the Off Campus Apartments, under a separate contract. The room contract for family and graduate student apartments is for twelve months (Fall semester-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
601 John Wright Drive
256.824.6108

or on line at <http://www.uah.edu/housing>. Individual and group tours of UAH Housing and Residence Life may be arranged by appointment through the Admissions Office.

University Food Service

Through the delivery of an exceptional food program, the UAH 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, meal plan hours, and meal plan options.

The Charger Cafe is an "All You Care To Eat" dining area located in the Conference Training Center (CTC). The menu program is known as Ultimate Dining and features rotating formats of food presentation: Classics, Pizzarette, The Grille, Innovation Station, Soup'n Salad, Made to Order Deli Station, Vegetarian Selections, Gluten Free Bar, Desserts and Beverages. A spacious dining room with an adjacent patio is available for all guests.

In addition to the Charger Cafe, the CTC also houses 'We Proudly Brew Starbucks Coffee' and Sandella's Flat Bread Cafe. A second Starbucks Coffee location offers a coffee shop atmosphere and menu in the Salmon Library. This is the ideal place for meetings, grab-and-go 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.

Charger Village (CGV) houses Chick-fil-A, Papa John's Pizza, Burrito Bowl, and a convenience store (The C-Store) featuring Boars Head Deli. A nice dining area and patio are available to meet with friends for a meal or to enjoy the view while studying.

Charger Union (CGU) is the home to Dunkin' Donuts, Mein Bowl, and World of Wings. There are plenty of places in and around the building to enjoy a cup of coffee or meet friends to indulge in the best wings on campus.

Technology Hall is the home to Blue's Tech Hall mini convenience store featuring Simply-To-Go quick food options such as sandwiches, salads, fresh fruit and more! The store also offers assorted candy bars, energy drinks, or bottles soda's or water.

The Gardenview Cafe located in the Bevill Conference Center and Hotel is a full service All You Care To Eat dining facility available for students, faculty/staff, and the Huntsville community..

UAH Dining Services also provides catering services campus wide for any student or campus groups. Visit "www.uah.edu/bevill-center/catering" to view our menu options as well as limited time offers for special events.

The Charger Union

The Charger Union (CGU) serves as the heart of the UAH community. It provides a comfortable, safe, and welcoming environment for student life and engagement. The Charger Union supports the personal and professional development of students, offering formal and informal spaces to attend programs and access to high quality services that enhance the UAH educational mission.

The Charger Union offers meeting rooms, dinning (World of Wings and Dunkin Donuts) and snack facilities, lounges, two game rooms (one traditional game room with pool tables and ping pong, and an e-gaming lounge with the latest e-gaming systems and large monitors), an information desk, student organization spaces, a theater, and the University Bookstore. Also located in the CGU are the offices of the Dean of Students, the Student Government Association, Association for Campus Entertainment, the Charger Times, Student Life, Student Engagement & Transitions, and Charger Union Administrative offices.

M. Louis Salmon Library

333 Salmon Library

Telephone: 256.824.6540

Email: library@email.uah.edu

Director: David Moore

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, five general-purpose laboratories, 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 shop 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 UAH 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. UAH subscribes to numerous full-text and bibliographical databases each of which supports specific colleges, including Arts, Humanities, and Social Sciences; Business; Education; Engineering; Nursing; Professional and Continuing Studies; and Science.

UAH subscribes to numerous full-text databases each of which supports specific colleges including: Arts, Humanities, and Social Sciences; Business; Education; Engineering; Nursing; Professional and Continuing Studies; 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 IEEEExplore, 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 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 256.824.2368, Email at erefq@uah.edu. Library home page is: <http://www.lib.uah.edu>.

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
- Barnes and Noble's On-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
- Flex

Deposits by cash, check or credit card are accepted in UAH's Cashier's Office.

Meeting Spaces

Meeting Rooms

The Charger Union has meeting rooms designed for multipurpose functions. The rooms can accommodate meetings of a variety of sizes. 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.

Lounges

Spacious lounges, designed as a place to relax and meet friends, are equipped with comfortable furniture, tables and chairs for small group meetings, and plenty of places to charge your favorite electronic devices.

Student Support Services

Dean of Students

Student Affairs at UAH 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 UAH 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 UAH. 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, stress management, and many other concerns. See our webpage at <http://www.uah.edu/counseling/> for more information. To schedule an appointment, contact the Counseling Center at 256.824.6203 or come by Executive Plaza Bldg 200, Suite 208.

Disability Support Services

Disability Support Services (DSS) is committed to ensuring access to 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. However, the student can choose whether or not to register for services. Disability support services are provided in accordance with federal law. To be eligible for services, students must provide documentation of disability from an appropriate practitioner. See our webpage at www.UAH.edu/counseling/disability (<http://www.uah.edu/counseling/disability>) or contact DSS for more information. To schedule an appointment contact our office at 256.824.1997 or come by Wilson Hall 317.

Office of International Services

The Office of International Services (OIS) 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 OIS 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 OIS coordinates programs and services that extend the university to our local and global communities. The OIS is located in the Student Services Building, Room 218; phone 256.824.6055.

Undergraduate Minority Mentoring Program

The Office of Undergraduate Minority Student Mentoring at UAH 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 UAH. 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 Charger Union 201; 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 UAH 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 UAH campus. Students may contact the Office of Multicultural Affairs in Conference Training Center, Room 104, or telephone 256.824.6822 (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 Wilson Hall 325. 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 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 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. 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
Wilson Hall 325
301 Sparkman Drive
Huntsville, AL 35899
256.824.6775
256.824.6722 (Fax)
shc@uah.edu

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

Veterans Affairs

The Office of Veteran Student Services works to develop and implement a variety of programs to provide student support services focused on the special needs of today's military veterans, service members, dependents, and survivors. The office, located on the second floor of the Charger Union in the Dean of Students suite (Room 223), offers a comprehensive educational benefits counseling program to help students maximize VA educational benefits. A variety of programs are offered to facilitate the transition to school and to help support our students by advocating for the needs of our veterans, service members, dependents, and survivors. The office offers Veteran Work Study positions for eligible students.

For questions about tuition and fees for Veterans, please consult the UAH Tuition Fee Guidelines (<http://catalog.uah.edu/undergrad/admissions/residency>) page.

For students receiving VA education benefits, any complaint against the university should be routed through the VA GI Bill Feedback System by going to the following link: <http://www.benefits.va.gov/GIBILL/Feedback.asp>. The VA will then follow up through the appropriate channels to investigate the complaint and resolve it satisfactorily.

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