COLLEGE OF ARTS AND SCIENCES

The College of Arts and Sciences is a diverse community of educators, students, and researchers from across the country and around the world who work together to advance the boundaries of human knowledge, foster critical thinking skills, promote intellectual inquiry, and develop an understanding of different human cultures necessary to become engaged global citizens.

These goals compel a commitment to creativity and inquiry free of bias and based upon the principles of objective scholarship. They require a responsibility to promote and convey those elements of the liberal arts and sciences that must be essential components of the educational goals of all units of the university. The college seeks richness through diversity of its programs and strength through erudition.

The College of Arts & Sciences is the university’s largest and oldest; it teaches the most students, and provides the backbone for Troy University’s educational and research missions. As a result, you will find a broad array of academic programs that will prepare you for careers in public and private sectors as well as postgraduate and professional schools. These programs emphasize the core values of a classic liberal arts education, as well as the skills and flexibility one will need to meet the challenges of the 21st-century workplace.

A degree from the College of Arts & Sciences is much more than preparation for a career—it is preparation for a complete, rich, and rewarding life.

In addition to general studies courses, major courses and minor courses, sufficient free electives should be chosen to total at least 120 hours.

As part of ongoing planning and evaluation, the College of Arts and Sciences regularly evaluates student learning outcomes for each degree program.

COLLEGE OF ARTS & SCIENCES GLOBAL SCHOLARS PROGRAM (TROY CAMPUS)

The College of Arts & Sciences (CAS) Global Scholars Program is designed to enhance cultural, global, and international competency among the University’s College of Arts & Sciences students who are interested in furthering their own international awareness and global preparedness.

Program benefits include:

- Designation of Global Scholar appearing both on student diplomas and transcripts attesting to the graduate’s international awareness and global preparedness.
- Meaningful international travel experience for the purpose of research abroad in the student’s chosen field of study.
- Regular interaction with international students on campus at Troy University.
- Strong relationships with mentors here at Troy University, which will produce highly trained graduates with the connections needed to compete for jobs and funded graduate programs.
- Early registration privileges, allowing CAS Global Scholars to register in the first group of students.

Additional information and a link to the application form can be found on the program website at https://www.troy.edu/casglobalscholars.

Requirement 1:
Specified General Studies courses with an international or cultural (I/C) emphasis, chosen from Areas II & IV, are listed below. Other courses can be used as substitutes with the approval of the directors of the CAS Global Scholars Program.

Area II General Studies Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 2250</td>
<td>Survey of Art History I</td>
</tr>
<tr>
<td>ART 2251</td>
<td>Survey of Art History II</td>
</tr>
<tr>
<td>ENG 2205</td>
<td>World Literature before 1660</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>ENG 2206</td>
<td>World Literature after 1660</td>
</tr>
<tr>
<td>MUS 2240</td>
<td>World Music Cultures</td>
</tr>
<tr>
<td>IDS 2230</td>
<td>Int. Engagement Seminar</td>
</tr>
<tr>
<td>PHI 2204</td>
<td>Ethics and the Modern World</td>
</tr>
<tr>
<td>REL 2280</td>
<td>World Religions</td>
</tr>
</tbody>
</table>

Area IV General Studies Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIS 1122</td>
<td>World History to 1500</td>
</tr>
<tr>
<td>AND</td>
<td></td>
</tr>
<tr>
<td>HIS 1123</td>
<td>World History from 1500</td>
</tr>
<tr>
<td>ANT 2200</td>
<td>Anthropology</td>
</tr>
<tr>
<td>BUS 1120</td>
<td>The Global Challenge</td>
</tr>
<tr>
<td>BUS 1121</td>
<td>The Global Challenge Honors</td>
</tr>
<tr>
<td>GEO 2210</td>
<td>World Regional Geography</td>
</tr>
<tr>
<td>POL 1101</td>
<td>Politics and Popular Culture</td>
</tr>
<tr>
<td>POL 2260</td>
<td>World Politics</td>
</tr>
<tr>
<td>POL 2270</td>
<td>Terrorism and Counterterrorism</td>
</tr>
<tr>
<td>REL 2280</td>
<td>World Religions</td>
</tr>
<tr>
<td>SOC 2275</td>
<td>Introduction to Sociology</td>
</tr>
</tbody>
</table>

Requirement 2:
Research abroad and associated preparatory and follow-up activities as directed and approved by program mentors and directors.

Requirement 3:
A 3000- or 4000-level methodology course selected and approved by program mentors and directors aimed at preparing the student to design and conduct research abroad.

Requirement 4:
CAS Global Scholars will complete a minor in Intercultural Competency OR a Foreign Language. (This requirement is waived for students enrolled in a CAS program, such as Biology/Biomedical Sciences, Computer Science, Cyber Security, Electronic Engineering Technology, Marine Biology, or Surveying and Geomatics Sciences, that requires more than 36 credit hours.)

Requirement 5:
Directed international service learning to foster regular interaction with international students at Troy University. CAS Global Scholars must complete at least 50 service-learning hours before graduation through activities arranged or preapproved by the directors and mentors of the CAS Global Scholars Program.

ACCELERATED LAW CURRICULUM (58 HOURS)

1. Students interested in the Accelerated Law Curriculum must complete the resident course requirements for a major in Anthropology, Criminal Justice, History, Political Science, Social Science, or Sociology by the end of the third year of study at Troy University (or semester prior to attending partnered institution).
2. Students interested in the Accelerated Law Curriculum must
meet the admission requirements and be accepted to a partnered institution. Students must take the LSAT exam as part of the admissions requirement. Participating in the Accelerated Law Curriculum does not guarantee acceptance into a law program.

3. Students must successfully complete 30 semester hours of law courses outlined by the partnered institution in order to receive Troy University credit. Those 30 semester hours will be transferred into the chosen major electives, minor electives, and Area V General Studies electives.

4. In addition to completing the major requirements, students must minor in Legal Studies.

5. Students will receive both a faculty adviser for their declared major as well as an adviser for the Accelerated Law program.

6. For the Legal Studies Minor (18 hours)- Students must complete the following classes at Troy University:
   - LGL 2200 (3) Introduction to Legal Studies
   - LGL 3300 (3) Legal Research and Writing
   - LGL 4400 (3) Seminar in Legal Studies

   The following 9 hours will be completed at the partnered law school and transferred to Troy University to complete the minor:
   - **Mississippi College of Law**
     - LAW 502 (3) Torts
     - LAW 582 (2) Legal Analysis and Communication I
     - LAW 580 (1) Legal Research I
     - LAW 583 (2) Legal Analysis and Communication II
     - LAW 581 (1) Legal Research II
   - **Cumberland School of Law, Samford University**
     - Lawyering and Legal Reasoning I — 3 credit hours
     - Lawyering and Legal Reasoning II — 3 credit hours
     - Evidence — 3 credit hours
   - **Jones School of Law, Faulkner University**
     - Legal Reasoning, Writing, & Research — 3 credit hours
     - Foundations of Law — 3 credit hours
     - Foundations of Legal Prof. — 1 credit hour
     - Legal Analysis and Persuasion — 2 credit hours

7. Upon successful completion of the designated 30 semester hours of courses at the partnered institution, students may be awarded a Bachelor’s Degree in one of the designated majors with a minor in Legal Studies. Please see specific requirements for your chosen major. The 30 semester hours of courses from the partnered institution will be credited as follows:

   **Anthropology Major:**
   - 9 hours will be applied to the Legal Studies Minor
   - 9 hours will be applied to the Anthropology Major
     - Civil Procedure I — 3 hours
     - Civil Procedure II — 3 hours
     - Criminal Law — 3 hours
   - 12 hours will be applied to Area V General Studies

   **Criminal Justice Major:**
   - 9 hours will be applied to the Legal Studies Minor
   - 6 hours will be applied to the Criminal Justice Major
     - Civil Procedure I — 3 hours
     - Civil Procedure II — 3 hours
   - 15 hours will be applied to Area V General Studies

   **History Major:**
   - 9 hours will be applied to the Legal Studies Minor

9 hours will be applied to the History Major
   - Civil Procedure I — 3 hours
   - Civil Procedure II — 3 hours
   - Criminal Law — 3 hours
   - 12 hours will be applied to Area V General Studies

   **Political Science Major:**
   - 9 hours will be applied to the Legal Studies Minor
   - 6 hours will be applied to the Political Science Major
     - Civil Procedure I — 3 hours
     - Civil Procedure II — 3 hours
   - 15 hours will be applied to Area V General Studies

   **Sociology Major:**
   - 9 hours will be applied to the Legal Studies Minor
   - 6 hours will be applied to the Sociology Major
     - Civil Procedure I — 3 hours
     - Civil Procedure II — 3 hours
   - 15 hours will be applied to Area V General Studies

   **AIR FORCE ROTC/AEROSPACE STUDIES MINOR (18 HOURS)**
   - Those students pursuing a career in the Air Force will be individually advised by the faculty as to commissioning requirements and courses needed.
     - AS 3312 (3) Leading People and Effective Communication I
     - AS 3313 (3) Leading People and Effective Communication II
     - AS 4412 (3) National Security and Preparation for Active Duty I
     - AS 4413 (3) National Security and Preparation for Active Duty II

   *Independent Study and Research program credit(s) may be applied with prior approval by the Department of Aerospace Studies.

   **ANTHROPOLOGY MAJOR (36 HOURS)**
   - Anthropology majors should take Area IV electives appropriate for their major.
     - Area V
       - ANT 2200 (3) Anthropology
       - STAT 2210 (3) Introductory Statistics

   **Major Requirements:**
   - ANT 3305 (3) Introduction to Archaeology
   - ANT 3310 (3) Cultural Anthropology
   - ANT 3311 (3) Physical Anthropology
   - ANT 3340 (3) Language in Culture and Society
   - ANT 3375 (3) Research Methods
   - ANT 3376 (3) Anthropological Statistics
   - ANT 4497 (3) Professional Seminar in Anthropology
ANT 4498 (3) Anthropological Theory

Select at least 12 hours of additional 3000/4000 level anthropology courses as approved by your faculty adviser.

Accelerated Law Curriculum Option:
Students majoring in Anthropology and Legal Studies as a minor may select the Accelerated Law Curriculum Option. See the Accelerated Law Curriculum section the catalog for more information.

The 30 semester hours from the partnered institution will be credited as follows:
9 hours will be applied to the Legal Studies Minor
9 hours will be applied to the Anthropology Major
Civil Procedure I – 3 hours
Civil Procedure II – 3 hours
Criminal Law – 3 hours
12 hours will be applied to Area V General Studies

ANTHROPOLOGY MINOR (18 HOURS)

ANT 2200 (3) Introduction to Anthropology

Select at least 15 hours of additional 3000/4000-level anthropology courses as approved by your faculty adviser.

ARCHAEOLOGY MINOR (18 HOURS)

Required Courses:
A grade of “C” or better is required
ANT 3305 (3) Introduction to Archaeology
ANT 3312 (3) Field Techniques in Archaeology
ANT 4460 (3) Archaeological Method and Theory

An additional 9 hours from 3000/4000 level courses can be selected from the following departments: Art History, Classics, Geomatics, GIS, Geography, History, Philosophy, Religion, and approved by an Anthropology faculty

AVIATION OPERATIONS MINOR (18 HOURS)

Rotary Emphasis and Fixed Wing Emphasis – Equivalent credit toward the completion of the Aviation Operations minor/ Rotary emphasis and the Aviation Operations minor/Fixed Wing emphasis may be earned through Federal Aviation Administration (FAA) certification and licensure in such areas as private pilot, commercial pilot and flight instruction.

For information regarding the Rotary emphasis and Fixed Wing emphasis of the Aviation Operations minor, contact the Dean of Undergraduate and First Year Studies in 117 Eldridge Hall, Troy Campus.

BACHELOR OF APPLIED SCIENCE IN RESOURCE AND TECHNOLOGY MANAGEMENT (36 HOURS)

Area IV Requirements
Choose six credit hours from the following:
ANT 2200 (3) Anthropology
CJ 1101 (3) Introduction to Criminal Justice
ECO 2251 (3) Principles of Macroeconomics
ECO 2252 (3) Principles of Microeconomics
GEO 2210 (3) World Regional Geography
LDR 1100 (3) Introduction to Leadership
PHI 2205 (3) Introduction to Logic
PHI 2210 (3) Critical Thinking
SOC 2275 (3) Introduction to Sociology

Area V Requirements
TROY 1101 (1) The University Experience
IS 2241 (3) Computer Concepts and Applications
STAT 2210 (3) Introductory Statistics

Required Core Courses (18 Hours)
Select 18 hours from the following courses:
MGT 3300 (3) Principles of Management
MKT 3300 (3) Principles of Marketing
CS 3310 (3) Foundations of Computer Science
SS 3375 (3) Research Methods in the Social Sciences
SCI 3365 (3) Principles of Applied Science
BIO 4465 (3) Occupational Safety and Health
PSY 4410 (3) Business and Industrial Psychology
LDR 3300 (3) Leadership Theory

Choose Either Option 1 or Option 2
Option 1 – 18 Hours
Select two (2) of the following concentrations:

Human Resources
Select nine (9) hours from the following:
HRM 4482 (3) Managing Health, Safety, and Diversity
HRM 4455 (3) Employment Law
HRM 4483 (3) Human Resources Development
MGT 4472 (3) Organizational Behavior

Leadership
Select 9 hours from the following:
LDR 3320 (3) Great Leaders
LDR 2200 (3) Tools for Leadership
LDR 4400 (3) Leadership Seminar
LDR 4402 (3) Leadership Seminar Field Experience

Sociology
Select 9 hours from the following:
SOC 3370 (3) Society and Environment
SOC 4411 (3) Population and Society
SOC 4413 (3) Sociology of Race and Ethnicity
SOC 4445 (3) Trends in Globalization

Criminal Justice
Select 9 hours from the following:
CJ 3335 (3) Security Operations
CJ 3380 (3) Digital Forensics I
CJ 4472 (3) Cyber Crime
CJ 4475 (3) Seminar in Cyber Security

Computer Science
Select 9 hours from the following:
CS 2250 (3) Computer Science I
CS 2255 (3) Computer Science II
CS 3334 (3) Foundations of Cyber Security
CS 3375 (3) Foundations of Networking

Science
Select 9 hours from the following:
BIO 4460 (3) Critical Issues in Environmental Management
SCI 3370 (3) Toxic, Radioactive, and Hazardous Materials
SCI 4450 (3) Science in Regulatory Environment
BIO 4479 (3) Environmental Assessment
BIO L479 (1) Environmental Assessment Lab

Option 2 – 18 Hours
Transfer of *Specialized technical courses. (not to exceed 18 semester hours.)

*Specialized technical courses.
Credit will be awarded for specialized technical knowledge based
upon American Council of Education (A.C.E.) credit recommendations or transfer work from regionally accredited (Southern Association of Colleges and Schools, Middle States Association of Colleges and Schools, etc.) post-secondary community college, or technical schools as approved by the Academic Council. Specializations are not available in fields of study that are offered through Troy University as majors, programs, or minors, e.g., nursing, computer science, information systems, or education. Exceptions to the use of a Troy University minor are the programs in Aviation Operations and Advanced Professional Flight. Program requirements for either minor may be used to satisfy the 18 hours of specialized technical courses.

**Eligibility**

Eligibility for enrollment in one of the applied science degree programs is dependent upon prior education and/or experience. Before enrollment in one of the programs, official documentation of prior learning must be submitted to determine eligibility. All post-secondary technical school transfer students must complete all courses required in the institution’s curriculum and earn (if appropriate) a diploma or certificate before being granted admission into the resources management degree program. No additional credit will be awarded for the possession of a license (i.e., all credit awarded is based on documentation of training and evaluation leading to the issue of a license, not the mere possession of a license). All credit from the Community College of the Air Force (CCAF), accredited post secondary technical schools, and/or American Council on Education (ACE) recommendations will be considered junior college credit except where specifically recommended by ACE for upper-division credit. No credit will be awarded until six semester hours of academic credit has been earned at Troy University. At least 50 percent of the degree program must be traditional academic credit at the 3300/4400 level. Curriculum: The academic curricula taught where specifically recommended by ACE for upper-division credit.

**Eligibility**

Students seeking Alabama teacher certification should select biology as a first major and education as a second major. Students should consult with their advisors concerning all certification requirements.

**BIOLOGY EDUCATION**

Students seeking Alabama teacher certification should select biology as a first major and education as a second major. Students should consult with their advisors concerning all certification requirements.

**BIOLOGY MAJOR (44 HOURS)**

*Special Topics in Biology (BIO 4476), Guided Independent Studies (BIO 4491/4492) and Guided Independent Research (BIO 4493, 4494) may only be taken for a maximum of 6 semester hours.

**Specialized General Studies Requirements**

General studies requirements for the biology, environmental science, biomedical sciences, and marine biology programs and the biology major total 64 semester hours. See the General Studies section of this catalog for complete general studies information.

**Area III**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 1100</td>
<td>Principles of Biology</td>
</tr>
<tr>
<td>BIO L100</td>
<td>Principles of Biology Lab</td>
</tr>
<tr>
<td>CHM 1142</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>CHM L142</td>
<td>General Chemistry I Lab</td>
</tr>
<tr>
<td>MTH 1125</td>
<td>Calculus I</td>
</tr>
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</table>

**Area V Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 1101</td>
<td>Organismal Biology</td>
</tr>
<tr>
<td>BIO L101</td>
<td>Organismal Biology Lab</td>
</tr>
<tr>
<td>CHM 1143</td>
<td>General Chemistry II</td>
</tr>
<tr>
<td>CHM L143</td>
<td>General Chemistry II Lab</td>
</tr>
<tr>
<td>IS 2241</td>
<td>Computer Concepts and Applications</td>
</tr>
<tr>
<td>TROY 1101</td>
<td>The University Experience</td>
</tr>
</tbody>
</table>

**Select one sequence:**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PHY 2252</td>
<td>General Physics I</td>
</tr>
<tr>
<td>PHY L252</td>
<td>General Physics I Lab</td>
</tr>
<tr>
<td>PHY 2253</td>
<td>General Physics II</td>
</tr>
<tr>
<td>PHY L253</td>
<td>General Physics II Lab</td>
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<td>OR</td>
<td></td>
</tr>
<tr>
<td>PHY 2262</td>
<td>Physics I with Calculus</td>
</tr>
<tr>
<td>PHY L262</td>
<td>Physics I with Calculus Lab</td>
</tr>
<tr>
<td>PHY 2263</td>
<td>Physics II with Calculus</td>
</tr>
<tr>
<td>PHY L263</td>
<td>Physics II with Calculus Lab</td>
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**Major Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIO 2220</td>
<td>Principles of Cell Biology</td>
</tr>
<tr>
<td>BIO 2229</td>
<td>General Ecology</td>
</tr>
<tr>
<td>BIO L229</td>
<td>General Ecology Lab</td>
</tr>
<tr>
<td>BIO 3320</td>
<td>Genetics</td>
</tr>
<tr>
<td>BIO 4484</td>
<td>Senior Seminar in Biological &amp; Environmental Sciences</td>
</tr>
<tr>
<td>CHM 3342</td>
<td>Organic Chemistry I</td>
</tr>
<tr>
<td>CHM L342</td>
<td>Organic Chemistry I Lab</td>
</tr>
<tr>
<td>CHM 3343</td>
<td>Organic Chemistry II</td>
</tr>
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<td>CHM L343</td>
<td>Organic Chemistry II Lab</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>CHM 3352</td>
<td>Biochemistry</td>
</tr>
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<td>CHM L352</td>
<td>Biochemistry Lab</td>
</tr>
<tr>
<td>STAT 2210</td>
<td>Introductory Statistics</td>
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</table>

**Complete one botany course with its corresponding lab:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 3325</td>
<td>Plant Form and Function</td>
</tr>
<tr>
<td>BIO L325</td>
<td>Plant Form and Function Lab</td>
</tr>
<tr>
<td>BIO 4425</td>
<td>Field Botany</td>
</tr>
</tbody>
</table>

**Complete one zoology course with its corresponding lab:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 3307</td>
<td>Invertebrate Zoology</td>
</tr>
<tr>
<td>BIO L307</td>
<td>Invertebrate Zoology Lab</td>
</tr>
<tr>
<td>BIO 4405</td>
<td>Entomology</td>
</tr>
<tr>
<td>BIO 4420</td>
<td>Field Vertebrate Zoology</td>
</tr>
<tr>
<td>BIO 4447</td>
<td>Ornithology</td>
</tr>
<tr>
<td>BIO L447</td>
<td>Ornithology Lab</td>
</tr>
<tr>
<td>BIO 4471</td>
<td>Parasitology</td>
</tr>
<tr>
<td>BIO L471</td>
<td>Parasitology Lab</td>
</tr>
</tbody>
</table>

**Complete one ecology/environmental course with its corresponding lab:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 4413</td>
<td>Limnology</td>
</tr>
<tr>
<td>BIO L413</td>
<td>Limnology Lab</td>
</tr>
<tr>
<td>BIO 4416</td>
<td>Microbial Ecology</td>
</tr>
<tr>
<td>BIO L416</td>
<td>Microbial Ecology Lab</td>
</tr>
<tr>
<td>BIO 4421</td>
<td>Population Ecology</td>
</tr>
<tr>
<td>BIO L421</td>
<td>Population Ecology Lab</td>
</tr>
<tr>
<td>BIO 4479</td>
<td>Environmental Assessment</td>
</tr>
<tr>
<td>BIO L479</td>
<td>Environmental Assessment Lab</td>
</tr>
</tbody>
</table>

**Complete one physiology/cell/molecular course with its corresponding lab:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIO 3347</td>
<td>Human Anatomy and Physiology I</td>
</tr>
<tr>
<td>BIO L347</td>
<td>Human Anatomy and Physiology I Lab</td>
</tr>
<tr>
<td>BIO 3348</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIO L348</td>
<td>Human Anatomy and Physiology II Lab</td>
</tr>
<tr>
<td>BIO 3372</td>
<td>Microbiology</td>
</tr>
<tr>
<td>BIO L372</td>
<td>Microbiology Lab</td>
</tr>
<tr>
<td>BIO 3382</td>
<td>Immunology</td>
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<tr>
<td>BIO L382</td>
<td>Immunology Lab</td>
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<tr>
<td>BIO 3386</td>
<td>Hematology</td>
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<td>BIO L386</td>
<td>Hematology Lab</td>
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<tr>
<td>BIO 4414</td>
<td>Food Microbiology</td>
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<tr>
<td>BIO L414</td>
<td>Food Microbiology Lab</td>
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<tr>
<td>BIO 4451</td>
<td>Toxicology</td>
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<td>BIO L451</td>
<td>Toxicology Lab</td>
</tr>
<tr>
<td>BIO 4480</td>
<td>Histology</td>
</tr>
</tbody>
</table>
**BIO 4481 (3) Molecular Biology**

**BIO 4482 (1) Molecular Biology Lab**

Complete one upper-level adviser-approved biology course and its corresponding lab.

### BIOLOGY MINOR (18-20 HOURS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 1101</td>
<td>Organismal Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIO L101</td>
<td>Organismal Biology Lab</td>
<td>1</td>
</tr>
<tr>
<td>BIO 2220</td>
<td>Principles of Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIO L220</td>
<td>Principles of Cell Biology Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

Complete 10 to 12 additional semester hours of approved upper-level (3300 or above) biology courses with corresponding labs.

### BIOLOGY/BIO MEDICAL SCIENCES (56 HOURS)

*Special Topics in Biology (BIO 4476), Guided Independent Studies (BIO 4491/4492) and Guided Independent Research (BIO 4493, 4494) may only be taken for a maximum of 6 semester hours.

### Specialized General Studies Requirements

#### Area III

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 1100</td>
<td>Principles of Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIO L100</td>
<td>Principles of Biology Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHM 1142</td>
<td>General Chemistry I</td>
<td>3</td>
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<tr>
<td>CHM L142</td>
<td>General Chemistry I Lab</td>
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</tr>
<tr>
<td>MTH 1125</td>
<td>Calculus I</td>
<td>4</td>
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</table>

**Area V Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 2241</td>
<td>Computer Concepts and Applications</td>
<td>3</td>
</tr>
<tr>
<td>TROY 1101</td>
<td>The University Experience</td>
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</tr>
<tr>
<td>BIO 1101</td>
<td>Organismal Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIO L101</td>
<td>Organismal Biology Lab</td>
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<tr>
<td>CHM 1143</td>
<td>General Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHM L143</td>
<td>General Chemistry II Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

Complete one sequence (physics sequence not required for eligible students who receive Medical Laboratory Science credits through a hospital internship in their final year). If not required, 8 additional credits of MLS electives will be required to meet the 120 sh degree requirement:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 2252</td>
<td>General Physics I</td>
<td>3</td>
</tr>
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<td>PHY L252</td>
<td>General Physics I Lab</td>
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<tr>
<td>PHY 2253</td>
<td>General Physics II</td>
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<tr>
<td>PHY L253</td>
<td>General Physics II Lab</td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHY 2262</td>
<td>Physics I with Calculus</td>
<td>3</td>
</tr>
<tr>
<td>PHY L262</td>
<td>Physics I with Calculus Lab</td>
<td>1</td>
</tr>
<tr>
<td>PHY 2263</td>
<td>Physics II with Calculus</td>
<td>3</td>
</tr>
<tr>
<td>PHY L263</td>
<td>Physics II with Calculus Lab</td>
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**Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIO 2220</td>
<td>Principles of Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 2229</td>
<td>General Ecology</td>
<td>3</td>
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<tr>
<td>BIO L229</td>
<td>General Ecology Lab</td>
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</tr>
<tr>
<td>BIO 3320</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIO 4484</td>
<td>Senior Seminar in Biological &amp; Environment Sciences</td>
<td>1</td>
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<tr>
<td>CHM 3342</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM L342</td>
<td>Organic Chemistry I Lab</td>
<td>1</td>
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<tr>
<td>CHM 3343</td>
<td>Organic Chemistry II</td>
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</tr>
<tr>
<td>CHM L343</td>
<td>Organic Chemistry II Lab</td>
<td>1</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHM 3352</td>
<td>Biochemistry</td>
<td>3</td>
</tr>
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<td>CHM L352</td>
<td>Biochemistry Lab</td>
<td>1</td>
</tr>
<tr>
<td>STAT 2210</td>
<td>Introductory Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), marine biology courses*, or medical laboratory science courses (MLS-Hospital Internship students only).

### CHEMISTRY EDUCATION

Students seeking Alabama teacher certification should select chemistry as a first major and education as a second major. Students should consult with their advisers concerning all certification requirements. CHM 3352 is required for Alabama teacher certification.

### CHEMISTRY MAJOR (37 HOURS)

#### Specialized General Studies Requirements

**Area III**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 1100</td>
<td>Principles of Biology</td>
<td>3</td>
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<tr>
<td>BIO L100</td>
<td>Principles of Biology Lab</td>
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<tr>
<td>CHM 1142</td>
<td>General Chemistry I</td>
<td>3</td>
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<tr>
<td>CHM L142</td>
<td>General Chemistry I Lab</td>
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</tr>
<tr>
<td>MTH 1125</td>
<td>Calculus I</td>
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**Area V Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 2241</td>
<td>Computer Concepts and Applications</td>
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<tr>
<td>MTH 1126</td>
<td>Calculus II</td>
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<tr>
<td>*PHY L262</td>
<td>Physics I with Calculus</td>
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<td>*PHY L263</td>
<td>Physics II with Calculus</td>
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<td>*PHY 2263</td>
<td>Physics II with Calculus</td>
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</tr>
<tr>
<td>TROY 1101</td>
<td>The University Experience</td>
<td>1</td>
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</tbody>
</table>

*Chemistry majors minoring in Physics may replace these with free electives.

**Required Courses (31 Hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 1143</td>
<td>General Chemistry II</td>
<td>3</td>
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<td>CHM L143</td>
<td>General Chemistry II Lab</td>
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<tr>
<td>CHM 2242</td>
<td>Analytical Chemistry</td>
<td>3</td>
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<tr>
<td>CHM L242</td>
<td>Analytical Chemistry Lab</td>
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<tr>
<td>CHM 3342</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM L342</td>
<td>Organic Chemistry I Lab</td>
<td>1</td>
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<tr>
<td>CHM 3343</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHM L343</td>
<td>Organic Chemistry II Lab</td>
<td>1</td>
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<tr>
<td>CHM 3381</td>
<td>Physical Chemistry I</td>
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<tr>
<td>CHM L381</td>
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<td>CHM 3382</td>
<td>Physical Chemistry II</td>
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<tr>
<td>CHM 4444</td>
<td>Advanced Inorganic Chemistry</td>
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<td>Advanced Inorganic Chemistry Lab</td>
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<tr>
<td>CHM 4445</td>
<td>Instrumental Analysis</td>
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<td>CHM L445</td>
<td>Instrumental Analysis Lab</td>
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</table>

Complete 6 hours of the following electives:

<table>
<thead>
<tr>
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<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHM 3352</td>
<td>Biochemistry</td>
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<td>CHM L352</td>
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<td>CHM L382</td>
<td>Physical Chemistry II Lab</td>
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<tr>
<td>CHM 4400</td>
<td>Special Topics in Chemistry</td>
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<tr>
<td>CHM 4403</td>
<td>Advanced Organic Chemistry</td>
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<tr>
<td>CHM 4420</td>
<td>Principles of Polymer Chemistry</td>
<td>3</td>
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<tr>
<td>CHM L420</td>
<td>Principles of Polymer Chemistry Lab</td>
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<tr>
<td>CHM 4452</td>
<td>Advanced Biochemistry</td>
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<tr>
<td>CHM 4491/2</td>
<td>Guided Independent Research</td>
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<tr>
<td>CHM 4493/4</td>
<td>Guided Independent Study</td>
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<tr>
<td>CHM 4499</td>
<td>Senior Research Seminar</td>
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<tr>
<td>STAT 2210</td>
<td>Introductory Statistics</td>
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</table>

### CHEMISTRY MINOR (20 HOURS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHM 1142</td>
<td>General Chemistry I</td>
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<td>CHM L142</td>
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<td>CHM 1143</td>
<td>General Chemistry II</td>
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<tr>
<td>CHM L143</td>
<td>General Chemistry II Lab</td>
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<tr>
<td>CHM 3342</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM L342</td>
<td>Organic Chemistry I Lab</td>
<td>1</td>
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</tbody>
</table>
CHM 3343 (3) Organic Chemistry II
CHM L343 (1) Organic Chemistry II Lab

Select four additional hours of advanced chemistry courses, such as:
CHM 2242 (3) Analytical Chemistry
CHM L242 (1) Analytical Chemistry Lab
CHM 3352 (3) Biochemistry
CHM L352 (1) Biochemistry Lab

**COMPREHENSIVE GENERAL SCIENCE MAJOR (34 HOURS)**

<table>
<thead>
<tr>
<th>Specialized General Studies Requirements</th>
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<tbody>
<tr>
<td><strong>Area III</strong></td>
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</tr>
<tr>
<td>BIO 1100 (3) Principles of Biology</td>
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<tr>
<td>BIO L100 (1) Principles of Biology Lab</td>
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<tr>
<td>CHM 1142 (3) General Chemistry I</td>
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<tr>
<td>CHM L142 (1) General Chemistry I Lab</td>
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<tr>
<td>MTH 1125 (4) Calculus I</td>
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<tr>
<td><strong>Area V</strong></td>
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<td></td>
</tr>
<tr>
<td>IS 2241 (3) Computer Concepts/Applications</td>
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<tr>
<td>PHY 2262 (3) Physics I w/Calculus</td>
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<tr>
<td>PHY L262 (1) Physics I w/Calculus Lab</td>
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<tr>
<td>SCI 2234 (3) Earth &amp; Space Science</td>
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<tr>
<td>SCI L234 (1) Earth &amp; Space Science Lab</td>
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<tr>
<td>TROY 1101 (1) The University Experience</td>
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</tr>
</tbody>
</table>

**Required Courses:**

BIO 2220 (3) Principles of Cell Biology  
BIO 1220 (1) Principles of Cell Biology Lab  
BIO 3320 (3) Genetics  
BIO L320 (1) Genetics Lab  
BIO 3347 (3) Human Anatomy & Physiology I  
BIO L347 (1) Human Anatomy & Physiology I Lab  
CHM 1143 (3) General Chemistry II  
CHM L143 (1) General Chemistry II Lab  
CHM 3342 (3) Organic Chemistry I  
CHM L342 (1) Organic Chemistry I Lab  
GEO 3300 (3) Principles of Physical Geography  
STAT 2210 (3) Introductory Statistics  
PHY 2263 (3) Physics II w/Calculus  
PHY L263 (1) Physics II w/Calculus Lab  
PHY 3359 (3) Waves and Optics  
PHY L359 (1) Waves and Optics Lab

**COMPUTER PROGRAMMING MINOR (18 HOURS)**

| CS 2220 (3) Numerical Methods in Computing | | |
| CS 2250 (3) Computer Science I | | |
| CS 2255 (3) Computer Science II | | |
| CS 3323 (3) Data Structures | | |
| OR | | |
| CS 3330 (3) Data Structures and Algorithms | | |
| CS 3360 (3) Concepts of Object-Oriented Programming I | | |
| CS 4443 (3) Web Application Development | | |

**COMPUTER SCIENCE MINOR (18 HOURS)**

| CS 2250 (3) Computer Science I | | |
| CS 2255 (3) Computer Science II | | |

Select 12 semester hours of computer science courses with at least one course being at the 4000 level.

**COMPUTER SCIENCE PROGRAM (48 HOURS)**

<table>
<thead>
<tr>
<th>Specialized General Studies Requirements</th>
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</thead>
<tbody>
<tr>
<td><strong>Area III</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MTH 1125 (4) Calculus I, in lieu of MTH 1110</td>
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</tr>
<tr>
<td>PHY 2252 (3) General Physics I</td>
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<tr>
<td>PHY L252 (1) General Physics I Lab</td>
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</tr>
</tbody>
</table>

OR

| PHY 2262 (3) Physics I with Calculus | | |
| PHY L262 (1) Physics I with Calculus Lab | | |

Complete additional four hours of any 1000-2000 level laboratory science classes (lecture and lab both required) from the following science disciplines: Biology, Chemistry, Physics, Physical Science, or other Science areas.

**Area V Requirements**

| CS 2220 (3) Numerical Methods in Computing | | |
| CS 2250 (3) Computer Science I | | |
| MTH 1126 (4) Calculus II | | |
| TROY 1101 (1) The University Experience | | |

**Required Courses:**

CS 2255 (3) Computer Science II  
CS 3310 (3) Foundations of Computer Science  
CS 3323 (3) Data Structures  
CS 3329 (3) Analysis of Algorithms  
CS 3332 (3) Software Engineering I  
CS 3360 (3) Concepts of Object-Oriented Programming I  
CS 3365 (3) Introduction to Computer Organization and Architectures  
CS 3370 (3) Nature of Programming Languages  
CS 3372 (3) Formal Languages and the Theory of Computation  
CS 4420 (3) Introduction to Database Systems  
CS 4445 (3) Data Communication and Networking  
CS 4448 (3) Operating Systems  
STAT 2210 (3) Introductory Statistics  
MTH 2215 (3) Applied Discrete Mathematics

Select two of the following:

CS 3320 (3) Business Systems Programming  
CS 3325 (3) Operations Research  
CS 3331 (3) Fundamentals of Artificial Intelligence  
CS 3361 (3) Concepts of Object-Oriented Programming II  
CS 4401 (3) Advanced Artificial Intelligence  
CS 4410 (3) Introduction to Machine Learning  
CS 4443 (3) Web Application Development  
CS 4447 (3) Systems Analysis and Design  
CS 4451 (3) Computer Security  
CS 4461 (3) Software Engineering II  
CS 4462 (3) Special Topics in Object-Oriented Technology  
CS 4495 (3) Special Topics in Computer Science

**COMPUTER SCIENCE, APPLIED MAJOR (36 HOURS)**

<table>
<thead>
<tr>
<th>Specialized General Studies Requirements</th>
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</thead>
<tbody>
<tr>
<td><strong>Area III</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MTH 2201 (3) Calculus and its Applications</td>
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</tr>
</tbody>
</table>

Select additional Area III requirements as shown in the General Studies section of this catalog.

**Area V Requirements**

| CS 2210 (3) Applications of Computer Science | | |
| MTH 2215 (3) Applied Discrete Mathematics | | |
| TROY 1101 (1) The University Experience | | |

**Major Requirements:**

| CS 2250 (3) Computer Science I | | |
| CS 2255 (3) Computer Science II | | |
| CS 2265 (3) Advanced Programming I | | |
| CS 3330 (3) Data Structures and Algorithms | | |
| CS 4420 (3) Introduction to Database Systems | | |
| CS 4443 (3) Web Application Development | | |
| CS 4445 (3) Data Communications and Networking | | |
| CS 4447 (3) Systems Analysis and Design | | |
| CS 4448 (3) Operating Systems | | |

Select two of the following:

CS 3320 (3) Business Systems Programming  
CS 3325 (3) Operations Research  
CS 3331 (3) Fundamentals of Artificial Intelligence  
CS 3361 (3) Concepts of Object-Oriented Programming II  
CS 4401 (3) Advanced Artificial Intelligence  
CS 4410 (3) Introduction to Machine Learning  
CS 4443 (3) Web Application Development  
CS 4447 (3) Systems Analysis and Design  
CS 4451 (3) Computer Security  
CS 4461 (3) Software Engineering II  
CS 4462 (3) Special Topics in Object-Oriented Technology  
CS 4495 (3) Special Topics in Computer Science
Select three of the following:
CS 3320 (3) Business Systems Programming
CS 3332 (3) Software Engineering I
CS 3347 (3) Advanced Programming II
CS 4449 (3) Applied Networking
CS 4451 (3) Computer Security
CS 4495 (1-3) Special Topics in Computer Science
CS 4499 (3) Internship in Computer Science
CS 4480 (3) Study Abroad in Computer Science
CS 4410 (3) Introduction to Machine Learning

CRIMINAL JUSTICE MAJOR (36 HOURS)
Criminal justice majors are encouraged to take two semesters of Spanish or another foreign language as part of their general studies requirements.

Area IV
CJ 2221 (3) Survey of Law Enforcement
CJ 2231 (3) Survey of Corrections

Area V
CJ 2241 (3) Survey of Law and Criminal Procedure

Required Courses:
CJ 1101 (3) Introduction to Criminal Justice and Criminology
CJ 3352 (3) Constitutional Law
CJ 3375 (3) Research Methods
CJ 4498 (3) Criminological Theory
CJ 4499 (3) Professional Seminar in Criminal Justice

Select 21 additional hours of upper-level (3000-4000) Criminal Justice courses, as approved by the advisor for the major.

Accelerated Law Curriculum Option:
Students majoring in Criminal Justice and Legal Studies as a minor may select the Accelerated Law Curriculum Option. See the Accelerated Law Curriculum section the catalog for more information.

The 30 semester hours from the partnered institution will be credited as follows:
9 hours will be applied to the Legal Studies Minor
6 hours will be applied to the Anthropology Major
Civil Procedure I – 3 hours
Civil Procedure II – 3 hours
15 hours will be applied to Area V General Studies

CRIMINAL JUSTICE MINOR (18 HOURS)
CJ 1101 (3) Introduction to Criminal Justice and Criminology

Select 15 additional hours of upper-level criminal justice courses as approved by the adviser.

CYBER SECURITY PROGRAM

Specialized General Studies Requirements
Area III
MTH 1125 (4) Calculus I, in lieu of MTH 1110

Complete eight hours of any 1000-2000 level laboratory science classes (lecture and lab both required) from the following science disciplines: Biology, Chemistry, Physics, Physical Science, or other Science areas.

Area V Requirements
CS 2250 (3) Computer Science I
TROY 1101 (1) The University Experience
STAT 2210 (3) Introduction to Statistics

Required Courses (54 hours)
CJ 3380 (3) Digital Forensics I
CJ 4472 (3) Cyber Crime
CS 2255 (3) Computer Science II
CS 3323 (3) Data Structures
CS 3360 (3) Concepts of Object-Oriented Programming I
CS 3365 (3) Introduction to Computer Organization and Architecture
CS 3333 (3) Introduction to Cryptography
CS 3334 (3) Foundations of Cyber Security
CS 3336 (3) Information Assurance
CS 4452 (3) Cyber Security Policies and Compliance
CS 4453 (3) Ethical Hacking
CS 4454 (3) Secure Software Development
CS 4455 (3) Cyber Security Techniques and Practices
CS 4420 (3) Introduction to Database Systems
CS 4445 (3) Data Communication and Networking
CS 4448 (3) Operating Systems
MTH 2215 (3) Discrete Math

Select one upper level (3000-4000 level) Computer Science elective.

DATA INTELLIGENCE MINOR (18 HOURS)
STAT 2210 (3) Introduction to Statistics
CS 2220 (3) Numerical Methods in Computing
CS 3323 (3) Data Structures
OR
CS 3330 (3) Data Structures and Algorithms
CS 3360 (3) Concepts of Object-Oriented Programming I

Select two courses from the following:
CS 3331 (3) Fundamentals of Artificial Intelligence
CS 4410 (3) Introduction to Machine Learning
CS 4420 (3) Introduction to Database Systems

DIGITAL FORENSICS MINOR / CERTIFICATE (18 HOURS)
Select 18 hours from the following:
CJ 3380 (3) Digital Forensics I
CJ 3382 (3) Social Media Investigation
CJ 4472 (3) Cyber Crime
CJ 4475 (3) Seminar in Cyber Crime
CJ 4480 (3) Digital Forensics II
CJ 4481 (3) Operating and File System Forensics
CJ 4482 (3) Digital Evidence Practicum

ELECTRONICS ENGINEERING TECHNOLOGY PROGRAM (54 HOURS)
Area III
MTH 1125 (4) Calculus I
CHM 1142 (3) General Chemistry I
CHM L142 (1) General Chemistry I Lab
Area V
TROY 1101 (1) The University Experience
CS 2250 (3) Computer Science I
**Requirements:**

MTH 1126 (4) Calculus II
PHY 2262 (3) Physics I w/Calculus
PHY L262 (1) Physics I w/Calculus Lab
PHY 2263 (3) Physics II w/Calculus
PHY L263 (1) Physics II w/Calculus Lab
EET 2220 (3) Electrical Circuits I
EET L220 (1) Electrical Circuits I Lab
EET 2221 (3) Electrical Circuits II
EET L221 (1) Electrical Circuits II Lab
EET 3311 (3) Electronic Devices I
EET L311 (1) Electronic Devices I Lab
EET 3312 (3) Electronic Devices II
EET L312 (1) Electronic Devices II Lab
EET 3315 (3) Digital Logic Circuits
EET L315 (1) Digital Logic Circuits Lab
EET 4420 (3) Fundamentals of Microcontrollers
EET L420 (1) Fundamentals of Microcontrollers Lab
EET 4421 (3) Introduction to Robotics and Automation
EET L421 (1) Introduction to Robotics and Automation Lab
EET 4444 (3) Optical Electronics I
EET L444 (1) Optical Electronics I CAD Lab
EET 4445 (3) Optical Electronics II
EET L445 (1) Optical Electronics II CAD Lab
EET 4480 (3) Senior Project I Capstone
EET 4481 (3) Senior Project II Capstone

**Electronics Engineering Technology Minor (20 Hours)**

EET 2220 (3) Electrical Circuits I
EET L220 (1) Electrical Circuits I Lab
EET 2221 (3) Electrical Circuits II
EET L221 (1) Electrical Circuits II Lab
EET 3311 (3) Electronic Devices I
EET L311 (1) Electronic Devices I Lab
EET 3312 (3) Electronic Devices II
EET L312 (1) Electronic Devices II Lab
EET 3315 (3) Digital Logic Circuits
EET L315 (1) Digital Logic Circuits Lab
EET 4420 (3) Fundamentals of Microcontrollers
EET L420 (1) Fundamentals of Microcontrollers Lab

**Environmental Science Minor (18-20 Hours)**

BIO 1120 (3) Survey of Environmental Sciences
BIO L120 (1) Survey of Environmental Sciences Lab

Select one of the following BIO lecture/lab course combination:

BIO 1101 (3) Organismal Biology
BIO L101 (1) Organismal Biology Lab
OR
BIO 2220 (3) Principles of Cell Biology
BIO L220 (1) Principles of Cell Biology Lab

OR
Canon EOS 5D Mark IV Image

Complete 10-12 additional semester hours of advisor-approved upper-level (3000 or above) biology courses.

**Environmental Science Program (54-56 Hours)**

"Special Topics in Biology (BIO 4476), Guided Independent Studies (BIO 4491/4492) and Guided Independent Research (BIO 4493, 4494) may only be taken for a maximum of 6 semester hours.

Specialized General Studies Requirements

**Area III**

BIO 1100 (3) Principles of Biology
BIO L100 (1) Principles of Biology Lab
CHM 1142 (3) General Chemistry I
CHM L142 (1) General Chemistry I Lab

Select one of the following MTH courses:

MTH 1114 (3) Pre-Calculus Trigonometry
OR
MTH 1125 (4) Calculus I

**Area V Requirements:**

IS 2241 (3) Computer Concepts and Applications
TROY 1101 (1) The University Experience
BIO 1101 (3) Organismal Biology
BIO L101 (1) Organismal Biology Lab
CHM 1143 (3) General Chemistry II
CHM L143 (1) General Chemistry II Lab

Select one of the following GEO or GIS courses:

GEO 2299 (3) Basic GIS
OR
GIS 3390 (3) Fundamentals of Geographical Information and Analysis

Select one PHY lecture and lab combination:

PHY 2252 (3) General Physics I
PHY L252 (1) General Physics I Lab
OR
PHY 2262 (3) Physics I with Calculus
PHY L262 (1) Physics I with Calculus Lab

**Program Requirements:**

BIO 1120 (3) Survey of Environmental Science
BIO L120 (1) Survey of Environmental Science Lab
BIO 2220 (3) Principles of Cell Biology
BIO L220 (1) Principles of Cell Biology Lab
BIO 3320 (3) Genetics
BIO 3328 (3) Environmental Pollution and Control
BIO L328 (1) Environmental Pollution and Control Lab
BIO 4413 (3) Limnology
BIO L413 (1) Limnology Lab
BIO 4479 (3) Environmental Assessment
BIO L479 (1) Environmental Assessment Lab
BIO 4484 (1) Senior Seminar in Biological & Environmental Sciences
CHM 3342 (3) Organic Chemistry I
CHM L342 (1) Organic Chemistry I Lab
STAT 2210 (3) Introductory Statistics

Complete 18-20 hours of adviser-approved upper-level courses in biology, marine biology*, chemistry, geography, or mathematics.

*See Marine Biology Program for DISL prerequisite courses.

**General Education A.A. Degree (60 Hours)**

Associate of Arts Degree

See the academic regulations section of this catalog for additional information regarding associate degrees.

Note: Students who pursue a baccalaureate degree with Troy University following the completion of the Associate of Arts in General Education must meet the minimum grade requirements in mathematics.

**General Studies Requirements**

**Area I**

ENG 1101 (3) Composition & Modern English I
ENG 1102 (3) Composition & Modern English II

**Area II**

Select one of the following:

ART 1135 (3) Visual Arts
THE 1130 (3) Introduction to Theatre
MUS 1131 (3) Music Appreciation
Select one of the following:
- ENG 2205 (3) World Literature before 1660
- ENG 2206 (3) World Literature after 1660
- ENG 2211 (3) American Literature before 1875
- ENG 2212 (3) American Literature after 1875
- ENG 2244 (3) British Literature before 1785
- ENG 2245 (3) British Literature after 1785

Select six hours of one foreign language.

Area III
Select one of the following:
- MTH 1110 (3) Finite Mathematics
- MTH 1112 (3) Pre-calculus Algebra

Select one science course and corresponding lab:
- BIO 1100 (3) Principles of Biology
- BIO L100 (1) Principles of Biology Lab
- SCI 2233 (3) Physical Science
- SCI L233 (1) Physical Science Lab
- SCI 2234 (3) Earth and Space Science
- SCI L234 (1) Earth and Space Science Lab

Area IV
Select one of the following:
- HIS 1101 (3) Western Civilization I
- HIS 1102 (3) Western Civilization II
- HIS 1111 (3) U.S. to 1877
- HIS 1112 (3) U.S. since 1877
- HIS 1122 (3) World History to 1500
- HIS 1123 (3) World History from 1500

Area V
IS 2241 (3) Computer Concepts and Applications
TROY 1101 (1) The University Experience

Additional requirements
Select additional free electives to complete a total of 60 hours.

The completion of 12 or more elective hours within the same discipline area (English, Math, History, etc) will constitute an emphasis area with the Associate’s degree. Emphasis areas are not required for the completion of the Associate’s degree.

GENERAL EDUCATION A.S. DEGREE (60 HOURS)

Associate of Science Degree
See the academic regulations section of this catalog for additional information regarding associate degrees.

Note: Students who pursue a baccalaureate degree with Troy University following the completion of the Associate of Science in General Education must meet the minimum grade requirements in mathematics.

General Studies Requirements

Area I
- ENG 1101 (3) Composition & Modern English I
- ENG 1102 (3) Composition & Modern English II

Area II
Select one of the following:
- ART 1133 (3) Visual Arts
- THE 1130 (3) Introduction to Theatre
- MUS 1131 (3) Music Appreciation

Select one of the following:
- ENG 2205 (3) World Literature before 1660
- ENG 2206 (3) World Literature after 1660
- ENG 2211 (3) American Literature before 1875
- ENG 2212 (3) American Literature after 1875
- ENG 2244 (3) British Literature before 1785
- ENG 2245 (3) British Literature after 1785

Area III
Select one of the following:
- MTH 1110 (3) Finite Mathematics
- MTH 1112 (3) Pre-calculus Algebra

Select one science course and corresponding lab:
- BIO 1100 (3) Principles of Biology
- BIO L100 (1) Principles of Biology Lab
- SCI 2233 (3) Physical Science
- SCI L233 (1) Physical Science Lab
- SCI 2234 (3) Earth and Space Science
- SCI L234 (1) Earth and Space Science Lab

Area IV
Select one of the following:
- HIS 1101 (3) Western Civilization I
- HIS 1102 (3) Western Civilization II
- HIS 1111 (3) U.S. to 1877
- HIS 1112 (3) U.S. since 1877
- HIS 1122 (3) World History to 1500
- HIS 1123 (3) World History from 1500

Area V
IS 2241 (3) Computer Concepts and Applications
TROY 1101 (1) The University Experience

Additional requirements
Select additional free electives to complete a total of 60 hours.

The completion of 12 or more elective hours within the same discipline area (English, Math, History, etc) will constitute an emphasis area with the Associate’s degree. Emphasis areas are not required for the completion of the Associate’s degree.

GEOGRAPHIC INFORMATION SCIENCES (GIS) MAJOR (36 HOURS)

Specialized General Studies Requirements

Area II
- COM 2241 (3) Fundamentals of Speech

Area III
- MTH 1114 (3) Pre-Calculus Trigonometry
- SCI 2233 (3) Physical Science
- SCI L233 (1) Physical Science Lab

Area V
IS 2241 (3) Computer Concepts and Applications
TROY 1101 (1) The University Experience
STAT 2210 (3) Introductory Statistics
BIO 1120 (3) Survey of Environmental Sciences
BIO L120 (1) Survey of Environmental Sciences Lab
CS 3310 (3) Foundations of Computer Sciences
SS 3375 (3) Research Methods in the Social Sciences

Major Requirements
- GIS 3301 (3) Cartography and Geo-Visualization
- GIS 3305 (3) Spatial Information and Analysis
- GIS 3310 (3) Introduction to Remote Sensing
- GIS 3390 (3) Fundamentals of Geographical Information and Analysis
- GIS 3391 (3) Application of Geospatial Information Sciences
- GEO 3300 (3) Principles of Physical Geography
- GEO 3301 (3) Principles of Cultural Geography

Select one of the following:
- GIS 4490 (3) GIS Senior Project
- GIS 4499 (3) GIS Internship

Select one of the following concentrations:
Geographic Information Sciences (GIS) Concentration
GIS 4401 (3) Spatial Database Design and Management
GIS 4405 (3) Geospatial Modeling and Programming
GIS 4415 (3) Advanced Geospatial Technologies
GIS 4420 (3) Web-Based GIS/Spatial Data Applications

Geography Concentration
Select two course from the following courses:
GEO 3350 (3) Weather and Climate
GEO 4401 (3) Political Geography
GEO 4403 (3) Conservation
GEO 4406 (3) Urbanism
GEO 4411 (3) Population and Society

Select two course from the following Regional Geography course:
GEO 3306 (3) Geography of Asia
GEO 3307 (3) Geography of Europe
GEO 3312 (3) Geography of Latin America
GEO 3326 (3) Geography of the Russian Realm
GEO 3331 (3) Geography of the Middle East and North Africa

GEOGRAPHIC INFORMATION SCIENCES (GIS) MINOR (18 HOURS)
Required Courses: (9 Hours)
GIS 3301 (3) Cartography and Geo-Visualization
GIS 3305 (3) Spatial Information and Analysis
GIS 3390 (3) Fundamentals of Geographical Information and Analysis

Electives: (9 hours)
Select one course from the following: (3 Hours)
GEO 3300 (3) Principles of Physical Geography
GEO 3301 (3) Principles of Cultural Geography
POL 4402 (3) Political Geography

Select two courses from the following: (6 Hours)
GIS 3310 (3) Introduction to Remote Sensing
GIS 3391 (3) Application of Geospatial Information Sciences
GIS 4401 (3) Spatial Database Design and Management
GIS 4405 (3) Spatial Modeling and Programming
GIS 4415 (3) Advanced Geospatial Technologies
GIS 4420 (3) Web based GIS/Spatial Data Applications
GEM 4410 (3) Introduction to Global Positions
CS 3310 (3) Foundations of Computer Sciences

GEOGRAPHY MINOR (18 HOURS)
GIS 3300 (3) Principles of Physical Geography
GIS 3301 (3) Principles of Cultural Geography

Select an additional 12 hours of approved, upper-level geography courses.

HISTORY EDUCATION (36 HOURS)
Students seeking Alabama teacher certification should select history as a first major and education as a second major. Students should consult with their advisers concerning all certification requirements.

Specialized General Studies Requirements

Area IV
POL 2241 (3) American National Government
SOC 2275 (3) Introduction to Sociology

Select one six-hour sequence:
HIS 1101 (3) Western Civilization I, or placement
HIS 1102 (3) Western Civilization II, or placement
OR
HIS 1122 (3) World History to 1500

Area V Requirements
GEO 2210 (3) World Regional Geography
HIS 1111 (3) U.S. to 1877, or placement
HIS 1112 (3) U.S. since 1877, or placement
IS 2241 (3) Computer Concepts and Apps.
TROY 1101 (1) The University Experience

Major Requirements
HIS 3375 (3) Research and Methodology
HIS 4490 (3) Senior Seminar

Select one emphasis:
American/Latin American History Emphasis:
Select 15 hours of upper-level American/Latin American courses in addition to either HIS 3316 or 4406.
Select an additional nine hours of upper-level European/Asian/African courses in addition to HIS 4451.

European/Asian/African History Emphasis:
Select 15 hours of upper-level European/Asian/African courses in addition to HIS 4451.
Select an additional 9 hours of upper-level American/Latin American courses in addition to either HIS 3316 or 4406.

HISTORY MAJOR (36 HOURS)
History Majors/Minors will receive credit for no more than six hours of 3000-level and 4000-level history courses taken before or concurrently with HIS 3375.

Select one emphasis below:
American/Latin American Emphasis:
Specialized General Studies Requirements

Area IV
Select a six hour sequence in Western Civilization or World History. Select additional Area IV courses as specified in the General Studies section of this catalog.

Area V Requirements
GEO 2210 (3) World Regional Geography
HIS 1111 (3) U.S. to 1877, or placement
HIS 1112 (3) U.S. since 1877, or placement
IS 2241 (3) Computer Concepts and Applications
TROY 1101 (1) The University Experience

Requirements for the Major
HIS 3375 (3) Research and Methodology
HIS 4490 (3) Senior Seminar

Select 18 hours of approved upper-level American/Latin American courses.
Select 12 hours of approved upper-level European/Asian/African courses.

European/Asian/African Emphasis:
Specialized General Studies Requirements
Area IV
Select a six hour sequence in Western Civilization or World History. Select six hours of additional Area IV courses as specified in the General Studies section of this catalog.

Area V Requirements
IS 2241 (3) Computer Concepts and Applications
TROY 1101 (1) The University Experience
HIS 1111 (3) U.S. to 1877, or placement
HIS 1112 (3) U.S. since 1877, or placement
GEO 2210 (3) World Regional Geography
### Requirements for the Major

HIS 3375 (3) Research and Methodology  
HIS 4490 (3) Senior Seminar

Select 18 hours of approved, upper-level European/Asian/African courses

Select 12 hours of approved, upper-level American/Latin American courses.

### Accelerated Law Curriculum Option:

Students majoring in History and minoring in Legal Studies may select the Accelerated Law Curriculum Option. See the Accelerated Law Curriculum section the catalog for more information.

The 30 semester hours from partnered institution will be credited as follows:
- 9 hours will be applied to the Legal Studies Minor
- 9 hours will be applied to the Anthropology Major
- Civil Procedure I – 3 hours
- Civil Procedure II – 3 hours
- Criminal Law – 3 hours
- 12 hours will be applied to Area V General Studies

### History Minor (18 Hours)

History Majors/Minors will receive credit for no more than six hours of 3000-level and 4000-level history courses taken before or concurrently with HIS 3375.

HIS 3375 (3) Research and Methodology  
Select 15 hours of upper-level history courses.

Note: HIS 1111 and HIS 1112 or permission of instructor are prerequisites for upper-level American/Latin American history courses. HIS 1101 and HIS 1102 or HIS 1122 and 1123 or permission of instructor are prerequisites for upper-level European/Asian/African history courses.

### Homeland Security Minor (18 Hours)

**Required for the minor:**
- CJ 3309 (3) Foundations of Homeland Security

Select 15 hours from the following as approved by the adviser:
- CJ 3335 (3) Security Operations
- CJ 4405 (3) National Security and the Law
- CJ 4406 (3) Transnational Organized Crime
- CJ 4420 (3) Comparative Criminal Justice
- CJ 4440 (3) Terrorism
- CJ 4489-90 (3) Internship (limit one)
- POL 3364 (3) State and Local Politics
- POL 4415 (3) International Conflict
- POL 4422 (3) Public Policy Making

### Humanities Minor (18 Hours)

Please see the College of Communication and Fine Arts for details on the Humanities Minor.

### Intelligence Minor (18 Hours)

**Required for the minor:**
- CJ 3308 (3) Foundations of Intelligence

Select 15 hours from the following courses:
- CJ 3309 (3) Foundations of Homeland Security
- CJ 3350 (3) Gangs
- CJ 3382 (3) Social Media Investigation
- CJ 4406 (3) Transnational Organized Crime
- CJ 4407 (3) Homicide
- CJ 4425 (3) Violence in America
- CJ 4440 (3) Terrorism
- CJ 4456 (3) Human Trafficking
- CJ 4472 (3) Cyber Crime
- CJ 4498 (3) Criminological Theory

### Information Technology Minor (18 Hours)

**Required Courses (6 hours):**
- CS 2250 (3) Computer Science I
- CS 2255 (3) Computer Science II

**Required Core Courses (9 hours):**
- CS 2250 (3) Computer Science I
- CS 2255 (3) Computer Science II
- OR
- CS 3360 (3) Concepts of Object-Oriented Programming I
- CS 3310 (3) Foundations of Computer Science
- CS 3323 (3) Data Structures

Select two courses from the following:
- CS 4420 (3) Introduction to Database Systems
- CS 4445 (3) Data Communication and Networking
- CS 4447 (3) Systems Analysis and Design
- CS 4451 (3) Computer Security

### Inter-Cultural Competency Minor (18 Hours)

**Required Core Courses: (9 hours):**
- ANT 3310 (3) Cultural Anthropology
- POL 2260 (3) World Politics
- POL 4460 (3) Intercultural Relations

Select 9 hours from the following:
- ANT 3340 (3) Language in Culture and Society
- ANT 4411 (3) High Civilizations of the New World
- GEO 2210 (3) World Regional Geography
- GEO 3301 (3) Principles of Cultural Geography
- GEO 3307 (3) Geography of Europe
- POL 4450 (3) Latin American Politics
- POL 4464 (3) Arab-Israeli Conflict
- POL 4465 (3) Politics of the Developing World
- POL 4466 (3) Middle Eastern Politics
- POL 4467 (3) Asian Politics
- POL 4468 (3) Russian Politics
- POL 4470 (3) European Politics
- POL 4474 (3) Terrorism and Political Violence
- POL 4476 (3) Politics of Southeast Asia

### Interdisciplinary Minor in Eastern and Central European, Russian, and Eurasian Studies (18 Hours)

**Required Courses (6 hours):**
- RUS 1101 (3) Russian Language I
- RUS 1102 (3) Russian Language II

Select four classes (12 hours) from the following electives:
- GEO 3307 (3) Geography of Europe
- GEO 3326 (3) Geography of the Russian Realm
- HIS 4404 (3) Modern Eastern Europe
- HIS 4433 (3) Modern Russia
- HIS 4469 (3) Europe since World War II
- POL 4468 (3) Russian Politics
- POL 4470 (3) European Politics

### Interdisciplinary Minor in Forensic Science (18 Hours)

**Required Courses (9 hours):**
- FSC 2201 (3) Introduction to Forensic Science
- FSC 3301 (3) Ethics in Forensic Science
- FSC 3304 (3) Forensic Evidence

An additional 9 hours should be selected from the list of recommended electives below:
Legal Studies Minor (18 Hours)

**Required Courses (9 Hours)**
- LGL 2200 (3) Introduction to Legal Studies
- LGL 3300 (3) Legal Research and Writing
- LGL 4400 (3) Seminar in Legal Studies

**Select 9 hours of electives from the following courses:**
- CJ 2241 (3) Survey of Law and Criminal Procedure
- CJ 3352 (3) Constitutional Law in Criminal Justice
- CJ 4447 (3) Current Issues in Legal Systems Operation and Administration
- CJ 4411 (3) Evidence
- LAW 2221 (3) Legal Environment of Business
- LAW 4420 (3) Administrative Law
- LAW 4465 (3) Selected Topics in Law
- POL 3342 (3) Criminalistics
- PSY 3304 (3) Abnormal Psychology
- PSY 3322 (3) Abnormal Child Psychology
- PSY 3360 (3) Forensic Psychology
- SOC 3355 (3) Death and Dying

Or other courses approved by the Forensic Science Advisor.

Marine Biology Program (56 Hours)

*Special Topics in Biology (BIO 4476), Guided Independent Studies (BIO 4491/4492) and Guided Independent Research (BIO 4493, 4494) may only be taken for a maximum of 6 semester hours. Students must take courses at both Troy University and Dauphin Island Sea Lab.*

**Specialized General Studies Requirements**

**Area III**
- BIO 1100 (3) Principles of Biology
- BIO L100 (1) Principles of Biology Lab
- CHM 1142 (3) General Chemistry I
- CHM L142 (1) General Chemistry I Lab
- MTH 1125 (4) Calculus I

**Area V Requirements**
- IS 2241 (3) Computer Concepts and Applications
- TROY 1101 (1) The University Experience
- BIO 1101 (3) Organismic Biology
- BIO L101 (1) Organismic Biology Lab
- CHM 1143 (3) General Chemistry II
- CHM L143 (1) General Chemistry II Lab

**Complete one sequence (physics sequence not required for medical technology concentration):**
- PHY 2252 (3) General Physics I
- PHY L252 (1) General Physics I Lab
- PHY 2253 (3) General Physics II
- PHY L253 (1) General Physics II Lab
- PHY 2262 (3) Physics I with Calculus
- PHY L262 (1) Physics I with Calculus Lab
- PHY 2263 (3) Physics II with Calculus
- PHY L263 (1) Physics II with Calculus Lab

**Requirements for the Program**

Lectures and corresponding labs must be taken together.

- BIO 2220 (3) Principles of Cell Biology
- BIO 2229 (3) General Ecology
- BIO L229 (1) General Ecology Lab
- BIO 3320 (3) Genetics
- BIO 4484 (1) Senior Seminar in Biological & Environmental Sciences
- CHM 3342 (3) Organic Chemistry I
- CHM L342 (1) Organic Chemistry I Lab
- CHM 3343 (3) Organic Chemistry II
- CHM L343 (1) Organic Chemistry II Lab

**Or**
- CHM 3352 (3) Biochemistry
- CHM L352 (1) Biochemistry Lab

Complete 16 additional semester hours of adviser-approved biology or marine biology (MB) courses.

Troy University Courses:
- BIO 3307 (3) Invertebrate Zoology
- BIO L307 (1) Invertebrate Zoology Lab

Complete 14 additional semester hours of adviser-approved biology or marine biology (MB) courses.

Dauphin Island Sea Lab (DISL) Courses (16 semester hours).

DISL courses are offered during the summer term. Students are required to take the following prerequisites before attending DISL: CHM 1143, L143, BIO 1101, L101, BIO 2229, L229. A grade of C or better is required in the prerequisites. Students must also comply with all DISL catalog prerequisites for individual courses.

Complete 16 additional semester hours of MB courses approved by the DISL liaison and Department Chair.

Mathematics Education

Students seeking Alabama teacher certification should consult the College of Education portion of the catalog for major requirements. Students should consult their education advisers concerning all certification requirements and with their academic discipline adviser for requirements in the major.

Mathematics Major (38 Hours)

**Specialized General Studies Requirements**

**Area III**
- MTH 1125 (4) Calculus I

**Area V Requirements**
- TROY 1101 (1) The University Experience
- STAT 2210 (3) Introductory Statistics
- MTH 2220 (3) Computer Programming for Mathematics

**Requirements for the Major**

- MTH 1126 (4) Calculus II
- MTH 2227 (4) Calculus III
- MTH 3311 (3) Differential Equations
- MTH 3318 (3) Introduction to Advanced Mathematics
- MTH 3331 (3) Linear Algebra
- STAT 3350 (3) Statistical Methods and Computation
- MTH 4424 (3) Real Analysis I
- MTH 4441 (3) Abstract Algebra I

**Select one of the following options:**

**Option I (12 hours):**

Select one of the following:
- MTH 4425 (3) Real Analysis II
- MTH 4442 (3) Abstract Algebra II
- STAT 4451 (3) Mathematical Statistics I

Select nine (9) hours of mathematics (MTH) or STAT courses at the 3000 level or higher (excluding MTH 4481)

**Option 2: Statistics Concentration (12 hours):**

- STAT 4451 (3) Mathematical Statistics I
- STAT 4452 (3) Mathematical Statistics II
Select 6 hours of upper-level STAT course from the following:

- STAT 3355 (3) Survey Sampling
- STAT 4459 (3) Regression Analysis
- STAT 4465 (3) Categorical Data Analysis
- STAT 4466 (3) Data Mining
- STAT 4467 (3) Experimental Design
- STAT 4456 (3) Mathematics of Finance
- STAT 4464 (3) Multivariate Analysis

Students seeking Alabama teacher certification must select MTH 3325 and MTH 4498 Math Education Capstone.

Mathematics and Physics Double Major

Students seeking a double major in Mathematics and Physics should consult with their advisers in both the Mathematics and Physics Departments.

Mathematics Minor (18 Hours)

- MTH 1125 (4) Calculus I
- MTH 1126 (4) Calculus II
- MTH 2227 (4) Calculus III
- MTH 3331 (3) Linear Algebra

Select an additional three hours of math or STAT course at the 3000 level and above, other than those courses whose catalog description declares that they do not count toward the major or minor.

Statistics Minor (18 Hours)

Requirements for Minor:

- STAT 2210 (3) Introductory Statistics
- STAT 3350 (3) Statistical Methods and Computations
- STAT 4451 (3) Mathematical Statistics I

Select 9 hours from the following:

- STAT 3355 (3) Survey Sampling
- STAT 4452 (3) Mathematical Statistics II
- STAT 4459 (3) Applied Regression Analysis
- STAT 4465 (3) Categorical Data Analysis
- STAT 4466 (3) Statistical Data Mining
- STAT 4467 (3) Experimental Design
- STAT 4456 (3) Mathematics of Finance
- STAT 4464 (3) Multivariate Analysis

Medical Studies Minor (19 Hours)

- CHM 1142 (3) General Chemistry I
- CHM L142 (1) General Chemistry I Lab
- BIO 3347 (3) Human Anatomy & Physiology I
- BIO L347 (1) Human Anatomy & Physiology I Lab
- BIO 3348 (3) Human Anatomy & Physiology II
- BIO L348 (1) Human Anatomy & Physiology II Lab
- BIO 3372 (3) Microbiology
- BIO L372 (1) Microbiology Lab

Select one course from the following:

- SOC 2275 (3) Introduction to Sociology
- KHP 3352 (3) Kinesiology
- POL 2241 (3) American National Government
- PSY 2200 (3) General Psychology

Military Operations Minor (18 Hours)

Military electives may be taken from credit recommended by the American Council on Education (ACE) or military credit from regionally accredited institutions. Students transferring in less than 18 credit hours in non-duplicated ACE recommended military credits may take additional advisor approved, upper-level courses as needed. Any excess military credit may go towards the student’s free electives requirement if needed.

Military Science Leadership Minor (19-22 Hours)

Area II Requirements:

- COM 2241 (3) Fundamentals of Speech

Area IV Requirements:

Select one 2000 level 3-hour course from one of the following areas: Psychology, Sociology, or Political Science.

- MSL 3301 (3) Leadership and Problem Solving
- MSL 3302 (3) Leadership and Ethics
- MSL 3304 (1) Military Advanced Leadership Lab 111-A
- MSL 3305 (1) Military Advanced Leadership Lab 111-B
- MSL 4401 (3) Leadership and Management
- MSL 4402 (3) Officership
- MSL 4404 (1) Military Advanced Leadership Lab IV-A
- MSL 4405 (1) Military Advanced Leadership Lab IV-B
- MSL 4497 (1-3) Senior Seminar in Military Science

Select a three-hour military history course approved by the professor of military science.

Minor in Astronomy and Astrophysics (18 Hours)

- SCI 1110 (3) Exploring the Solar System
- SCI L110 (1) Exploring the Solar System Lab
- SCI 2240 (3) Principles of Astronomy, Stars, Galaxies, and Cosmology
- SCI L240 (1) Principles of Astronomy, Stars, Galaxies, and Cosmology Lab
- PHY 3310 (3) Modern Physics
- PHY L310 (1) Modern Physics Lab

OR

- PHY 3359 (3) Waves & Optics
- PHY L359 (1) Waves & Optics Lab
- ASTR 3301 (3) Extragalactic Astronomy
- ASTR 4401 (3) Astronomy Capstone*

*Note: Astronomy minors must take the 3 hour Astronomy Capstone course.

Philosophy and Religion Minor (18 Hours)

Select 9 hours from the following:

- PHI 2201 (3) Introduction to Political Philosophy
- PHI 2203 (3) Introduction to Philosophy
- PHI 2204 (3) Ethics and the Modern World
- PHI 2205 (3) Introduction to Logic
- PHI 2210 (3) Critical Thinking
- PHI 2215 (3) General Topics in Philosophy
- PHI 2280 (1-3) Travel Study in Philosophy
- REL 2210 (3) Introduction to Biblical Studies
- REL 2230 (3) General Topics in Religion
- REL 2280 (3) World Religions
- REL 2285 (1-3) Travel Study in Religion

Select 9 hours from the following upper division courses. At least
6 hours must be philosophy (PHI) courses.
PHI 3301 (3) Western Philosophy
PHI 3310 (3) Applied Ethics
PHI 3320 (3) Non-Western Philosophies
PHI 3322 (3) Philosophy of Religion
PHI/HIS 3365 (3) Bioethics in Historical Context
PHI 3380 (3) Travel Study in Philosophy
PHI 4493-94 (3) Guided Independent Study
PHI 4495 (3) Selected Topics in Philosophy
PHI 4499 (1-3) Internship in Philosophy
REL 3380 (3) Travel Study in Religion
REL 4499 (1-3) Internship in Religion
ANT 3340 (3) Language in Culture and Society
ANT 3360 (3) Magic, Witchcraft, and Religion
CLA 3311 (3) Civilization of Greece
HIS 3302 (3) History of Religion in the United States
HIS 3331 (3) Western Thought since the 17th Century
HIS 4452 (3) History of the Medieval Middle East
HIS 4453 (3) History of the Modern Middle East
HIS 4463 (3) Europe in the Age of Enlightenment

PHYSICS MAJOR (37 HOURS)

Area III
MTH 1125 (4) Calculus I
PHY 2262 (3) Physics I w/Calculus
PHY L262 (1) Physics I w/Calculus Lab

Area V
CS 2250 (3) Computer Science I
MTH 1126 (4) Calculus II*
Note: *Students selecting a minor in Mathematics or a second major in Mathematics will meet the Calculus II requirement in the Mathematics Major/Minor rather than in Area V.

Required courses (20 hours)
PHY 2263 (3) Physics II w/Calculus
PHY L263 (1) Physics II w/Calculus Lab
PHY 3310 (3) Modern Physics
PHY L310 (1) Modern Physics Lab
PHY 3325 (3) Thermodynamics
PHY 4420 (3) Mechanics
PHY 4435 (3) Electricity & Magnetism
PHY 4445 (3) Quantum Mechanics I

Select a minimum of 17 semester hours from the courses listed below:
MTH 2227 (4) Calculus III
MTH 3364 (3) Vector Calculus
PHY 3320 (3) Mathematical Methods for Physicists
PHY 3321 (3) Scientific Computing
PHY 3359 (3) Waves and Optics
PHY L359 (1) Waves and Optics Lab
PHY 4438 (3) Electromagnetic Fields
PHY 4440 (3) Dynamics of Particles & Systems
PHY 4446 (3) Quantum Mechanics II
PHY 4460 (3) Relativity I
PHY 4475 (3) Particle Physics
PHY 4478 (3) Relativity II
PHY 4483-85 (1) Seminar in Relativity
PHY 4495 (3) Topics in Physics
PHY 4491-92 (3) Guided Independent Research
PHY 4493-94 (3) Guided Independent Study

PHYSICS AND MATHEMATICS DOUBLE MAJOR

Students seeking a double major in Physics and Mathematics should consult with their advisers in both the Physics and Mathematics Departments.

PHYSICS MINOR (18-19 HOURS)
PHY 2262 (3) Physics I Calculus
PHY L262 (1) Physics I with Calculus Lab
PHY 2263 (3) Physics II Calculus
PHY L263 (1) Physics II with Calculus Lab
PHY 3310 (3) Modern Calculus
PHY L310 (1) Modern Calculus Lab

Select an additional six to seven hours of adviser-approved, upper-level physics courses.

POLITICAL SCIENCE MAJOR (36 HOURS)

Area V Requirements
IS 2241 (3) Computer Concepts and Applications
TROY 1101 (1) The University Experience
POL 2241 (3) American National Government or placement in POL 2240
POL 2260 (3) World Politics

Major Requirements
POL 3300 (3) Foundations of Political Science
POL 3330 (3) Political Theory
POL 3390 (3) The Art of Political Science Research

Select one of the following concentrations:

American Politics and Public Administration Concentration
POL 3340 (3) U. S. Government—Executive Branch
POL 3341 (3) U. S. Government—Legislative Branch
POL 3342 (3) U. S. Government—Judicial Branch

Select six hours from the following:
POL 3343 (3) American Political Processes
POL 3355 (3) Southern Politics
POL 3364 (3) State and Local Politics
POL 3338 (3) Women in Politics
POL 3339 (3) African-American Politics
POL 4405 (3) Political Behavior and Public Opinion
POL 4420 (3) Constitutional Law
POL 4421 (3) Introduction to Public Administration
POL 4422 (3) Public Policy Making
POL 4424 (3) Contemporary American Foreign Policy
POL 4432 (3) Comparative Public Policy
POL 4451 (3) Public Personnel Administration
POL 4453 (3) Bureaucratic Politics
POL 4469 (3) Religion in Politics
POL 4472 (3) Administrative Law
POL 4476 (3) Intercultural Relations
POL 4484 (3) Arab-Israeli Conflict
POL 4485 (3) Politics of the Developing World
POL 4466 (3) Middle Eastern Politics
POL 4467 (3) Asian Politics
POL 4468 (3) Russian Politics
POL 4470 (3) European Politics
POL 4474 (3) Terrorism and Political Violence
POL 4476 (3) Politics of Southeast Asia

Select an additional 12 hours of upper-level (3000-4000) political science courses, as approved by your academic adviser.

Accelerated Law Curriculum Option:
Students majoring in Political Science and Legal Studies as a minor may select the Accelerated Law Curriculum Option. See the Accelerated Law Curriculum section the catalog for more information.

The 30 semester hours from the partnered institution will be credited as follows:

9 hours will be applied to the Legal Studies Minor
6 hours will be applied to the Anthropology Major
Civil Procedure I – 3 hours
Civil Procedure II – 3 hours
15 hours will be applied to Area V General Studies

POLITICAL SCIENCE MINOR (18 HOURS)

POL 3300 (3) Foundations of Political Science
POL 3330 (3) Introduction to Political Theory

Select an additional 12 hours of upper level courses, as approved by your academic adviser.

AMERICAN POLITICS MINOR (18 HOURS)

Required Courses (9 hours)
POL 3340 (3) U. S. Government—Executive Branch
POL 3341 (3) U. S. Government—Legislative Branch
POL 3342 (3) U. S. Government—Judicial Branch

Select three of the following courses (9 hours)

POL 3343 (3) American Political Processes
POL 3355 (3) Southern Politics
POL 3364 (3) State and Local Politics
POL 3338 (3) Women in Politics
POL 3339 (3) African-American Politics
POL 4405 (3) Political Behavior and Public Opinion
POL 4420 (3) Constitutional Law
POL 4421 (3) Introduction to Public Administration
POL 4422 (3) Public Policy Making
POL 4424 (3) Contemporary American Foreign Policy
POL 4432 (3) Comparative Public Policy
POL 4451 (3) Public Personnel Administration
POL 4453 (3) Bureaucratic Politics
POL 4469 (3) Religion in Politics
POL 4472 (3) Administrative Law

INTERNATIONAL RELATIONS MINOR (18 HOURS)

Required course (9 hours)
POL 3351 (3) International Relations
POL 4410 (3) International Political Economy
POL 4433 (3) Comparative Government

Select three hours from the following courses (9 hours)

POL 3300 (3) Foundations of Political Science
POL 4405 (3) Political Behavior and Public Opinion
POL 4415 (3) International Conflict
POL 4424 (3) Contemporary American Foreign Policy
POL 4432 (3) Comparative Public Policy
POL 4445 (3) Inter-American Relations
POL 4450 (3) Latin American Politics
POL 4452 (3) International Law
POL 4460 (3) Intercultural Relations

POL 4464 (3) Arab-Israeli Conflict
POL 4465 (3) Politics of the Developing World
POL 4466 (3) Middle Eastern Politics
POL 4467 (3) Asian Politics
POL 4468 (3) Russian Politics
POL 4470 (3) European Politics
POL 4474 (3) Terrorism and Political Violence
POL 4476 (3) Politics of Southeast Asia

SCIENCE EDUCATION

Students seeking Alabama teacher certification should select the comprehensive science program as a first major and education as a second major. Students should consult with their advisers concerning all certification requirements.

SOCIAL SCIENCE EDUCATION

Students seeking Alabama teacher certification should consult the College of Education portion of the catalog for major requirements. Students should consult their education advisers concerning all certification requirements and with their academic discipline adviser for requirements in the major.

SPECIALIZED GENERAL STUDIES REQUIREMENTS

Area V Requirements
STAT 2210 (3) Introductory Statistics

Requirements for the Major

SS 2220 (3) Introduction to Social Science
SS 3375 (3) Research Methods in the Social Sciences
GIS 3390 (3) Fundamentals of Geographic Information and Analysis
SS 3376 (3) Social Science Statistics
SS 4498 (3) Social Science Theory
SS 4499 (3) Senior Seminar

Select an additional 18 hours of approved upper-level courses in at least three disciplines from the following: anthropology, economics, geography, history, political science, psychology, sociology, criminal justice, or as approved by the department chair.

Accelerated Law Curriculum Option:

Students majoring in Social Science and Legal Studies as a minor may select the Accelerated Law Curriculum Option. See the Accelerated Law Curriculum section the catalog for more information.

The 30 semester hours from the partnered institution will be credited as follows:

9 hours will be applied to the Legal Studies Minor
6 hours will be applied to the Anthropology Major
Civil Procedure I – 3 hours
Civil Procedure II – 3 hours
15 hours will be applied to Area V General Studies

SOCIAL SCIENCE MINOR: GENERAL SOCIAL SCIENCE (18 HOURS)

Select an additional 18 hours from at least three of the following: anthropology, criminal justice, economics, geography, history, political science, psychology, social science, or sociology. At least 12 hours must be 3000/4000 level.

SOCIOLOGY MAJOR (36 HOURS)

Area IV Requirements
SOC 2275 (3) Introduction to Sociology

Area V Requirements
IS 2241 (3) Computer Concepts and Applications
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TROY 1101</td>
<td>The University Experience</td>
<td>(1)</td>
</tr>
<tr>
<td>STAT 2210</td>
<td>Introductory Statistics</td>
<td>(3)</td>
</tr>
</tbody>
</table>

### Requirements for the Major

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 3375</td>
<td>Research Methods in the Social Sciences</td>
<td>(3)</td>
</tr>
<tr>
<td>SOC 3376</td>
<td>Sociological Statistics</td>
<td>(3)</td>
</tr>
<tr>
<td>SOC 4498</td>
<td>Sociological Theory</td>
<td>(3)</td>
</tr>
<tr>
<td>SOC 4499</td>
<td>Professional Seminar in Sociology</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Select an additional 24 hours of approved upper-level sociology courses.

#### Accelerated Law Curriculum Option:

Students majoring in History and Legal Studies as a minor may select the Accelerated Law Curriculum Option. See the Accelerated Law Curriculum section the catalog for more information.

The 30 semester hours from the partnered institution will be credited as follows:

- 9 hours will be applied to the Legal Studies Minor
- 6 hours will be applied to the Anthropology Major
- Civil Procedure I –3 hours
- Civil Procedure II –3 hours
- 15 hours will be applied to Area V General Studies

### SOCIOLOGY MINOR (18 HOURS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 2275</td>
<td>Introduction to Sociology</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Select 15 hours of approved, upper-level Sociology courses. SOC 2280 may be applied toward the minor.

### SURVEYING AND GEOMATICS SCIENCES PROGRAM (53 HOURS)

#### Area II:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 2201</td>
<td>Introductory Drawing</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Select remaining Area II courses as specified in the General Studies section of this catalog.

#### Area III Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 1125</td>
<td>Calculus I</td>
<td>(4)</td>
</tr>
</tbody>
</table>

Select an 8 hour physics sequence with labs:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 2252</td>
<td>General Physics I</td>
<td>(3)</td>
</tr>
<tr>
<td>PHY L252</td>
<td>General Physics I Laboratory</td>
<td>(1)</td>
</tr>
<tr>
<td>PHY 2253</td>
<td>General Physics II</td>
<td>(3)</td>
</tr>
<tr>
<td>PHY L253</td>
<td>General Physics II Laboratory</td>
<td>(1)</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHY 2262</td>
<td>Physics I with Calculus</td>
<td>(3)</td>
</tr>
<tr>
<td>PHY L262</td>
<td>Physics I with Calculus Laboratory</td>
<td>(1)</td>
</tr>
<tr>
<td>PHY 2263</td>
<td>Physics II with Calculus</td>
<td>(3)</td>
</tr>
<tr>
<td>PHY L263</td>
<td>Physics II with Calculus Laboratory</td>
<td>(1)</td>
</tr>
</tbody>
</table>

#### Area V Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 2250</td>
<td>Computer Science I</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 2241</td>
<td>Computer Concepts &amp; Application</td>
<td>(3)</td>
</tr>
<tr>
<td>MTH 2230</td>
<td>Applied Linear Algebra</td>
<td>(3)</td>
</tr>
<tr>
<td>STAT 2210</td>
<td>Introductory Statistics</td>
<td>(3)</td>
</tr>
<tr>
<td>TROY 1101</td>
<td>The University Experience</td>
<td>(1)</td>
</tr>
</tbody>
</table>

### Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEM 1100</td>
<td>Computer-Aided Drafting I</td>
<td>(2)</td>
</tr>
<tr>
<td>GEM 1101</td>
<td>Computer-Aided Drafting II</td>
<td>(2)</td>
</tr>
<tr>
<td>GEM 2220</td>
<td>Basics of Surveying</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM L220</td>
<td>Basics of Surveying Lab</td>
<td>(1)</td>
</tr>
<tr>
<td>GEM 3309</td>
<td>Land Survey Principles</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM L309</td>
<td>Land Survey Principles Lab</td>
<td>(1)</td>
</tr>
<tr>
<td>GEM 3310</td>
<td>Land Survey Practice</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM L310</td>
<td>Land Survey Practice Lab</td>
<td>(1)</td>
</tr>
<tr>
<td>GEM 3330</td>
<td>Advanced Measurement Analysis</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM L330</td>
<td>Advanced Measurement Analysis Lab</td>
<td>(1)</td>
</tr>
<tr>
<td>GEM 3366</td>
<td>Photogrammetry and Remote Sensing</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM 3379</td>
<td>Introduction to Least Squares Adjustment</td>
<td>(3)</td>
</tr>
<tr>
<td>GIS 3390</td>
<td>Fundamentals of Geographic Adjustment and Analysis</td>
<td>(3)</td>
</tr>
<tr>
<td>GIS 3391</td>
<td>Application of Geospatial Information and Analysis</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM 4405</td>
<td>Route &amp; Construction Surveying</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM L405</td>
<td>Route &amp; Construction Surveying Lab</td>
<td>(1)</td>
</tr>
<tr>
<td>GEM 4407</td>
<td>Land Development</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM L407</td>
<td>Land Development Lab</td>
<td>(1)</td>
</tr>
<tr>
<td>GEM 4408</td>
<td>Geodesy &amp; Geodetics</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM 4409</td>
<td>Hydrology</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM L409</td>
<td>Hydrology Lab</td>
<td>(1)</td>
</tr>
<tr>
<td>GEM 4410</td>
<td>Introduction to Global Positions</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM 4490</td>
<td>Geomatics Capstone</td>
<td>(1)</td>
</tr>
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</table>

Select two hours below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEM 4499</td>
<td>Geomatics/GIS Projects</td>
<td>(2)</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEM 3395</td>
<td>Cooperative Work Experience I</td>
<td>(1)</td>
</tr>
<tr>
<td>GEM 4496</td>
<td>Cooperative Work Experience II</td>
<td>(1)</td>
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</tbody>
</table>

### SURVEYING AND GEOMATICS SCIENCES MINOR (20 HOURS)

#### Required Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEM 1100</td>
<td>Computer-Aided Drafting</td>
<td>(2)</td>
</tr>
<tr>
<td>GEM 2220</td>
<td>Basics of Surveying</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM 3309</td>
<td>Land Survey Principles</td>
<td>(3)</td>
</tr>
<tr>
<td>GIS 3390</td>
<td>Fundamentals of Geographic Adjustment and Analysis</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM 4408</td>
<td>Geodesy and Geodetics</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM 4409</td>
<td>Hydrology</td>
<td>(3)</td>
</tr>
<tr>
<td>GEM 4410</td>
<td>Introduction to Global Positions</td>
<td>(3)</td>
</tr>
</tbody>
</table>

### UNMANNED AERIAL SYSTEMS MINOR (18 HOURS)

#### Required Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>UAS 2200</td>
<td>Unmanned Aerial Systems Overview</td>
<td>(3)</td>
</tr>
<tr>
<td>UAS 2202</td>
<td>Principles of UAS Design</td>
<td>(3)</td>
</tr>
<tr>
<td>UAS 2204</td>
<td>Principles of UAS Sensors &amp; Sensing Systems</td>
<td>(3)</td>
</tr>
<tr>
<td>UAS 2206</td>
<td>Human Factors In UAS Operations &amp; Accidents</td>
<td>(3)</td>
</tr>
<tr>
<td>UAS 2208</td>
<td>Legal &amp; Ethical Considerations for UAS Operations</td>
<td>(3)</td>
</tr>
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</table>

Select 3 semester hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>UAS 2210</td>
<td>UAS Real World Applications</td>
<td>(3)</td>
</tr>
<tr>
<td>UAS 2212</td>
<td>UAS Piloting Familiarization</td>
<td>(3)</td>
</tr>
</tbody>
</table>