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 post-graduate 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.

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**ACCELERATED LAW CURRICULUM (58 HOURS)**

1. Students interested in the Accelerated Law Curriculum must complete the requirements for the General Social Science Concentration and the courses outlined in Area V of General Studies by the end of the third year of study at Troy University (or semester prior to attending Cumberland School of Law, Samford University or Jones School of Law, Faulkner University).

2. Students interested in the Accelerated Law Curriculum must meet the admission requirements and be accepted to the Cumberland School of Law, Samford University or Jones School of Law, Faulkner University. Students must take the LSAT exam as part of the admissions requirement.

3. In addition to the courses required for the General Social Science concentration and outlined Area V courses, students must complete 30 semester hours of law courses outlined by Cumberland School of Law, Samford University or Jones School of Law, Faulkner University.

4. Students are strongly recommended to take PHI 2204 Ethics and Modern World within Area II of General Studies.

5. Upon the successful completion of the designated 30 semester hours of courses at Cumberland School of Law or Jones School of Law, students may be awarded a Bachelor of Science in Social Science with a minor in Legal Studies.

For additional information, interested students should see the coordinator of this program in the Department of Social Science.

**Area V (13 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 2241</td>
<td></td>
<td>Computer Concepts &amp; Applications</td>
</tr>
<tr>
<td>TROY 1101</td>
<td></td>
<td>University Orientation</td>
</tr>
</tbody>
</table>

**Select 9 hours from the following:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAW 2221</td>
<td></td>
<td>Legal Environment of Business</td>
</tr>
<tr>
<td>CJ 2241</td>
<td></td>
<td>Survey of Law and Criminal Procedure</td>
</tr>
<tr>
<td>LGL 2200</td>
<td></td>
<td>Introduction to Legal Studies</td>
</tr>
<tr>
<td>LGL 3300</td>
<td></td>
<td>Legal Research and Writing</td>
</tr>
<tr>
<td>LGL 4400</td>
<td></td>
<td>Seminar in Legal Studies</td>
</tr>
<tr>
<td>CJ 3352</td>
<td></td>
<td>Constitutional Law</td>
</tr>
</tbody>
</table>

**OR**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 4420</td>
<td></td>
<td>Constitutional Law</td>
</tr>
<tr>
<td>CJ 4442</td>
<td></td>
<td>Criminal Investigation and Evidence</td>
</tr>
</tbody>
</table>

**Requirements for the Major (15 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS 3375</td>
<td></td>
<td>Introduction to Social Science Inquiry</td>
</tr>
<tr>
<td>SS 3376</td>
<td></td>
<td>Spatial Applications of Social Science Inquiry</td>
</tr>
<tr>
<td>SS 3377</td>
<td></td>
<td>Spatial Applications of Social Science Inquiry</td>
</tr>
<tr>
<td>SS 4498</td>
<td></td>
<td>Social Science Theory</td>
</tr>
<tr>
<td>SS 4499</td>
<td></td>
<td>Senior Seminar</td>
</tr>
</tbody>
</table>

**General Social Science Concentration:**
Select at least 21 hours of additional 3000/4000-level courses from anthropology, economics, geography, history, political science, psychology or sociology (six hours may be used from ECO 2251, GEO 2210, ANT 2200, POL 2260 [World Politics], or SOC 2280) in at least three disciplines.

**AIR FORCE ROTC/AEROSPACE STUDIES MINOR (18 HOURS)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS 3312</td>
<td></td>
<td>Air Force Leadership Studies I</td>
</tr>
<tr>
<td>AS L312</td>
<td></td>
<td>Leadership Laboratory</td>
</tr>
<tr>
<td>AS 3313</td>
<td></td>
<td>Air Force Leadership Studies II</td>
</tr>
<tr>
<td>AS L313</td>
<td></td>
<td>Leadership Laboratory</td>
</tr>
<tr>
<td>AS 4412</td>
<td></td>
<td>National Security Affairs/Preparation for Active Duty I</td>
</tr>
<tr>
<td>AS L412</td>
<td></td>
<td>Leadership Laboratory I</td>
</tr>
<tr>
<td>AS 4413</td>
<td></td>
<td>National Security Affairs/Preparation for Active Duty II</td>
</tr>
<tr>
<td>AS L413</td>
<td></td>
<td>Leadership Laboratory II</td>
</tr>
</tbody>
</table>

Select two three-hour courses from upper-level political science (POL) courses, or substitute upper-level courses from history (HIS), geography (GEO), or social science (SOC) courses with the approval of the Department of Aerospace Studies chair.

**ANTHROPOLOGY MAJOR (36 HOURS)**

**Area IV**

Anthropology majors should take Area IV electives appropriate for their major.
**Major Requirements:**

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

Select 3 semester hours from the following:

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

**ANTHROPOLOGY MINOR (18 HOURS)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANT 3310</td>
<td>(3)</td>
<td>Cultural Anthropology</td>
</tr>
<tr>
<td>ANT 3311</td>
<td>(3)</td>
<td>Physical Anthropology</td>
</tr>
</tbody>
</table>

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

**AVIATION OPERATIONS MINOR (18 HOURS)**

**Course Requirements:**

**Choose one (1) emphasis**

**Helicopter Flight training Emphasis (18 hrs.)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFT L214</td>
<td>(2)</td>
<td>Helicopter Private Pilot I Lab</td>
</tr>
<tr>
<td>AFT L216</td>
<td>(2)</td>
<td>Helicopter Private Pilot II Lab</td>
</tr>
<tr>
<td>AFT L218</td>
<td>(3)</td>
<td>Helicopter Commercial Pilot I Lab</td>
</tr>
<tr>
<td>AFT L220</td>
<td>(3)</td>
<td>Helicopter Commercial Pilot II Lab</td>
</tr>
<tr>
<td>AFT L222</td>
<td>(2)</td>
<td>Helicopter Certified Flight Instructor (CFI) Pilot Lab</td>
</tr>
<tr>
<td>AFT L224</td>
<td>(2)</td>
<td>Helicopter Instrument Pilot Lab</td>
</tr>
<tr>
<td>AFT L226</td>
<td>(2)</td>
<td>Helicopter Certified Flight Instructor (CFII) Pilot Lab</td>
</tr>
</tbody>
</table>

Choose 2 semester hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFT L228</td>
<td>(1)</td>
<td>Helicopter R22 Transition Currency Pilot Lab</td>
</tr>
<tr>
<td>AFT L230</td>
<td>(1)</td>
<td>Helicopter R44 Transition Currency Pilot Lab</td>
</tr>
<tr>
<td>AFT L232</td>
<td>(1)</td>
<td>Helicopter R66 Turbine Transition Currency Pilot Lab</td>
</tr>
<tr>
<td>AFT L234</td>
<td>(1)</td>
<td>Helicopter Bell407 Turbine Transition Currency Pilot Lab</td>
</tr>
<tr>
<td>AFT L236</td>
<td>(1)</td>
<td>Helicopter Night Vision Goggle Flight Lab</td>
</tr>
<tr>
<td>AFT L238</td>
<td>(1)</td>
<td>Helicopter External Load Flight Lab</td>
</tr>
<tr>
<td>AFT L240</td>
<td>(1)</td>
<td>Helicopter Mountain Operations Flight Lab</td>
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</tbody>
</table>

Airplane Flight Training Emphasis (18 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFT L250</td>
<td>(2)</td>
<td>Airplane Private Pilot Lab I</td>
</tr>
<tr>
<td>AFT L252</td>
<td>(2)</td>
<td>Airplane Private Pilot Lab II Fixed Wing</td>
</tr>
<tr>
<td>AFT L254</td>
<td>(3)</td>
<td>Airplane Instrument Pilot Lab</td>
</tr>
<tr>
<td>AFT L256</td>
<td>(3)</td>
<td>Airplane Commercial Pilot I Lab</td>
</tr>
<tr>
<td>AFT L258</td>
<td>(2)</td>
<td>Airplane Commercial Pilot II Lab</td>
</tr>
<tr>
<td>AFT L260</td>
<td>(2)</td>
<td>Airplane Instrument Pilot Lab</td>
</tr>
<tr>
<td>AFT L262</td>
<td>(2)</td>
<td>Airplane Certified Flight Instructor (CFII) Pilot Lab</td>
</tr>
<tr>
<td>AFT 2270</td>
<td>(2)</td>
<td>Multi-Engine Airplane</td>
</tr>
</tbody>
</table>

Unmanned Aerial Systems Emphasis (18 hrs.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFT 2200</td>
<td>(3)</td>
<td>Unmanned Aerial Systems Overview</td>
</tr>
<tr>
<td>AFT 2202</td>
<td>(3)</td>
<td>Principles of UAS Design</td>
</tr>
</tbody>
</table>

**BACHELOR OF APPLIED SCIENCE: RESOURCE AND TECHNOLOGY MANAGEMENT MAJOR (36 HOURS)**

**Area III Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCI 2233</td>
<td>(3)</td>
<td>Physical Science</td>
</tr>
<tr>
<td>SCI L233</td>
<td>(1)</td>
<td>Physical Science Lab</td>
</tr>
</tbody>
</table>

**Area IV Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO 2251</td>
<td>(3)</td>
<td>Principles of Macroeconomics</td>
</tr>
<tr>
<td>ECO 2252</td>
<td>(3)</td>
<td>Principles of Microeconomics</td>
</tr>
</tbody>
</table>

**Area V Requirements (24 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TROY 1101</td>
<td>(1)</td>
<td>University Orientation</td>
</tr>
<tr>
<td>IS 2241</td>
<td>(3)</td>
<td>Computer Concepts &amp; Applications</td>
</tr>
<tr>
<td>GEO 2210</td>
<td>(3)</td>
<td>World Regional Geography</td>
</tr>
<tr>
<td>POL 2260</td>
<td>(3)</td>
<td>World Politics</td>
</tr>
<tr>
<td>PSY 2200</td>
<td>(3)</td>
<td>General Psychology</td>
</tr>
<tr>
<td>SOC 2275</td>
<td>(3)</td>
<td>Introduction to Sociology</td>
</tr>
<tr>
<td>SCI 2234</td>
<td>(3)</td>
<td>Earth and Space Science</td>
</tr>
<tr>
<td>SCI L234</td>
<td>(1)</td>
<td>Earth and Space Science Lab</td>
</tr>
</tbody>
</table>

Electives (5 hours)

**Resource & Technology Management Major (36 hours)**

**Required Core courses (18 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 4465</td>
<td>(3)</td>
<td>Occupational Safety and Health</td>
</tr>
<tr>
<td>MKT 3300</td>
<td>(3)</td>
<td>Principles of Marketing</td>
</tr>
<tr>
<td>GED 3365</td>
<td>(3)</td>
<td>Principles of Management</td>
</tr>
<tr>
<td>SCI 3365</td>
<td>(3)</td>
<td>Principles of Applied Science</td>
</tr>
<tr>
<td>SOC 3370</td>
<td>(3)</td>
<td>Society and Environment</td>
</tr>
<tr>
<td>SS 3375</td>
<td>(3)</td>
<td>Introduction To Social Science Inquiry</td>
</tr>
</tbody>
</table>

Select a minimum of 18 semester hours from the courses listed below:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 4460</td>
<td>(3)</td>
<td>Critical Issues of Environmental Mgmt.</td>
</tr>
<tr>
<td>CJ 3335</td>
<td>(3)</td>
<td>Private &amp; Public Security Administration</td>
</tr>
<tr>
<td>CS 3310</td>
<td>(3)</td>
<td>Foundations of Computer Science</td>
</tr>
<tr>
<td>PSY 4410</td>
<td>(3)</td>
<td>Business and Industrial Science</td>
</tr>
<tr>
<td>SCI 3366</td>
<td>(3)</td>
<td>Survey of Electronic Technology</td>
</tr>
<tr>
<td>SCI 3370</td>
<td>(3)</td>
<td>Toxic, Radioactive, &amp; Hazardous Material</td>
</tr>
<tr>
<td>SCI 4450</td>
<td>(3)</td>
<td>Science in a Regulatory Environment</td>
</tr>
<tr>
<td>SOC 3310</td>
<td>(3)</td>
<td>Minorities in U.S. Social Structure</td>
</tr>
</tbody>
</table>

OR

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.
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 by the university have been developed to supplement, not duplicate, the vocational/technical training or other experiential learning the individual may possess in a manner designed to provide these individuals greater career opportunities.

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 advisers concerning all certification requirements.

BIOLOGY MAJOR (43 HOURS)

*Special Topics in Biology (BIO 4476), Guided Independent Studies (BIO 4491/4492) and Guided Independent Research (BIC 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</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 1100</td>
<td>3</td>
<td>Principles of Biology</td>
</tr>
<tr>
<td>BIO L100</td>
<td>1</td>
<td>Principles of Biology Lab</td>
</tr>
<tr>
<td>CHM 1142</td>
<td>3</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>CHM L142</td>
<td>1</td>
<td>General Chemistry I Lab</td>
</tr>
<tr>
<td>MTH 1125</td>
<td>4</td>
<td>Calculus I</td>
</tr>
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</table>

Area V Requirements

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

Select one sequence:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 2252</td>
<td>3</td>
<td>General Physics I</td>
</tr>
<tr>
<td>PHY L2252</td>
<td>1</td>
<td>General Physics I Lab</td>
</tr>
<tr>
<td>PHY 2253</td>
<td>3</td>
<td>General Physics II</td>
</tr>
<tr>
<td>PHY L253</td>
<td>1</td>
<td>General Physics II Lab</td>
</tr>
</tbody>
</table>

OR

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 2262</td>
<td>3</td>
<td>Physics I with Calculus</td>
</tr>
<tr>
<td>PHY L2262</td>
<td>1</td>
<td>Physics I with Calculus Lab</td>
</tr>
<tr>
<td>PHY 2263</td>
<td>3</td>
<td>Physics II with Calculus</td>
</tr>
<tr>
<td>PHY L263</td>
<td>1</td>
<td>Physics II with Calculus Lab</td>
</tr>
</tbody>
</table>

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 2220</td>
<td>3</td>
<td>Principles of Cell Biology</td>
</tr>
<tr>
<td>BIO 2229</td>
<td>3</td>
<td>General Ecology</td>
</tr>
<tr>
<td>BIO L229</td>
<td>1</td>
<td>General Ecology Lab</td>
</tr>
<tr>
<td>BIO 3320</td>
<td>3</td>
<td>Genetics</td>
</tr>
<tr>
<td>BIO L320</td>
<td>1</td>
<td>Genetics Lab</td>
</tr>
<tr>
<td>CHM 3342</td>
<td>3</td>
<td>Organic Chemistry I</td>
</tr>
<tr>
<td>CHM L342</td>
<td>1</td>
<td>Organic Chemistry I Lab</td>
</tr>
<tr>
<td>CHM 3343</td>
<td>3</td>
<td>Organic Chemistry II</td>
</tr>
<tr>
<td>CHM L343</td>
<td>1</td>
<td>Organic Chemistry II Lab</td>
</tr>
<tr>
<td>MTH 2210</td>
<td>3</td>
<td>Applied Statistics</td>
</tr>
</tbody>
</table>

Complete one botany course with its corresponding lab:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 3325</td>
<td>3</td>
<td>Plant Form and Function</td>
</tr>
<tr>
<td>BIO L325</td>
<td>1</td>
<td>Plant Form and Function Lab</td>
</tr>
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Complete one zoology course with its corresponding lab:

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Complete one ecology/environmental course with its corresponding lab:

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

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<td>BIO 4414</td>
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<td>BIO L414</td>
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<td>BIO L430</td>
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BIO L451 (1) Toxicology Lab
BIO 4478 (3) Cell Biology
BIO L478 (1) Cell Biology Lab
BIO 4480 (3) Histology
BIO L480 (1) Histology Lab
BIO 4482 (3) Molecular Biology
BIO L482 (1) Molecular Biology Lab
Complete one upper-level adviser-approved biology course and its corresponding lab.

**BIOLOGY MINOR (18-20 HOURS)**

Lectures and the corresponding labs must be taken together:
BIO 1101 (3) Organismal Biology
BIO L101 (1) Organismal Biology Lab
BIO 2202/ (3) Principles of Environmental Science
BIO L202 (1) Principles of Environmental Science Lab

* OR *
BIO 2229 (3) General Ecology
BIO L229 (1) General Ecology Lab
BIO 2220 (3) Principles of Cell Biology
BIO L220 (1) Principles of Cell Biology Lab
BIO 3320 (3) Genetics
BIO L320 (1) Genetics Lab

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

**BIOLOGY PROGRAM (55 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
MTH 1125 (4) Calculus I

**Area V Requirements**
IS 2241 (3) Computer Concepts and Applications
TROY 1101 (1) University Orientation
BIO 1101 (3) Organismal Biology
BIO L101 (1) Organismal 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

* OR *
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**
BIO 2220 (3) Principles of Cell Biology
BIO L220 (1) Principles of Cell Biology Lab
BIO 2229 (3) General Ecology
BIO L229 (1) General Ecology Lab
BIO 3320 (3) Genetics
BIO L320 (1) Genetics Lab
BIO 4484 (1) Senior Seminar in Biological & Environment 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

Complete one of the five concentrations shown below (biomedical sciences, food safety, general biology, ecology and field biology, or medical technology):

**Biomedical Sciences Concentration:**
BIO 3347 (3) Human Anatomy and Physiology I
BIO L347 (1) Human Anatomy and Physiology I Lab
BIO 3348 (3) Human Anatomy and Physiology II
BIO L348 (1) Human Anatomy and Physiology II Lab
BIO 3372 (3) Microbiology
BIO L372 (1) Microbiology Lab
BIO 4482 (3) Molecular Biology
BIO L482 (1) Molecular Biology Lab

Complete 16 hours from the courses listed below. One upper level botany, ecology/environmental or zoology course with its corresponding lab may be used towards this requirement. The 16 hours chosen should be based on the student’s future plans for employment, graduate school or professional school.

BIO 3340 (3) Evolution
BIO 3382 (3) Immunology
BIO L382 (1) Immunology Lab
BIO 4414 (3) Food Microbiology
BIO L414 (1) Food Microbiology Lab
BIO 4416 (3) Microbial Ecology
BIO L416 (1) Microbial Ecology Lab
BIO 4430 (3) Applied Genetics
BIO L430 (1) Applied Genetics Lab
BIO 4451 (3) Toxicology
BIO L451 (1) Toxicology Lab
BIO 4471 (3) Parasitology
BIO L471 (1) Parasitology Lab
BIO 4476 (1-3) Special Topics in Biology
BIO 4480 (3) Histology
BIO L480 (1) Histology Lab
BIO 4488/ (1-3) Internship in Biological or Environmental 4489/4490 Science
BIO 4491/92 (1-3) Guided Independent Research
BIO 4494/94 (1-3) Guided Independent Study
CHM 3352 (3) Biochemistry
CHM L352 (1) Biochemistry Lab

**Food Safety Concentration:**
BIO 3372 (3) Microbiology
BIO L372 (1) Microbiology Lab
BIO 4414 (3) Food Microbiology
BIO L414 (1) Food Microbiology Lab
BIO 4451 (3) Toxicology
BIO L451 (1) Toxicology Lab
BIO 4418 (3) Food Laws and Regulations
CHM 3352 (3) Biochemistry
CHM L352 (1) Biochemistry Lab
HSTM 4466 (3) Restaurant Management
NSG 2211 (3) Human Nutrition

Complete seven or more hours from the courses listed below. Lectures and their corresponding labs must be taken together.

BIO 3340 (3) Evolution
BIO 3382 (3) Immunology

*Complete one of the following 16 hours:**

- 16 hours of upper level botany, ecology/environmental or zoology courses with their corresponding labs.
- 16 hours of upper level adviser-approved biology courses with their corresponding labs.

*The 16 hours chosen should be based on the student’s future plans for employment, graduate school or professional school.*
BIO L382  (1)  Immunology Lab  
BIO 4416  (3)  Microbial Ecology  
BIO L416  (1)  Microbial Ecology Lab  
BIO 4471  (3)  Parasitology  
BIO L471  (1)  Parasitology Lab  
BIO 4476  (1-3)  Special Topics in Biology*  
BIO 4482  (3)  Molecular Biology  
BIO L482  (1)  Molecular Biology Lab  
BIO 4488/  (1-8)  Internship in the Biological  
OR  
BIO 4489/4490  Environmental Sciences  
BIO 4491/92  (3)  Guided Independent Research  
BIO 4493/94  (3)  Guided Independent Study*  
CHM 4455  (3)  Instrumental Analysis  
CHM L455  (1)  Instrumental Analysis Lab  
HSTM 3372  (3)  Hospitality Management  
HSTM 4465  (3)  Food and Beverage Service  

**General Biology Concentration:**
*Complete one botany course with its corresponding lab:*
BIO 3325  (3)  Plant Form and Function  
BIO L325  (1)  Plant Form and Function Lab  
BIO 4425  (4)  Field Botany  

**Complete one zoology course with its corresponding lab:**
BIO 3307  (3)  Invertebrate Zoology  
BIO L307  (1)  Invertebrate Zoology Lab  
BIO 3308  (3)  Vertebrate Zoology  
BIO L308  (1)  Vertebrate Zoology Lab  
BIO 4405  (3)  Entomology  
BIO L405  (1)  Entomology Lab  
BIO 4420  (4)  Field Vertebrate Zoology  
BIO 4445  (3)  Ichthyology  
BIO L445  (1)  Ichthyology Lab  
BIO 4446  (3)  Herpetology  
BIO L446  (1)  Herpetology Lab  
BIO 4447  (3)  Ornithology  
BIO L447  (1)  Ornithology Lab  
BIO 4448  (3)  Mammalogy  
BIO L448  (1)  Mammalogy Lab  
BIO 4471  (3)  Parasitology  
BIO L471  (1)  Parasitology Lab  

**Complete one ecology/environmental course with its corresponding lab:**
BIO 4413  (3)  Limnology  
BIO L413  (1)  Limnology Lab  
BIO 4416  (3)  Microbial Ecology  
BIO L416  (1)  Microbial Ecology Lab  
BIO 4421  (3)  Population Ecology  
BIO L421  (1)  Population Ecology Lab  
BIO 4479  (3)  Environmental Assessment  
BIO L479  (1)  Environmental Assessment Lab  

**Complete one physiology/cell/molecular course with its corresponding lab:**
BIO 3347  (3)  Human Anatomy and Physiology I  
BIO L347  (1)  Human Anatomy and Physiology I Lab  
BIO 3348  (3)  Human Anatomy and Physiology II  
BIO L348  (1)  Human Anatomy and Physiology II Lab  
BIO 3372  (3)  Microbiology  
BIO L372  (1)  Microbiology Lab  
BIO 3382  (3)  Immunology  
BIO L382  (1)  Immunology Lab  
BIO 3386  (3)  Hematology  
BIO L386  (1)  Hematology Lab  
BIO 4414  (3)  Food Microbiology  
BIO L414  (1)  Food Microbiology Lab  
BIO 4430  (3)  Applied Genetics  
BIO L430  (1)  Applied Genetics Lab  
BIO 4451  (3)  Toxicology  
BIO L451  (1)  Toxicology Lab  
BIO 4480  (3)  Histology  
BIO L480  (1)  Histology Lab  
BIO 4482  (3)  Molecular Biology  
BIO L482  (1)  Molecular Biology Lab  

**Medical Laboratory Science Concentration**
*Complete 16 additional semester hours of BIO or MB courses.*
The 16 hours chosen should be based on the student’s future plans for employment, graduate school or professional school.

**Ecology and Field Biology Concentration:**
BIO 4420  (4)  Field Vertebrate Zoology  
BIO 4421  (3)  Population Ecology  
BIO L421  (1)  Population Ecology Lab  
BIO 4425  (4)  Field Botany  

**Complete 12 hours (three courses with labs) from the three categories below. At least one course must be taken from each of the three categories.**

- **Zoology:**
  BIO 3307  (3)  Invertebrate Zoology  
  BIO L307  (1)  Invertebrate Zoology Lab  
  BIO 4405  (2)  Entomology  
  BIO L405  (2)  Entomology Lab  

- **Botany:**
  BIO 3325  (3)  Plant Form and Function  
  BIO L325  (1)  Plant Form and Function Lab  
  BIO 3326  (3)  Plant Diversity  
  BIO L326  (1)  Plant Diversity Lab  

- **Ecology:**
  BIO 4413  (3)  Limnology  
  BIO L413  (1)  Limnology Lab  
  BIO 4479  (3)  Environmental Assessment  
  BIO L479  (1)  Environmental Assessment Lab  

**Complete an additional eight hours of adviser-approved BIO or MB courses.**

Lectures and their corresponding labs must be taken together.

BIO 3347  (3)  Human Anatomy and Physiology I  
BIO L347  (1)  Human Anatomy and Physiology I Lab  
BIO 3348  (3)  Human Anatomy and Physiology II  
BIO L348  (1)  Human Anatomy and Physiology II Lab  
BIO 3372  (3)  Microbiology  
BIO L372  (1)  Microbiology Lab  
BIO 3382  (3)  Immunology  
BIO L382  (1)  Immunology Lab  

**Complete one course with its corresponding lab:**
BIO 3386  (3)  Hematology  
BIO L386  (1)  Hematology Lab  
BIO 4471  (3)  Parasitology  
BIO L471  (1)  Parasitology Lab  

*In addition to the above courses, including core courses, students must complete 33 semester hours of hospital internship MLS 4400-4418 courses.*
**BIOLOGY, PRE-PROFESSIONAL MAJOR (55 HOURS)**

**Specialized General Studies Requirements**

**Area III (12 Hours)**
- BIO L100 (3) Principles of Biology
- BIO L100 (1) Principles of Biology Lab
- CHM 1143 (3) General Chemistry I
- CHM L142 (1) General Chemistry I Lab
- MTH 1125 (4) Calculus I

**Area V Requirements (20 Hours)**
- BIO 1101 (3) Organismal Biology
- BIO L101 (1) Organismal Biology Lab
- CHM 1143 (3) General Chemistry II
- CHM L143 (1) General Chemistry II Lab
- IS 2241 (3) Computer Concepts and Applications
- TROY 1101 (1) University Orientation

**Complete one sequence:**
- 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
- OR
- 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 major**

Lectures and their corresponding labs must be taken together.
- BIO 2200 (3) Principles of Cell Biology
- BIO L200 (1) Principles of Cell Biology Lab
- BIO 2229 (3) General Ecology
- BIO L229 (1) General Ecology Lab
- BIO 3320 (3) Genetics
- BIO L320 (1) Genetics Lab
- 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
- MTH 2210 (3) Applied Statistics
- BIO 4484 (1) Senior Seminar in Biological & Environment Sciences

**Select 32 semester hours from the courses listed below:**
- 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 3382 (3) Immunology
- BIO L382 (1) Immunology Lab
- BIO 3386 (3) Hematology
- BIO L386 (1) Hematology Lab
- BIO 4414 (3) Food Microbiology
- BIO L414 (1) Food Microbiology Lab
- BIO 4430 (3) Applied Genetics
- BIO L430 (1) Applied Genetics Lab
- BIO 4451 (3) Toxicology
- BIO L451 (1) Toxicology Lab
- BIO 4471 (3) Parasitology
- BIO L471 (1) Parasitology Lab
- BIO 4478 (3) Cell Biology
- BIO L478 (1) Cell Biology Lab
- BIO 4480 (3) Histology
- BIO L480 (1) Histology Lab
- BIO 4482 (3) Molecular Biology
- BIO L482 (1) Molecular Biology Lab
- BIO 4485 (1-2) Principles & Methods for the Lab Assistant
- CHM 3332 (3) Biochemistry
- CHM L352 (1) Biochemistry Lab

**Electives**
- BIO 3372 (3) Microbiology
- BIO L372 (1) Microbiology Lab
- BIO 4416 (3) Microbial Ecology
- BIO L416 (1) Microbial Ecology Lab
- BIO 4448 (3) Mammalogy
- BIO L448 (1) Mammalogy Lab
- BIO 4476 (1-4) Special Topics in Biology
- BIO 4491-92 (1-3) Guided Independent Research
- BIO 4493-94 (1-3) Guided Independent Study

**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 (36 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
- MTH 1125 (4) Calculus I

**Area V Requirements**
- IS 2241 (3) Computer Concepts and Applications
- MTH 1126 (3) Calculus II
- *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
- TROY 1101 (1) University Orientation

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

**Chemistry Core (36 Hours)**
- CHM 1143 (3) General Chemistry II
- CHM L143 (1) General Chemistry II Lab
- CHM 2242 (3) Analytical Chemistry
- CHM L242 (1) Analytical Chemistry Lab
- 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
- CHM 3381 (3) Physical Chemistry I
- CHM L381 (1) Physical Chemistry I Lab
- CHM 3382 (3) Physical Chemistry II
- CHM L382 (1) Physical Chemistry II Lab
- CHM 4444 (3) Advanced Inorganic Chemistry
- CHM 4445 (3) Instrumental Analysis
- CHM L445 (1) Instrumental Analysis Lab

**Complete 6 hours of the following electives:**
- CHM 3352 (3) Biochemistry
- CHM L352 (1) Biochemistry Lab
- CHM 3382 (1) Physical Chemistry II Lab
- CHM 4400 (3) Special Topics
CHM 4403 (3) Advanced Organic Chemistry
CHM L444 (1) Advanced Inorganic Chemistry Lab
CHM 4491/2 (1-3) Guided Independent Research
CHM 4493/4 (1-3) Guided Independent Study
CHM 4499 (1) Senior Research Seminar
MTH 2210 (3) Applied Statistics

Students must select an 18 semester hour minor:

**CHEMISTRY MINOR (20 HOURS)**

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Select four additional hours of advanced chemistry courses, such as:

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Note: The chemistry minor requires 20 hours in addition to the hours required for a major in another discipline. For example, the biology major requires Organic Chemistry II and lab, so a student majoring in biology would need to select eight, not four, additional hours of advanced chemistry courses.

**COMPREHENSIVE GENERAL SCIENCE PROGRAM (64 HOURS)**

**Specialized General Studies Requirements**

**Area III**

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**Area V**

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**Required Courses:**

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<td>BIO L220</td>
<td>(1)</td>
</tr>
<tr>
<td>BIO 3320</td>
<td>(3)</td>
</tr>
<tr>
<td>BIO L320</td>
<td>(1)</td>
</tr>
<tr>
<td>BIO 3347</td>
<td>(3)</td>
</tr>
<tr>
<td>BIO L347</td>
<td>(1)</td>
</tr>
<tr>
<td>CHM 1143</td>
<td>(3)</td>
</tr>
<tr>
<td>CHM L143</td>
<td>(1)</td>
</tr>
<tr>
<td>CHM 3342</td>
<td>(3)</td>
</tr>
<tr>
<td>CHM L342</td>
<td>(1)</td>
</tr>
<tr>
<td>CHM 3343</td>
<td>(3)</td>
</tr>
<tr>
<td>CHM L343</td>
<td>(1)</td>
</tr>
<tr>
<td>CHM 3381</td>
<td>(3)</td>
</tr>
<tr>
<td>CHM L381</td>
<td>(1)</td>
</tr>
<tr>
<td>MTH 1126</td>
<td>(4)</td>
</tr>
<tr>
<td>MTH 2210</td>
<td>(3)</td>
</tr>
<tr>
<td>PHY 2263</td>
<td>(3)</td>
</tr>
<tr>
<td>PHY L263</td>
<td>(1)</td>
</tr>
<tr>
<td>PHY 3310</td>
<td>(3)</td>
</tr>
<tr>
<td>PHY L310</td>
<td>(1)</td>
</tr>
<tr>
<td>PHY 3359</td>
<td>(3)</td>
</tr>
<tr>
<td>PHY L359</td>
<td>(1)</td>
</tr>
<tr>
<td>PHY 4420</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**MATH 2210 (3)** Calculus II
**MATH 2263 (3)** Applied Statistics
**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 3359 (3)** Waves and Optics
**PHY L359 (1)** Waves and Optics Lab
**PHY 4420 (3)** Mechanics

11 hours of free electives

**COMPUTER SCIENCE MINOR (18 HOURS)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 2250</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 2255</td>
<td>(3)</td>
</tr>
</tbody>
</table>

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

**COMPUTER SCIENCE PROGRAM (48 HOURS)**

**Specialized General Studies Requirements**

**Area III**

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

Select a four hour course/lab combination from the following:

**Area V Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 2250</td>
<td>(3)</td>
</tr>
<tr>
<td>MTH 1126</td>
<td>(4)</td>
</tr>
<tr>
<td>TROY 1101</td>
<td>(1) University Orientation</td>
</tr>
</tbody>
</table>

Select remaining Area III courses as shown in the General Studies section of this catalog.

Select a four hour course/lab combination from the following:

**Required Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 2255</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 3310</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 3323</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 3329</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 3332</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 3360</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 3365</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 3370</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 3372</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 4420</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 4445</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 4448</td>
<td>(3)</td>
</tr>
<tr>
<td>MTH 2210</td>
<td>(3)</td>
</tr>
<tr>
<td>MTH 2215</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Select two of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 3320</td>
<td>(3)</td>
</tr>
<tr>
<td>Business Systems Programming</td>
<td></td>
</tr>
</tbody>
</table>
CS 3325 (3) Operations Research
CS 3331 (3) Fundamentals of Artificial Intelligence
CS 3361 (3) Concepts of Objected Oriented Programming II
CS 4401 (3) Advanced Artificial Intelligence
CS 4443 (3) Web Based Software Development
CS 4447 (3) Systems Analysis and Design
CS 4451 (3) Computer Security and Reliability
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)

Specialized General Studies Requirements
Area III
MTH 2201 (3) Calculus and its Applications
Select additional Area III requirements as shown in the General Studies section of this catalog.

Area V Requirements
IS 2241 (3) Computer Concepts and Applications
MTH 2215 (3) Applied Discrete Mathematics
TROY 1101 (1) University Orientation

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-Based Software Development
CS 4445 (3) Data Communications and Networking
CS 4447 (3) Systems Analysis and Design
CS 4448 (3) Operating Systems

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 (3) Special Topics in Computer Science

COMPUTER SCIENCE A.S. DEGREE (60 HOURS)

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

General Studies Requirements
Area I
ENG 1101 (3) Composition and Modern English I
ENG 1102 (3) Composition and Modern English II

Area II
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 one of the following:
ART 1133 (3) Visual Arts
DRA 2200 (3) Introduction to Drama
MUS 1131 (3) Music Appreciation

Area III
MTH 1125 (4) Calculus I

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
IS 1123 (3) World History from 1500

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

Additional requirements
CS 2250 (3) Computer Science I
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 3365 (3) Introduction to Computer Organization and Architectures
MTH 2215 (3) Applied Discrete Mathematics

Select 9 hours of free electives.

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.
CJ 1101 (3) Introduction to Criminal Justice
CJ 2221 (3) Survey of Law Enforcement
CJ 2231 (3) Survey of Corrections
CJ 2241 (3) Survey of Law and Criminal Procedure
CJ 3345 (3) Criminology
CJ 3352 (3) Constitutional Law
CJ 3375 (3) Introduction to Social Scientific Inquiry
CJ 4499 (3) Senior Seminar

Complete one of three concentrations below:
A. 12 additional hours of upper-level (3000-4000) Criminal Justice courses, as approved by the adviser for the major,

B. Homeland Security Concentration.
Select 12 additional hours from the following as approved by the adviser:
CJ 3305 (3) Foundations of Emergency Management
CJ 3335 (3) Private and Public Security Administration
CJ 4440 (3) Terrorism
CJ 4470 (3) Criminal Justice Issues in Homeland Security
CJ 4488 (3) Internship (limit 1)
POL 3364 (3) State and Local Politics
POL 4415 (3) International Conflict
POL 4422 (3) Public Policy Making
C. Digital Forensics concentration.
Select 12 additional hours from the following as approved by the adviser:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 3380</td>
<td>3</td>
<td>Digital Forensics I</td>
</tr>
<tr>
<td>CJ 3382</td>
<td>3</td>
<td>Social Media Investigation</td>
</tr>
<tr>
<td>CJ 4480</td>
<td>3</td>
<td>Digital Forensics II</td>
</tr>
<tr>
<td>CJ 4481</td>
<td>3</td>
<td>Operating and File System Forensics</td>
</tr>
<tr>
<td>CJ 4482</td>
<td>3</td>
<td>Digital Evidence Practicum</td>
</tr>
<tr>
<td>CJ 4472</td>
<td>3</td>
<td>Cyber Crime</td>
</tr>
<tr>
<td>CJ 4475</td>
<td>3</td>
<td>Seminar in Cyber Crime</td>
</tr>
</tbody>
</table>

CRIMINAL JUSTICE MINOR (18 HOURS)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 1101</td>
<td>3</td>
<td>Introduction to Criminal Justice</td>
</tr>
</tbody>
</table>

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

CYBER SECURITY MINOR/ CERTIFICATE (18 HOURS)

Requirements for Minor (6)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 4475</td>
<td>3</td>
<td>Seminar in Cyber Security</td>
</tr>
<tr>
<td>CS 3310</td>
<td>3</td>
<td>Foundations of Computer Science</td>
</tr>
</tbody>
</table>

Select 15 hours from the following:

See Course Descriptions for pre-requisites and restrictions:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 1101</td>
<td>3</td>
<td>Introduction to Criminal Justice</td>
</tr>
<tr>
<td>CJ 4473</td>
<td>3</td>
<td>Computer Forensics</td>
</tr>
<tr>
<td>CJ 4472</td>
<td>3</td>
<td>Cyber Crime</td>
</tr>
<tr>
<td>CS 3375</td>
<td>3</td>
<td>Foundations of Networking</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 4445</td>
<td>3</td>
<td>Data Communication and Networking</td>
</tr>
<tr>
<td>CS 4449</td>
<td>3</td>
<td>Applied Networking</td>
</tr>
<tr>
<td>CS 3380</td>
<td>3</td>
<td>Cyber Security</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 4451</td>
<td>3</td>
<td>Computer Security</td>
</tr>
</tbody>
</table>

Students may not receive academic credit for both CS 3375 and CS 4451, or CS 3380 and CS 4451.

A certificate in Cyber Security with the same requirements as the Cyber Security Minor is available. Computer Science majors should contact the Department of Computer Science for information about the certificate program. All other students interested in the certification program should contact the Department of Criminal Justice. Students seeking the certificate in Cyber Security must be admitted to Troy University.

DIGITAL FORENSICS MINOR (18 HOURS)

Required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 1101</td>
<td>3</td>
<td>Introduction to Criminal Justice</td>
</tr>
</tbody>
</table>

Select 15 hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 3380</td>
<td>3</td>
<td>Digital Forensics I</td>
</tr>
<tr>
<td>CJ 3382</td>
<td>3</td>
<td>Social Media Investigation</td>
</tr>
<tr>
<td>CJ 4480</td>
<td>3</td>
<td>Digital Forensics II</td>
</tr>
<tr>
<td>CJ 4481</td>
<td>3</td>
<td>Operating and File System Forensics</td>
</tr>
<tr>
<td>CJ 4482</td>
<td>3</td>
<td>Digital Evidence Practicum</td>
</tr>
<tr>
<td>CJ 4472</td>
<td>3</td>
<td>Cyber Crime</td>
</tr>
<tr>
<td>CJ 4475</td>
<td>3</td>
<td>Seminar in Cyber Crime</td>
</tr>
</tbody>
</table>

ECONOMICS MAJOR (36 HOURS)

The following courses must be completed with a “C” or better within Area V of the General Studies.

Area V:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO 2251</td>
<td>3</td>
<td>Principles of Macroeconomics</td>
</tr>
<tr>
<td>ECO 2252</td>
<td>3</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>MTH 2201</td>
<td>3</td>
<td>Business Calculus</td>
</tr>
<tr>
<td>SS 3375</td>
<td>3</td>
<td>Introduction to Social Science Inquiry</td>
</tr>
<tr>
<td>SS 3376</td>
<td>3</td>
<td>Application of Social Science Inquiry</td>
</tr>
</tbody>
</table>

Requirement for the Major

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO 3351</td>
<td>3</td>
<td>Intermediate Macroeconomics</td>
</tr>
<tr>
<td>ECO 3352</td>
<td>3</td>
<td>Intermediate Microeconomics</td>
</tr>
</tbody>
</table>

Select 30 hours of approved 3000/4000 level Economics courses.

ENVIRONMENTAL SCIENCE MINOR (18-20 HOURS)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 2202</td>
<td>3</td>
<td>Principles of Environmental Science</td>
</tr>
<tr>
<td>BIO L202</td>
<td>1</td>
<td>Principles of Environmental Science Lab</td>
</tr>
<tr>
<td>BIO 3328</td>
<td>3</td>
<td>Environmental Pollution and Control</td>
</tr>
<tr>
<td>BIO L328</td>
<td>1</td>
<td>Environmental Pollution and Control Lab</td>
</tr>
</tbody>
</table>

Complete 12 hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 4451</td>
<td>3</td>
<td>Toxicology</td>
</tr>
<tr>
<td>BIO L451</td>
<td>1</td>
<td>Toxicology Lab</td>
</tr>
<tr>
<td>BIO 4479</td>
<td>3</td>
<td>Environmental Assessment</td>
</tr>
<tr>
<td>BIO L479</td>
<td>1</td>
<td>Environmental Assessment Lab</td>
</tr>
<tr>
<td>BIO 4420</td>
<td>4</td>
<td>Field Vertebrate Zoology (combined lecture and lab)</td>
</tr>
<tr>
<td>BIO 4425</td>
<td>4</td>
<td>Field Botany or BIO 4402 (combined lecture and lab)</td>
</tr>
<tr>
<td>BIO 4476</td>
<td>1-4</td>
<td>Special Topics (combined lecture and lab)</td>
</tr>
<tr>
<td>BIO 4491</td>
<td>1-4</td>
<td>Guided Independent Research (combined lecture and lab)</td>
</tr>
<tr>
<td>CHM 3350</td>
<td>3</td>
<td>Principles of Physical Chemistry</td>
</tr>
<tr>
<td>CHM L350</td>
<td>1</td>
<td>Principles of Physical Chemistry Lab</td>
</tr>
<tr>
<td>CHM 3352</td>
<td>3</td>
<td>Biochemistry</td>
</tr>
<tr>
<td>CHM L352</td>
<td>1</td>
<td>Biochemistry Lab</td>
</tr>
<tr>
<td>CHM 4445</td>
<td>3</td>
<td>Instrumental Analysis</td>
</tr>
<tr>
<td>CHM L445</td>
<td>1</td>
<td>Instrumental Analysis Lab</td>
</tr>
</tbody>
</table>

ENVIRONMENTAL SCIENCE PROGRAM (55 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</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 1100</td>
<td>3</td>
<td>Principles of Biology</td>
</tr>
<tr>
<td>BIO L100</td>
<td>1</td>
<td>Principles of Biology Lab</td>
</tr>
<tr>
<td>CHM 1142</td>
<td>3</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>CHM L142</td>
<td>1</td>
<td>General Chemistry I Lab</td>
</tr>
<tr>
<td>MTH 1125</td>
<td>4</td>
<td>Calculus I</td>
</tr>
</tbody>
</table>

Area V Requirements

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

Complete one sequence (physical sequence not required for medical technology concentration):

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 2252</td>
<td>3</td>
<td>General Physics I</td>
</tr>
<tr>
<td>PHY L252</td>
<td>1</td>
<td>General Physics I Lab</td>
</tr>
<tr>
<td>PHY 2253</td>
<td>3</td>
<td>General Physics II</td>
</tr>
<tr>
<td>PHY L253</td>
<td>1</td>
<td>General Physics II Lab</td>
</tr>
</tbody>
</table>
**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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 1101</td>
<td>3</td>
<td>Composition &amp; Modern English I</td>
</tr>
<tr>
<td>ENG 1102</td>
<td>3</td>
<td>Composition &amp; Modern English II</td>
</tr>
</tbody>
</table>

**Area II**

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 1133</td>
<td>3</td>
<td>Visual Arts</td>
</tr>
<tr>
<td>DRA 2200</td>
<td>3</td>
<td>Introduction to Drama</td>
</tr>
<tr>
<td>MUS 1131</td>
<td>3</td>
<td>Music Appreciation</td>
</tr>
</tbody>
</table>

**Area III**

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 2205</td>
<td>3</td>
<td>World Literature before 1660</td>
</tr>
<tr>
<td>ENG 2206</td>
<td>3</td>
<td>World Literature after 1660</td>
</tr>
<tr>
<td>ENG 2211</td>
<td>3</td>
<td>American Literature before 1875</td>
</tr>
<tr>
<td>ENG 2212</td>
<td>3</td>
<td>American Literature after 1875</td>
</tr>
<tr>
<td>ENG 2244</td>
<td>3</td>
<td>British Literature before 1785</td>
</tr>
<tr>
<td>ENG 2245</td>
<td>3</td>
<td>British Literature after 1785</td>
</tr>
</tbody>
</table>

**Select one science course and corresponding lab:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 1110</td>
<td>3</td>
<td>Finite Mathematics</td>
</tr>
<tr>
<td>MTH 1112</td>
<td>3</td>
<td>Pre-calculus Algebra</td>
</tr>
</tbody>
</table>

**Area IV**

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</tr>
</thead>
<tbody>
<tr>
<td>BIO 1100</td>
<td>3</td>
<td>Principles of Biology</td>
</tr>
<tr>
<td>BIO L100</td>
<td>1</td>
<td>Principles of Biology Lab</td>
</tr>
<tr>
<td>SCI 2233</td>
<td>3</td>
<td>Physical Science</td>
</tr>
<tr>
<td>SCI L233</td>
<td>1</td>
<td>Physical Science Lab</td>
</tr>
<tr>
<td>SCI 2234</td>
<td>3</td>
<td>Earth and Space Science</td>
</tr>
<tr>
<td>SCI L234</td>
<td>1</td>
<td>Earth and Space Science Lab</td>
</tr>
</tbody>
</table>

**Area V**

Select any minor or area of concentration.

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

**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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 1101</td>
<td>3</td>
<td>Composition &amp; Modern English I</td>
</tr>
<tr>
<td>ENG 1102</td>
<td>3</td>
<td>Composition &amp; Modern English II</td>
</tr>
</tbody>
</table>

**Area II**

Select one of the following:

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 1133</td>
<td>3</td>
<td>Visual Arts</td>
</tr>
<tr>
<td>DRA 2200</td>
<td>3</td>
<td>Introduction to Drama</td>
</tr>
<tr>
<td>MUS 1131</td>
<td>3</td>
<td>Music Appreciation</td>
</tr>
</tbody>
</table>

**Area III**

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 2205</td>
<td>3</td>
<td>World Literature before 1660</td>
</tr>
<tr>
<td>ENG 2206</td>
<td>3</td>
<td>World Literature after 1660</td>
</tr>
<tr>
<td>ENG 2211</td>
<td>3</td>
<td>American Literature before 1875</td>
</tr>
<tr>
<td>ENG 2212</td>
<td>3</td>
<td>American Literature after 1875</td>
</tr>
<tr>
<td>ENG 2244</td>
<td>3</td>
<td>British Literature before 1785</td>
</tr>
<tr>
<td>ENG 2245</td>
<td>3</td>
<td>British Literature after 1785</td>
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</table>

**Select one science course and corresponding lab:**

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<td>Finite Mathematics</td>
</tr>
<tr>
<td>MTH 1112</td>
<td>3</td>
<td>Pre-calculus Algebra</td>
</tr>
</tbody>
</table>
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 2243 (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) University Orientation

Additional requirements  
Select any minor or area of concentration.  
Select additional free electives to complete a total of 60 hours.

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### GEOGRAPHIC INFORMATION SYSTEMS (GIS) MINOR (18 HOURS)

GEM 3390 (3) Introduction to GIS  
GEM L390 (1) Introduction to GIS Lab  
GEM 3391 (3) Applications of GIS  
GEM L391 (1) Applications of GIS Lab  
GEM 4499 (2) Geomatics/GIS Projects

With adviser approval, select a minimum of eight credit hours from one of the four bundles:

- **Data Collection/Analysis**  
  GEM 2200 (3) Basics of Cartography & Surveying  
  GEM L220 (1) Basics of Cartography & Surveying Lab  
  GEM 3330 (3) Advanced Measurement Analysis  
  GEM L330 (1) Advanced Measurement Analysis Lab  
  GEM L371 (1) Measurement for GIS Lab

- **Image Processing**  
  GEM 1100 (1) Computer-Aided Drafting  
  GEM L110 (2) Computer-Aided Drafting Lab  
  GEM 3366 (3) Photogrammetry and Remote Sensing  
  GEM L366 (1) Photogrammetry and Remote Sensing Lab  
  GEM L367 (1) Digital Images in GIS Lab

- **Customizing the ArcView GIS Interface**  
  CS 2255 (3) Computer Science II  
  CS 3330 (3) Data Structures and Algorithms  
  CS 3360 (3) Concepts of Object Oriented Programming I

- **GIS Database Development**  
  CS 2255 (3) Computer Science II  
  CS 3323 (3) Data Structures  
  CS 4420 (3) Introduction to Database Systems

### GEOGRAPHY MINOR (18 HOURS)

GEO 3300 (3) Principles of Physical Geography  
GEO 3301 (3) Principles of Cultural Geography

Select an additional 12 hours of approved, upper-level geography courses. GEO 2210 may not be counted toward both general studies and the geography minor.

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### 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  
HIS 1123 (3) World History from 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) University Orientation

**Requirements for the Major**  
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 Apps.  
TROY 1101 (1) University Orientation

**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) University Orientation
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.

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**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 101 and HIS 1102 or HIS 1122 and 1123 or permission of instructor are prerequisites for upper-level European/Asian/African history courses.

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**HOMELAND SECURITY MINOR (18 HOURS)**

Select 15 additional hours from the following as approved by the adviser:

- CJ 3305 (3) Foundations of Emergency
- CJ 3345 (3) Private and Public Security Administration
- CJ 4440 (3) Terrorism
- CJ 4470 (3) Criminal Justice Issues in Homeland Security
- CJ 4488 (3) Internship (limit one)
- POL 3364 (3) State and Local Politics
- POL 4415 (3) International Conflict
- POL 4422 (3) Public Policy Making

Note: This minor is not available to criminal justice majors.

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**HUMANITIES MINOR (18 HOURS)**

- ART 3302 (3) History of the Arts
- CLA 2260 (3) Classical Mythology
- CLA 2290 (3) Classical Literature in English Translation

---

**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

Elective Courses (9 hours)

Select any two (2) courses from the following:

- CJ 2241 (3) Survey of Law and Criminal Procedure
- CJ 4447 (3) Current Issues in Legal Systems Operation and Administration
- LAW 2221 (3) Legal Environment of Business
- POL 3342 (3) Judicial Branch
- POL 4472 (3) Administrative Law

OR

- LAW 4420 (3) Administrative Law

Select one (1) course from the following:

- CJ 2241 (3) Survey of Law and Criminal Procedure
- CJ 3352 (3) Constitutional Law in Criminal Justice

OR

- POL 4420 (3) Constitutional Law
- CJ 4442 (3) Criminal Investigation and Evidence
- CJ 4447 (3) Current Issues in Legal Systems Operation and Administration
- LAW 2221 (3) Legal Environment of Business
- POL 3342 (3) Judicial Branch
- POL 4472 (3) Administrative Law

OR

- LAW 4420 (3) Administrative Law

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**LIBERAL STUDIES PROGRAM (60 HOURS)**

**Area IV Requirements**

- POL 2241 (3) American National Government
- POL 2260 (3) World Politics
- SOC 2275 (3) Introduction to Sociology

**Area V Requirements**


Cognitive and Language Studies (select at least six hours):

- ANT 3340 (3) Language in Culture and Society
- COM 3341 (3) American Public Address
- COM 3328 (3) International/Intercultural Communications
- ENG 3305 (3) Folklore/Mythology
- ENG 3320 (3) Introduction to Linguistics
- ENG 4405 (3) History of the English Language
- ENG 4433 (3) Literary Criticism
- PSY 4460 (3) Cognitive Psychology

Global Studies (select at least six hours):

- ANT 3310 (3) Cultural Anthropology
- ANT 3320 (3) Prehistory of North American Indians
- ANT 3321 (3) North American Indians Since Contact
- ANT 4410 (3) High Civilizations of the Old World
- ANT 4411 (3) High Civilizations of the New World
- ECO 4555 (3) Comparative Economic Systems
- ENG 4465 (3) African American Literature
- GEO 3301 (3) Principles of Physical Geography
- GEO 4402 (3) Political Geography
- POL 3351 (3) International Relations
- POL 4410 (3) International Political Economy
- POL 4433 (3) Comparative Governments

MARINE BIOLOGY PROGRAM (55 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 L142 (1) General Chemistry I Lab
- 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) University Orientation
- BIO 1101 (3) Organismal Biology
- BIO L101 (1) Organismal Biology Lab
- CHM L143 (1) General Chemistry II Lab
- 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

OR

- PHY 2262 (3) Physics I with Calculus
- PHY L251 (1) Physics I with Calculus Lab
- PHY 2263 (3) Physics II with Calculus
- PHY L252 (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 L220 (1) Principles of Cell Biology Lab
- BIO 2229 (3) General Ecology
- BIO L229 (1) General Ecology Lab
- BIO 3320 (3) Genetics
- BIO L320 (1) Genetics Lab
- BIO 4484 (1) Senior Seminar in Biological & Environment 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
- MTH 2210 (3) Introductory Statistics

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

Complete 12 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. Students must also comply with all DISL catalog prerequisites for individual courses.

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

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**MATHEMATICS EDUCATION**

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

**MATHEMATICS MAJOR (38 HOURS)**

**General Studies Requirements**

**Area III**

MTH 1125 (4) Calculus I

**Area V Requirements**

TROY 1101 (1) University Orientation
MTH 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
MTH 4424 (3) Real Analysis I
MTH 4441 (3) Abstract Algebra I

Select one of the following:

MTH 4425 (3) Real Analysis II
MTH 4442 (3) Abstract Algebra II

OR both of the following:

MTH 4451 (3) Mathematical Statistics I
MTH 4452 (3) Mathematical Statistics II

Students selecting MTH 4451 and MTH 4452: select nine more hours of mathematics courses at the 3000 level and above (excluding MTH 4481).

Students selecting MTH 4425 or MTH 4442: select 12 hours of mathematics courses at the 3000 level and above (excluding MTH 4481).

Students seeking Alabama teacher certification must select MTH 3325 and MTH 4451.

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**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 courses at the 3000 level and above, other than those courses whose catalog description declares that they do not count toward the major or minor.

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**MILITARY OPERATIONS MINOR (18 HOURS)**

Military electives may be taken from credit earned through the American Council on Education (ACE) recommendations, Community College of the Air Force (CCAF) or military credit from regionally accredited institutions.

**MILITARY SCIENCE MINOR (19 HOURS)**

MILITARY SCIENCE MINOR (19 HOURS)

MILITARY SCIENCE MINOR (19 HOURS)

MILITARY SCIENCE MINOR (19 HOURS)

MILITARY SCIENCE MINOR (19 HOURS)

MILITARY SCIENCE MINOR (19 HOURS)

MILITARY SCIENCE MINOR (19 HOURS)

PHILOSOPHY MINOR (18 HOURS)

Select 6 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

Of the remaining 12 hours, select up to 6 hours of the following non-PHI prefix courses with the remainder being upper division philosophy courses.

ANT 3340 (3) Language in Culture and Society
ANT 3360 (3) Magic, Witchcraft, and Religion
CLA 3311 (3) Civilization of Greece
HIS 3330 (3) History of Western Thought
HIS 3356 (3) History of the Middle East
HIS 4463 (3) The Age of Reason
PHI 3301 (3) Western Philosophy
PHI 3310 (3) Applied Ethics
PHI 3365 (3) Bioethics in Historical Context
PHI 4410 (3) Non-Western Philosophies
PHI 4493-94 (3) Guided Independent Study
PHI 4495 (3) Selected Topics in Philosophy

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**PHYSICS MAJOR (37 HOURS)**

**Area V (22 Hours)**

TROY 1101 (1) University Orientation
CS 2250 (3) Computer Science I
MTH 1126 (4) Calculus II
PHY 2262 (3) Physics I w/Calculus Lab
PHY 2262 (1) Physics I w/Calculus Lab

Required courses (27 hours)

MTH 2227 (4) Calculus III
MTH 3364 (3) Vector Calculus
PHY 2263 (3) Physics II w/Calculus Lab
PHY 2263 (1) Physics II w/Calculus Lab
PHY 3310 (3) Modern Physics
PHY 3310 (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 10 semester hours from the courses listed below:

PHY 3320 (3) Mathematical Methods for Physicists
PHY 3321 (3) Equations of Mathematical Physics
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
POLY 4460 (3) Special Relativity
POLY 4470 (3) Nuclear Physics
POLY 4475 (3) Particle Physics
POLY 4478 (3) Intro to General Relativity
POLY 4480 (3) Black Holes & Cosmology
POLY 4482 (3) Introduction to String Theory
POLY 4495 (3) Topics in Physics
POLY 4491-92 (3) Guided Independent Research
POLY 4493-94 (3) Guided Independent Study

Select any minor offered by Troy University (18 Hours)

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

Select an additional 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) University Orientation
POL 2240 (3) American National Government or placement in POL 2240

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

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

International Politics Concentration:
POL 3351 (3) International Relations
POL 4410 (3) International Political Economy
POL 4433 (3) Comparative Government

Select six hours from the following:
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

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

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.

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 complete the social science major with a general social science concentration and select education as a second major. Students should consult their education advisers concerning all certification requirements and with their academic discipline adviser for requirements in the major.

SOCIAL SCIENCE MAJOR (36 HOURS)

Specialized General Studies Requirements

Area IV
NOTE: Social Science major with a concentration should take Area IV electives appropriate for their concentration.

Requirements for the Major
SS 3375 (3) Introduction to Social Science Inquiry
SS 3376 (3) Spatial Applications of Social Science Inquiry
SS 3377 (3) Spatial Applications of Social Science Inquiry
SS 4498 (3) Social Science Theory
SS 4499 (3) Senior Seminar

Select one of the following concentrations:

General Social Science Concentration:
Select at least 21 hours of additional 3000/4000-level courses from anthropology, economics, geography, history, political science, psychology or sociology (six hours may be used from ECO 2251, ECO 2252, GEO 2210, ANT 2200, POL 2260 [World Politics], or SOC 2280) in at least three disciplines.

Geography Concentration:
GEO 3300 (3) Principles of Physical Geography
Select one of the following courses:

ART 2201
DRA 2200
MUS 1131

Leadership Development Concentration:

LDR 1100 (3) Introduction to Leadership
LDR 2200 (3) Tools for Leaders
LDR 3300 (3) Leadership Theory
LDR 4400 (3) Leadership Seminar

Select an additional 9 hours from the following:

AS 3312 (3) Air Force Leadership Studies I
AS 3313 (3) Air Force Leadership Studies II
COM 3345 (3) Group Discussion and Leadership
HIS 4415 (3) Contemporary America
LDR 3310 (3) Leadership and Interpersonal Skills
LDR 3320 (3) Great Leaders
MGT 3300 (3) Principles of Management
MSL 2202 (2) Leadership and Teamwork
MSL 2204 (1) Leadership Lab
POL 4422 (3) Public Policy Making
POL 3351 (3) Foundations of International Relations
POL 4421 (3) Introduction to Public Administration
PSY 4410 (3) Business and Industrial Psychology
SOC 3301 (3) Social Change in the Information Age
SOC 3302 (3) Small Groups

SOCIAL SCIENCE MINOR: GENERAL SOCIAL SCIENCE (18 HOURS)

SS 4498 (3) Social Science Theory

Select an additional 15 hours from at least three of the following:
anthropology, 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
TROY 1101 (1) University Orientation
SOC 2280 (3) Social Problems in Contemporary Society

Requirements for the Major

SOC 4420 (3) Sociological Theory
SS 3375 (3) Introduction to Social Science Inquiry
SS 3376 (3) Spatial Applications of Social Science Inquiry
SS 4499 (3) Senior Seminar

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

SOCIOLOGY MINOR (18 HOURS)

Select 18 hours of approved, upper-level Sociology courses.
SOC 2280 may be applied toward the minor.

SURVEYING AND GEOMATICS SCIENCES PROGRAM (59 HOURS)

Area II Requirements:

ART 2201 (3) Introductory Drawing

Select one of the following courses:

DRA 2200 (3) Introduction to Drama
MUS 1131 (3) Music Appreciation

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

Area III Requirements

MTH 1125 (4) Calculus I

Select a physics course/lab combination:

PHY 2252 (3) General Physics
PHY L252 (1) General Physics I Laboratory

OR

PHY 2262 (3) Physics I with Calculus
PHY L262 (1) Physics I with Calculus Laboratory

Area V Requirements

CS 2250 (3) Computer Science I
IS 2241 (3) Computer Concepts & Application
MTH 1126 (4) Calculus II
MTH 2210 (3) Applied Statistics
TROY 1101 (1) University Orientation

Select a physics course/lab combination:

PHY 2253 (3) General Physics II
PHY L253 (1) General Physics II Laboratory

OR

PHY 2263 (3) Physics II with Calculus
PHY L263 (1) Physics II with Calculus Laboratory

Program Requirements

GEM 1100 (2) Computer-Aided Drafting
GEM L110 (2) Computer-Aided Drafting Lab
GEM 2220 (3) Basics of Surveying
GEM L220 (1) Basics of Surveying Lab
GEM 3309 (3) Land Parcel Admin & Law
GEM L309 (1) Land Parcel Admin & Law Lab
GEM 3310 (3) Land Surveying Practice
GEM L310 (1) Boundary Retracement Seminar
GEM 3330 (3) Advanced Measurement Analysis
GEM L330 (1) Advanced Measurement Analysis Lab
GEM 3366 (3) Photogrammetry and Remote Sensing
GEM L366 (1) Photogrammetry and Remote Sensing Lab
GEM 3370 (3) Geodesy & Geodetics
GEM L370 (1) Geodesy & Geodetics Lab
GEM 3379 (3) Introduction to Least Squares Adjustment
GEM L379 (1) Introduction to Least Squares Adjustment Lab
GEM 3390 (3) Introduction to GIS
GEM L390 (1) Introduction to GIS Lab
GEM 3391 (3) Applications of GIS
GEM L391 (1) Applications of GIS Lab
GEM 4405 (3) Route & Construction Surveying
GEM L405 (1) Route & Construction Surveying Lab
GEM 4407 (3) Land Development
GEM L407 (1) Land Development Lab
GEM 4409 (3) Hydrology
GEM L409 (1) Hydrology Lab
GEM 4410 (3) Introduction to Global Positions
GEM L410 (1) Introduction to Global Positions Lab
GEM 4490 (1) Geomatics Capstone

Select two hours below:

GEM 4499 (2) Geomatics/GIS Projects

OR

GEM 3395 (1) Cooperative Work Experience I and
GEM 4496 (1) Cooperative Work Experience II