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.

### ACCELERATED LAW CURRICULUM

**58 HOURS**

1. Students interested in the Accelerated Law Curriculum must complete the 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.

3. Students must successfully complete 30 semester hours of law courses outlined by the partnered institution in order to receive Troy University credit.

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 partnerd 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, Stanford 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.

### AIR FORCE ROTC/AEROSPACE STUDIES MINOR

**18 HOURS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS 3312</td>
<td>(3) Air Force Leadership Studies I</td>
</tr>
<tr>
<td>AS 3313</td>
<td>(3) Air Force Leadership Studies II</td>
</tr>
<tr>
<td>AS 4412</td>
<td>(3) National Security Affairs/Preparation for Active Duty I</td>
</tr>
<tr>
<td>AS 4413</td>
<td>(3) National Security Affairs/Preparation for Active Duty 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 (SS) courses with the approval of the Department of Aerospace Studies chair.

*Students pursuing an Air Force ROTC Commission must also take the following Labs:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS L312</td>
<td>(1) Leadership Laboratory I</td>
</tr>
<tr>
<td>AS L313</td>
<td>(1) Leadership Laboratory II</td>
</tr>
<tr>
<td>AS L412</td>
<td>(1) Leadership Laboratory I</td>
</tr>
<tr>
<td>AS L413</td>
<td>(1) Leadership Laboratory II</td>
</tr>
</tbody>
</table>

### ANTHROPOLOGY MAJOR (36 HOURS)

**Area IV**

Anthropology majors should take Area IV electives appropriate for their major.

**Area V**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANT 2200</td>
<td>(3) Anthropology</td>
</tr>
<tr>
<td>STAT 2210</td>
<td>(3) Introductory Statistics</td>
</tr>
</tbody>
</table>

**Major Requirements:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANT 3305</td>
<td>(3) Introduction to Archaeology</td>
</tr>
<tr>
<td>ANT 3310</td>
<td>(3) Cultural Anthropology</td>
</tr>
<tr>
<td>ANT 3311</td>
<td>(3) Physical Anthropology</td>
</tr>
<tr>
<td>ANT 3340</td>
<td>(3) Language in Culture and Society</td>
</tr>
<tr>
<td>ANT 3376</td>
<td>(3) Anthropological Statistics</td>
</tr>
<tr>
<td>ANT 4498</td>
<td>(3) Anthropological Theory</td>
</tr>
</tbody>
</table>

Select at least 18 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.

12 hours of Law courses will be transferred from the partnered law institution
The following nine (9) hours from the partnered institution will be transferred into the Anthropology Major electives:
Civil Procedure I — 3 credit hours
Civil Procedure II — 3 credit hours
Criminal Law — 3 credit hours

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 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
CI 1101 (3) Introduction to Critical 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 110f (1) The University Experience
IS 2241 (3) Computer Concepts and Applications

Required Core Courses (18 Hours)
MGT 3300 (3) Principles of Management
PHI 3310 (3) Applied Ethics
SCI 3365 (3) Principles of Applied Science
SS 3375 (3) Research Methods in the Social Sciences
SS 3376 (3) Statistical Applications of Social Science Inquiry
GIS 3390 (3) Fundamentals of Geographical Information and Analysis

Select a minimum of 18 semester hours from the courses listed below:
BIO 3340 (3) Evolution
CI 3335 (3) Security Operations
CS 3310 (3) Foundations of Computer Science
ECO 3351 (3) Intermediate Macroeconomics
ECO 3352 (3) Intermediate Microeconomics
GIS 3301 (3) Cartography and Geovisualization

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 (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
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
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) The University Experience

Select 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

Major Requirements
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
STAT 2210 (3) Introductory Statistics

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 4405 (4) Entomology
BIO 4420 (4) Field Vertebrate Zoology
BIO 4447 (3) Ornithology
BIO L447 (1) Ornithology 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 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

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 2220 (3) Principles of Cell Biology
BIO L220 (1) Principles of Cell Biology Lab

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

BIOLOGY/BIOMEDICAL 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
BIO 1100 (3) Principles of Biology
BIO L100 (1) Principles of Biology Lab
BIO 1101 (3) Organismal Biology
BIO L101 (1) Organismal Biology Lab
BIO 3320 (3) Genetics
BIO L320 (1) Genetics 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) Organismal Biology
BIO L101 (1) Organismal Biology Lab
CHM 1142 (3) General Chemistry I
CHM L142 (1) General Chemistry I 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

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 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

Complete one upper-level adviser-approved biology course and its corresponding lab.
CHEMISTRY MAJOR (37 HOURS)

### 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 (4) 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) The University Experience

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

### Required Courses (31 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 4444 (3) Advanced Inorganic Chemistry
- CHM L444 (1) Advanced Inorganic Chemistry Lab
- 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 in Chemistry
- CHM 4403 (3) Advanced Organic Chemistry
- CHM 4420 (3) Principles of Polymer Chemistry
- CHM L420 (1) Principles of Polymer Chemistry Lab
- CHM 4452 (3) Advanced Biochemistry
- CHM 4491/2 (1-3) Guided Independent Research
- CHM 4493/4 (1-3) Guided Independent Study
- CHM 4499 (1) Senior Research Seminar
- STAT 2210 (3) Introductory Statistics

CHEMISTRY MINOR (20 HOURS)
- CHM 1142 (3) General Chemistry I
- CHM L142 (1) General Chemistry I Lab
- CHM 1143 (3) General Chemistry II
- CHM L143 (1) General Chemistry II Lab

Select an additional 32-34 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.

### 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.

### COMPREHENSIVE GENERAL SCIENCE PROGRAM (34 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
- MTH 1125 (4) Calculus I

#### Area V
- IS 2241 (3) Computer Concepts and Applications
- PHY 2262 (3) Physics I with Calculus
- PHY L262 (1) Physics I with Calculus Lab
- SCI 2234 (3) Earth & Space Science
- SCI L234 (1) Earth & Space Science Lab
- TROY 1101 (1) The University Experience

### Required Courses:
- BIO 2220 (3) Principles of Cell Biology
- BIO L220 (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 with Calculus
- PHY L263 (1) Physics II with 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

### 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)

### Specialized General Studies Requirements

#### Area III
- MTH 1125 (4) Calculus I, in lieu of MTH 1110

Select a four hour course/lab combination from the following:
(Students must complete an eight hour sequence in chemistry or physics. Also see Area V Requirements.)
- CHM 1142 (3) General Chemistry I
- CHM L142 (1) General Chemistry I Lab
- SCI 2233 (3) Physical Science
- SCI L233 (1) Physical Science Lab

Take an additional 32-34 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.

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

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

Area V Requirements
CS 2250  (3) Computer Science I
CHM 1143  (3) General Chemistry II
PHY 2253  (3) General Physics II
PHY L253  (1) General Physics II Lab
PH2 2263  (3) Physics II with Calculus
PHY L263  (1) Physics II with Calculus Lab
SCI 2234  (3) Earth and Space Science
SCI L234  (1) Earth and Space Science Lab
OR
SCI 2240  (3) Principles of Astronomy; Stars, Galaxies, and Cosmology
SCI L240  (1) Principles of Astronomy; Stars, Galaxies, and Cosmology Lab

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 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
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 4449  (3) Applied Networking
CS 4451  (3) Computer Security
CS 4495  (3) Special Topics in Computer Science
CS 4499  (1-3) Internship in Computer Science
CS 4480  (3) Study Abroad in Computer Science
CS 4410  (3) Introduction to Machine Learning

COMPUTER SCIENCE ASSOCIATE OF SCIENCE DEGREE (60 HOURS)

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
THE 1130  (3) Introduction to Theatre
MUS 1131  (3) Music Appreciation

Area III
MTH 1125  (3) 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
HIS 1123 (3) World History from 1500

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

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.

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 1110 (3) Careers in Criminal Justice
CJ 3352 (3) Constitutional Law
CJ 3375 (3) Research Methods
CJ 4498 (3) Criminological Theory

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.
15 hours of Law courses will be transferred from the partnered law institution

The following six (6) hours from the partnered institution will be transferred into the Criminal Justice Major electives:
Civil Procedure I — 3 credit hours
Civil Procedure II — 3 credit hours

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 advisor.

CYBER SECURITY PROGRAM

Specialized General Studies Requirements
Area III
MTH 1125 (4) Calculus I

Select a four hour course/lab combination from the following:
CHM 1142 (3) General Chemistry I

CHM L142 (1) General Chemistry I Lab
SCI 2233 (3) Physical Science
SCI L233 (1) Physical Science Lab
PHY 2252 (3) General Physics I
PHY L252 (1) General Physics I Lab
PHY 2262 (3) Physics I with Calculus
PHY L262 (1) Physics I with Calculus Lab

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

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

Select a four hours course/lab combination from the following:
(Students must complete an eight hour sequence in chemistry of physics. Students completing Physical Science in Area III must take Earth and Space Science Lecture/lab combination or Principles of Astronomy; Stars, Galaxies, and Cosmology Lecture/lab combination.)
CHM 1143 (3) General Chemistry II
CHM L143 (1) General Chemistry II Lab
PHY 2253 (3) General Physics II
PHY L253 (1) General Physics II Lab
PHY 2263 (3) Physics II with Calculus
PHY L263 (1) Physics II with Calculus Lab
SCI 2234 (3) Earth and Space Science
SCI L234 (1) Earth and Space Science Lab

OR
SCI 2240 (3) Principles of Astronomy; Stars, Galaxies, and Cosmology
SCI L240 (1) Principles of Astronomy; Stars, Galaxies, and Cosmology Lab

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.

CYBER SECURITY MINOR (18 HOURS)

CJ 3380 (3) Digital Forensics
CJ 4472 (3) Cyber Crime
CS 3360 (3) Concepts of Object-Oriented Programming I
CS 3334 (3) Foundations of Cyber Security
CS 3336 (3) Information Assurance
CS 4452 (3) Cyber Security Policies and Compliance
### 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**

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

**Area V 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 4415 (3) Introduction to Robotics and Automation
- EET L415 (1) Introduction to Robotics and Automation Lab
- EET 4420 (3) Fundamentals of Microcontrollers
- EET L420 (1) Fundamentals of Microcontrollers 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 L4481 (3) Senior Project II Capstone

### ENVIRONMENTAL SCIENCE MINOR (18-20 HOURS)

- BIO 1120 (3) Survey of Environmental Sciences
- BIO L120 (1) Survey of Environmental Sciences Lab
- BIO 3328 (3) Environmental Pollution and Control
- BIO L328 (1) Environmental Pollution and Control Lab

**Complete 12 hours from the following:**

- BIO 4479 (3) Environmental Assessment
- BIO L479 (1) Environmental Assessment Lab
- BIO 4420 (4) Field Vertebrate Zoology (combined lecture and lab)
- BIO 4425 (4) Field Botany or BIO 4402 (combined lecture and lab)
- BIO 4476 (1-4) Special Topics (combined lecture and lab)
- BIO 4491 (1-4) Guided Independent Research (combined lecture and lab)
- CHM 3350 (3) Principles of Physical Chemistry
- CHM L350 (1) Principles of Physical Chemistry Lab
- CHM 3352 (3) Biochemistry
- CHM L352 (1) Biochemistry Lab
- CHM 4445 (3) Instrumental Analysis
- CHM L445 (1) Instrumental Analysis Lab

### ENVIRONMENTAL SCIENCE PROGRAM (54-56 HOURS)

**Select one of the following MTH courses:**

- MTH 1114 (3) Pre-Calculus Trigonometry
- 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
- 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
- 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 2229 (3) General Ecology
- BIO L229 (1) General Ecology 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 20-22 hours of adviser-approved upper-level courses in biology, marine biology, chemistry, geography, or mathematics.**

### GAME DEVELOPMENT AND DESIGN MINOR (18 HOURS)

**Select one of the following:**

- GDD 2210/HIS 2210 (3) History Through Games
Required Courses
GDD 3310/HIS 3310 (3) History of Game Design
GDD 3320 (3) Game Development
GDD 4499 (3) Game Design Capstone

Select three courses from the following:
GDD 4425 (3) Special Topics in Game Design and Development
GDD 4490 (3) Internship in Game Design and Development
ART 2208 (3) Digital Tools
ART 2210 (3) e-Drawing
ART 3315 (3) Principles of Digital Design
MKT 3300 (3) Principles of Marketing
MKT 3364 (3) Product and Service Innovation
CS 3360 (3) Concepts of Object Oriented Programming I
CS 3361 (3) Concepts of Object Oriented Programming II
ENG 3326 (3) Science Fiction
ENG 3351 (3) Introduction to Creative Writing
ENG 3352 (3) Advanced Creative Writing I
ENG 3353 (3) Advanced Creative Writing II
ENG 4407 (3) Fantasy Literature

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 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

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

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

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

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

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 advisors 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) 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 of this catalog for more information.

9 hours of Law courses will be transferred from the partnered law institution

The following twelve (12) hours from the partnered institution will be transferred into the History Major electives:
Civil Procedure I — 3 credit hours
Civil Procedure II — 3 credit hours
Criminal Law — 3-4 credit hours

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)
Select 18 hours from the following as approved by the adviser:
CJ 3305 (3) Foundations of Emergency Management
CJ 3335 (3) Security Operations
CJ 4420 (3) Comparative Criminal Justice

CJ 4405 (3) National Security and the Law
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

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 3305 (3) Foundations of Emergency Management
CJ 3350 (3) Gangs
CJ 3382 (3) Social Media Investigation
CJ 4406 (3) Transnational Organized Crime
CJ 4425 (3) Violence in America
CJ 4430 (3) Selected Topics in Criminal Justice
CJ 4440 (3) Terrorism
CJ 4470 (3) Criminal Justice Issues in Homeland Security
CJ 4498 (3) Criminological Theory

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
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) Judicial Branch
POL 4420 (3) Constitutional Law
POL 4472 (3) Administrative Law

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

**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 & 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
CHM 3352 (3) Biochemistry
CHL L352 (1) Biochemistry Lab
STAT 2210 (3) Introductory Statistics

**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
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:**
STAT 3350 (3) Statistical Methods and Computation
STAT 4451 (3) Mathematical Statistics I

**Students selecting STAT 3350 and STAT 4451:** select nine more hours of mathematics or STAT courses at the 3000 level and above (excluding MTH 4481).

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

**Students seeking Alabama teacher certification must select MTH 3325, STAT 3350 and STAT 4451.**

**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)**

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

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

**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)**

**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
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:**
STAT 3350 (3) Statistical Methods and Computation
STAT 4451 (3) Mathematical Statistics I

**Students selecting STAT 3350 and STAT 4451:** select nine more hours of mathematics or STAT courses at the 3000 level and above (excluding MTH 4481).

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

**Students seeking Alabama teacher certification must select MTH 3325, STAT 3350 and STAT 4451.**

**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)**

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

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

**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)**

**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
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:**
STAT 3350 (3) Statistical Methods and Computation
STAT 4451 (3) Mathematical Statistics I

**Students selecting STAT 3350 and STAT 4451:** select nine more hours of mathematics or STAT courses at the 3000 level and above (excluding MTH 4481).

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

**Students seeking Alabama teacher certification must select MTH 3325, STAT 3350 and STAT 4451.**

**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.
### 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) Data Mining
- STAT 4467 (3) Experimental Design
- STAT 4456 (3) Mathematics of Finance
- STAT 4464 (3) Multivariate Analysis

### 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 a second minor in Military Studies under the Bachelor of Interdisciplinary Studies Program, towards Option II of the BAS-Resource Technology Management Program, or towards the student’s free electives requirement if needed.

### Military Studies 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. Military Studies minors may only be declared as a second minor within the Bachelor of Interdisciplinary Studies degree program and follow the same guidelines as the Military Operations minor. 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 & 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.

### 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

### 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 4470 (3) Nuclear Physics
- PHY 4475 (3) Particle Physics
- PHY 4478 (3) Relativity II
- PHY 4482 (3) Introduction to String Theory
- PHY 4483-85 (1) Seminar in Relativity
- PHY 4495 (3) Topics in Physics
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)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 2262 (3) Physics I Calculus</td>
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</tr>
<tr>
<td>PHY L262 (1) Physics I with Calculus Lab</td>
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<tr>
<td>PHY 2263 (3) Physics II with Calculus</td>
<td></td>
</tr>
<tr>
<td>PHY L263 (1) Physics II with Calculus Lab</td>
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<tr>
<td>PHY 3310 (3) Modern Physics</td>
<td></td>
</tr>
<tr>
<td>PHY L310 (1) Modern Physics Lab</td>
<td></td>
</tr>
</tbody>
</table>

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

POLITICAL SCIENCE MAJOR (36 HOURS)

Area V Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 2241 (3) Computer Concepts and Applications</td>
<td></td>
</tr>
<tr>
<td>TROY 1101 (1) The University Experience</td>
<td></td>
</tr>
<tr>
<td>POL 2241 (3) American National Government or placement in POL 2240</td>
<td></td>
</tr>
<tr>
<td>POL 2260 (3) World Politics</td>
<td></td>
</tr>
</tbody>
</table>

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>POL 3300 (3) Foundations of Political Science</td>
<td></td>
</tr>
<tr>
<td>POL 3330 (3) Political Theory</td>
<td></td>
</tr>
<tr>
<td>POL 3390 (3) The Art of Political Science Research</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following concentrations:

American Politics and Public Administration Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 3340 (3) U. S. Government—Executive Branch</td>
<td></td>
</tr>
<tr>
<td>POL 3341 (3) U. S. Government—Legislative Branch</td>
<td></td>
</tr>
<tr>
<td>POL 3342 (3) U. S. Government—Judicial Branch</td>
<td></td>
</tr>
</tbody>
</table>

Select six hours from the following:

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

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

International Politics Concentration:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 3351 (3) International Relations</td>
<td></td>
</tr>
<tr>
<td>POL 4410 (3) International Political Economy</td>
<td></td>
</tr>
<tr>
<td>POL 4433 (3) Comparative Government</td>
<td></td>
</tr>
</tbody>
</table>

Select six hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 4405 (3) Political Behavior and Public Opinion</td>
<td></td>
</tr>
<tr>
<td>POL 4415 (3) International Conflict</td>
<td></td>
</tr>
<tr>
<td>POL 4424 (3) Contemporary American Foreign Policy</td>
<td></td>
</tr>
<tr>
<td>POL 4432 (3) Comparative Public Policy</td>
<td></td>
</tr>
<tr>
<td>POL 4445 (3) Inter-American Relations</td>
<td></td>
</tr>
<tr>
<td>POL 4450 (3) Latin American Politics</td>
<td></td>
</tr>
<tr>
<td>POL 4452 (3) International Law</td>
<td></td>
</tr>
<tr>
<td>POL 4460 (3) Intercultural Relations</td>
<td></td>
</tr>
</tbody>
</table>

POLITICAL SCIENCE MINOR (18 HOURS)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 3300 (3) Foundations of Political Science</td>
<td></td>
</tr>
<tr>
<td>POL 3330 (3) Introduction to Political Theory</td>
<td></td>
</tr>
</tbody>
</table>

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

AMERICAN POLITICS MINOR (18 HOURS)

Required Courses (9 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 3340 (3) U. S. Government—Executive Branch</td>
<td></td>
</tr>
<tr>
<td>POL 3341 (3) U. S. Government—Legislative Branch</td>
<td></td>
</tr>
<tr>
<td>POL 3342 (3) U. S. Government—Judicial Branch</td>
<td></td>
</tr>
</tbody>
</table>

Select three of the following courses (9 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 3343 (3) American Political Processes</td>
<td></td>
</tr>
<tr>
<td>POL 3355 (3) Southern Politics</td>
<td></td>
</tr>
<tr>
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<td>POL 4424 (3) Contemporary American Foreign Policy</td>
<td></td>
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<tr>
<td>POL 4432 (3) Comparative Public Policy</td>
<td></td>
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<td>POL 4451 (3) Public Personnel Administration</td>
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<td>POL 4453 (3) Bureaucratic Politics</td>
<td></td>
</tr>
<tr>
<td>POL 4469 (3) Religion in Politics</td>
<td></td>
</tr>
<tr>
<td>POL 4472 (3) Administrative Law</td>
<td></td>
</tr>
</tbody>
</table>

INTERNATIONAL RELATIONS MINOR (18 HOURS)

Required course (9 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 3351 (3) International Relations</td>
<td></td>
</tr>
<tr>
<td>POL 4410 (3) International Political Economy</td>
<td></td>
</tr>
<tr>
<td>POL 4433 (3) Comparative Government</td>
<td></td>
</tr>
</tbody>
</table>

Select three hours from the following courses (9 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 3300 (3) Foundations of Political Science</td>
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<tr>
<td>POL 4405 (3) Political Behavior and Public Opinion</td>
<td></td>
</tr>
<tr>
<td>POL 4415 (3) International Conflict</td>
<td></td>
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<tr>
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<tr>
<td>POL 4432 (3) Comparative Public Policy</td>
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<tr>
<td>POL 4445 (3) Inter-American Relations</td>
<td></td>
</tr>
<tr>
<td>POL 4450 (3) Latin American Politics</td>
<td></td>
</tr>
<tr>
<td>POL 4452 (3) International Law</td>
<td></td>
</tr>
</tbody>
</table>
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 advisers concerning all certification requirements. *education students will need to take coursework to include the following disciplines: geography, history, political science, and economics.

specialized general studies requirements

area IV

note: social science education majors must take his 1101 western civilization i and his 1102 western civilization ii.

area V requirements

stat 2210 (3) introductory statistic

requirements for the major

ss 2220 (3) introduction to social science
ss 3375 (3) research methods in the social sciences
ss 3376 (3) statistical applications of social science inquiry
GIS 3390 (3) Fundamentals of Geographical Information and Analysis
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, 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
TROY 1101 (1) The University Experience
STAT 2210 (3) Introductory Statistics

requirements for the major

soc 4420 (3) Sociological Theory
SS 3375 (3) Research Methods in the Social Sciences
SS 3376 (3) Statistical Applications of Social Science Inquiry
SS 4499 (3) Senior Seminar

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.

15 hours of law courses will be transferred from the partnered law institution

the following six (6) hours from the partnered institution will be transferred into the sociology major electives:

Civil Procedure I — 3 credit hours
Civil Procedure II— 3 credit hours

sociology minor (18 hours)

soc 2275 (3) Introduction to Sociology

select 18 hours of approved, upper-level sociology courses. soc 2280 may be applied toward the minor.

surveying and geomatics sciences program (53 hours)

area II:

art 2201 (3) Introductory Drawing

select remaining area II courses as specified in the general studies section of this catalog.

area III requirements

mth 1125 (4) Calculus I

select an 8 hour physics sequence with labs:

phy 2252 (3) General Physics I
phy L252 (1) General Physics I Laboratory
phy 2253 (3) General Physics II
phy L253 (1) General Physics II Laboratory

OR

PHY 2262 (3) Physics I with Calculus
PHY L262 (1) Physics I with Calculus Laboratory
PHY 2263 (3) Physics II with Calculus
PHY L263 (1) Physics II with Calculus Laboratory

area V requirements

cs 2250 (3) Computer Science I
IS 2241 (3) Computer Concepts & Application
MTH 2230 (3) Applied Linear Algebra
STAT 2210 (3) Introductory Statistics
TROY 1101 (1) The University Experience
## Program Requirements

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

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

### SURVEYING AND GEOMATICS SCIENCES MINOR

(20 HOURS)

**Required Courses:**

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

### UNMANNED AERIAL SYSTEMS MINOR (18 HOURS)

**Required Courses:**

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

Select 3 semester hours from the following:

- UAS 2210 (3) UAS Real World Applications
- UAS 2212 (3) UAS Piloting Familiarization