COLLEGE OF ARTS AND SCIENCES

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

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

The College of Arts & Sciences is the university's largest and oldest; it teaches the most students, and provides the backbone for Troy University's educational and research missions. As a result, you will find a broad array of academic programs that will prepare you for careers in public and private sectors as well as 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.

AIR FORCE ROTC/AEROSPACE STUDIES MINOR (18 HOURS)

AS 3312	(3)	Air Force Leadership Studies I
AS L312	(1)	Leadership Laboratory
AS 3313	(3)	Air Force Leadership Studies II
AS L313	(1)	Leadership Laboratory
AS 4412	(3)	National Security Affairs/ Preparation for Active Duty I
AS L412	(1)	Leadership Laboratory I
AS 4413	(3)	National Security Affairs/ Preparation for Active Duty II
AS L413	(1)	Leadership Laboratory II

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:

ANT 3305	(3)	Introduction to Archaeology
ANT 3310	(3)	Cultural Anthropology
ANT 3311	(3)	Physical Anthropology
ANT 3340	(3)	Language in Culture and Society
ANT 4498	(3)	Anthropology Theory
SS 3376	(3)	Application of Social Scientific Inquiry

Select at least 18 hours of additional 3000/4000 level anthropology courses as approved by your faculty adviser

ANTHROPOLOGY MINOR (18 HOURS)

ANT 3310	(3)	Cultural Anthropology
ANT 3311	(3)	Physical Anthropology

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

ARCHIVAL STUDIES MINOR (18 HOURS)

HIS 3360	(3)	Introduction to Archives: Theory and Issues
HIS 3362	(3)	Archival Methods and Practice
HIS 4472	(3)	Records Management
HIS 4473	(3)	Archives Practicum

Select two courses from the following, including at least one at the 4000 level:

GEO/HIS 3316	(3)	History of Alabama
GEO/SOC 4406	(3)	Urbanism
HIS 4405	(3)	Old South
HIS 4406	(3)	New South
HIS/POL 4441	(3)	American Constitutional Develop.
HIS 4470	(3)	Oral History
HIS 4471	(3)	Local History
MGT 4471	(3)	Organizational Development
MGT 4474	(3)	Business and Society
POL 4421	(3)	Introduction to Public Administration
SOC 4433	(3)	The Community
SOC 4435	(3)	The Sociology of Organizations

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

Area III Requirements

SCI 2233	(3)	Physical Science
SCI L233	(1)	Physical Science Lab

Area IV Requirements

ECO 2251	(3)	Principles of Macroeconomics
ECO 2252	(3)	Principles of Microeconomics

Area V Requirements (24 hours)

TROY 1101	(1)	University Orientation
IS 2241	(3)	Computer Concepts & Applications
GEO 2210	(3)	World Regional Geography
POL 2260	(3)	World Politics
PSY 2200	(3)	General Psychology
SOC 2275	(3)	Introduction. to Sociology

SCI 2234	(3)	Earth and Space Science
SCI L234	(1)	Earth and Space Science Lab

Electives (4 hours)

Resource & Technology Management Major (36 hours)
Required Core courses (18 hours)

BIO 4465	(3)	Occupational Safety and Health
MKT 3361	(3)	Principles of Marketing
MGT 3371	(3)	Principles of Management
SCI 3365	(3)	Principles of Applied Science
SOC 3370	(3)	Society and Environment
SS 3375	(3)	Introduction To Social Science Inquiry

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

BIO 4460	(3)	Critical Issues of Environmental Mgmt.
CJ 3335	(3)	Private & Public Security Admin.
CS 3310	(3)	Foundations of Computer Science
PSY 4410	(3)	Business and Industrial Science
SCI 3366	(3)	Survey of Electronic Technology
SCI 3370	(3)	Toxic, Radioactive, & Hazardous Material
SCI 4450	(3)	Science in a Regulatory Environment
SOC 3310	(3)	Minorities in U.S. Social Structure

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. 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.

A minor of 18 hours is required

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 (BIO 4493, 4494) may only be taken for a maximum of 6 semster 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)	University Orientation

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 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
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

Complete one botany course with its corresponding lab:

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
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 4432	(3)	Comparative Vertebrate Anatomy
BIO L432	(1)	Comparative Vertebrate Anatomy Lab
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 2202	(3)	Principles of Environmental Science
BIO L202	(1)	Principles of Environmental Science 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 4433	(3)	Embryology
BIO L433	(1)	Embryology Lab
BIO 4451	(3)	Toxicology
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 2229	(3)	General Ecology
BIO L229	(1)	General Ecology 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 semster 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 Apps.
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 4485	(1-2)	Principles and Methods for the Laboratory Assistant
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

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
IO 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 4480	(3)	Histology
BIO L480	(1)	Histology Lab
BIO 4476	(1-3)	Special Topics in Biology
BIO 4488/4489 4490	(1-3)	Internship in Biological or Environmental Science
BIO 4491/4492	(1-3)	Guided Independent Research
BIO 4494/4494	(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
MGT 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
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 4488/4489/ 4490	(1-8)	Internship in the Biological or Environmental Sciences
BIO 4491/4492	(3)	Guided Independent Research*
BIO 4493/4494	(3)	Guided Independent Study*
CHM 4455	(3)	Instrumental Analysis
CHM L455	(1)	Instrumental Analysis Lab
MGT 3372	(3)	Hospitality Management
MGT 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 3326	(3)	Plant Diversity
BIO L326	(1)	Plant Diversity Lab
BIO 4402	(4)	Spring Flora
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 4432	(3)	Comparative Vertebrate Anatomy
BIO L432	(1)	Comparative Vertebrate Anatomy Lab
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 4433	(3)	Embryology
BIO L433	(1)	Embryology 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 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.

Medical Laboratory Science Concentration

Students must complete 29 semester hours on the Troy Campus prior to applying for an internship.

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 MT 4400-4413 courses.

BIOLOGY, PREPROFESSIONAL MAJOR (55 HOURS)

Specialized General Studies Requirements

Area III (12 Hours)

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 **(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 2229	(3)	General Ecology
BIO L229	(1)	General Ecology Lab
BIO 3320	(3)	Genetics
BIO L320	(1)	Genetics Lab
BIO 3372	(3)	Microbiology
BIO L372	(1)	Microbiology 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

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 4432	(3)	Comparative Vertebrate Anatomy
BIO L432	(1)	Comparative Vertebrate Anatomy Lab
BIO 4433	(3)	Embryology
BIO L433	(1)	Embryology 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
CHM 3352	(3)	Biochemistry
CHM L3352	(1)	Biochemistry Lab

CHEMISTRY EDUCATION

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

CHEMISTRY MAJOR (37 HOURS)

Specialized General Studies Requirements

Area III

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

Select one series:

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

Chemistry Core (34 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 4445	(3)	Instrumental Analysis
CHM L445	(1)	Instrumental Analysis Lab
MTH 1126	(4)	Calculus II

Select three hours of chemistry electives:

CHM 3352	(3)	Biochemistry
CHM L352	(1)	Biochemistry Lab
CHM L382	(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

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
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

Select four additional hours of advanced chemistry courses, such as

CHM 2242	(3)	Analytical Chemistry
CHM L242	(1)	Analytical Chemistry Lab
CHM 3352	(3)	Biochemistry Lab
CHM L352	(1)	Biochemistry Lab

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.

CHEMISTRY PROGRAM (51 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

Chemistry, Mathematics, and Physics Core Courses

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 4445	(3)	Instrumental Analysis
CHM L445	(1)	Instrumental Analysis Lab
MTH 1126	(4)	Calculus II

Select one series:

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

Select five hours of chemistry electives:

CHM 3352	(3)	Biochemistry
CHM L352	(1)	Biochemistry Lab
CHM L382	(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

COMPREHENSIVE GENERAL SCIENCE PROGRAM (64 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

IS 2241	(3)	Computer Concepts/Applications
PHY 2262	(3)	Physics I w/Calculus
PHY L262	(1)	Physics I Lab
SCI 2234	(3)	Earth & Space Science
SCI L234	(1)	Earth & Space Science Lab
TROY 1101	(1)	University Orientation

Required Courses

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
BIO 3320	(3)	Genetics
BIO L320	(1)	Genetics Lab
BIO 3347	(3)	Human Anatomy & Physiology
BIO L347	(1)	Human Anatomy & Physiology 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
CHM 3343	(3)	Organic Chemistry II
CHM L343	(1)	Organic Chemistry II Lab
CHM 3381	(3)	Physical Chemistry
CHM L381	(1)	Physical Chemistry Lab
MTH 1126	(3)	Calculus II
MTH 2210	(3)	Applied Statistics
PHY 2263	(3)	Physics II w/Calculus
PHY L263	(1)	Physics II Lab
PHY 3310	(3)	Modern Physics
PHY L310	(1)	Modern Physics Lab
PHY 3459	(3)	Optics
PHY L459	(1)	Optics Lab
PHY 4420	(3)	Mechanics

11 hours of free electives

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
PHY 2252	(3)	General Physics I
PHY L252	(1)	General Physics I 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
MTH 1126	(4)	Calculus II
TROY 1101	(1)	University Orientation

Select a four hour course/lab combination from the following: (Students must complete an eight hour sequence in chemistry or physics. Also see Area III.)

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

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
MTH 2210	(3)	Applied 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 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)	Business Calculus

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	(2)	Visual Arts
DRA 2200	(2)	Introduction to Drama
MUS 1131	(2)	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
HIS 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 10 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

Select A or B below:

A. 12 additional hours of upper-level (3000-4000) criminal justice courses, as approved by the adviser for the major,

OR

B. Homeland Security Concentration. Select 12 additional hours from the following as approved by the adviser:

CJ 3335	(3)	Private and Public Security Administration
CJ 4435	(3)	Grant Writing
CJ 4440	(3)	Terrorism
CJ 4470	(3)	Criminal Justice Issues in Homeland Security
CJ 4472	(3)	Cyber Crime
CJ 4488	(3)	Internship (limit 1)
POL 3364	(3)	State and Local Politics
POL 4422	(3)	Public Policy Making

CRIMINAL JUSTICE MINOR (18 HOURS)

CJ 1101	(3)	Introduction to Criminal Justice

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)

CJ 4475	(3)	Seminar in Cyber Security
CS 3310	(3)	Foundations of Computer Science

Select 15 hours from the following. See Course Descriptions for pre-requisites and restrictions:

CJ 1101	(3)	Introduction to Criminal Justice
CJ 4473	(3)	Computer Forensics
CJ 4472	(3)	Cyber Crime
CS 3375	(3)	Foundations of Networking
-or-		
CS 4445	(3)	Data Communication and Networking
CS 4449	(3)	Applied Networking
CS 3380	(3)	Cyber Security
-or-		
CS 4451	(3)	Computer Security

Students may not receive academic credit for both CS 3375 and CS 4445, 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.

EARTH AND SPACE STUDIES MINOR (18 HOURS)

SCI 3335	(3)	Physical Geology
SCI L335	(1)	Physical Geology Lab
SCI 3336	(3)	Astronomy
SCI 3340	(3)	Marine Science

SCI L340	(1)	Marine Science Lab
SCI 3350	(3)	Weather and Climate
SCI L350	(1)	Weather and Science Lab
SCI 4403	(3)	Conservation

ECONOMICS MAJOR (36 HOURS)

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

Area V:

ECO 2251	(3)	Principles of Macroeconomics
ECO 2252	(3)	Principles of Microeconomics
MTH 2201	(3)	Business Calculus
SS 3375	(3)	Introduction to Social Science Inquiry
SS 3376	(3)	Application of Social Science Inquiry

Requirement for the Major

ECO 3351	(3)	Intermediate Macroeconomics
ECO 3352	(3)	Intermediate Microeconomics

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

ENVIRONMENTAL SCIENCE MINOR (18-20 HOURS)

BIO 2202	(3)	Principles of Environmental Science
BIO L202	(1)	Principles of Environmental Science Lab
BIO 3328	(3)	Environmental Pollution and Control
BIO L328	(1)	Environmental Pollution and Control Lab

Complete 12 hours from the following:

BIO 4451	(3)	Toxicology
BIO L451	(1)	Toxicology Lab
BIO 4452	(3)	Industrial Hygiene
BIO L452	(1)	Industrial Hygiene Lab
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 (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 semster 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 Apps.
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

Program 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
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

Environmental Science Core (32 semester hours)

BIO 2202	(3)	Principles of Environmental Science
BIO L202	(1)	Principles of Environmental Science Lab
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 4451	(3)	Toxicology
BIO L451	(1)	Toxicology Lab
BIO 4452	(3)	Industrial Hygiene
BIO L452	(1)	Industrial Hygiene Lab
BIO 4479	(3)	Environmental Assessment
BIO L479	(1)	Environmental Assessment Lab

Complete eight hours of adviser-approved upper-level courses in biology, marine biology, chemistry or mathematics.

BIO 4488/4489/4490 (1-8) Internship in Environmental Science

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	(2)	Visual Arts
DRA 2200	(2)	Introduction to Drama
MUS 1131	(2)	Music Appreciation

Select one of the following:

ENG 2205	(3)	World Literature before 1660
ENG 2206	(3)	World Literature after 1660
ENG 2211	(3)	American Literature before 1875
ENG 2212	(3)	American Literature after 1875
ENG 2244	(3)	British Literature before 1785
ENG 2245	(3)	British Literature after 1785

Select six hours of one foreign language.

Area III

Select one of the following:

MTH 1110	(3)	Finite Mathematics
MTH 1112	(3)	Pre-calculus Algebra

Select one science course and corresponding lab:

BIO 1100		(3) Principles of Biology
BIO L100	(1)	Principles of Biology Lab
SCI 2233		(3) Physical Science
SCI L233		(1) Physical Science Lab
SCI 2234		(3) Earth and Space Science
SCI L234		(1) Earth and Space Science Lab

Area IV

Select one of the following:

HIS 1101	(3)	Western Civilization I
HIS 1102	(3)	Western Civilization II
HIS 1111	(3)	U.S. to 1877
HIS 1112	(3)	U.S. since 1877
HIS 1122	(3)	World History to 1500
HIS 1123	(3)	World History from 1500

Area V

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

Additional requirements

Select any minor or area of concentration.

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

GENERAL EDUCATION A.S. (60HOURS)

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	(2)	Visual Arts
DRA 2200	(2)	Introduction to Drama
MUS 1131	(2)	Music Appreciation

Select one of the following:

ENG 2205	(3)	World Literature before 1660
ENG 2206	(3)	World Literature after 1660
ENG 2211	(3)	American Literature before 1875
ENG 2212	(3)	American Literature after 1875
ENG 2244	(3)	British Literature before 1785
ENG 2245	(3)	British Literature after 1785

Area III

Select one of the following:

MTH 1110	(3)	Finite Mathematics
MTH 1112	(3)	Pre-calculus Algebra

Select one science course and corresponding lab:

BIO 1100	(3)	Principles of Biology
BIO L100	(1)	Principles of Biology Lab
SCI 2233	(3)	Physical Science
SCI L233	(1)	Physical Science Lab
SCI 2234	(3)	Earth and Space Science
SCI L234	(1)	Earth and Space Science Lab

Area IV

Select one of the following:

HIS 1101	(3)	Western Civilization I
HIS 1102	(3)	Western Civilization II
HIS 1111	(3)	U.S. to 1877
HIS 1112	(3)	U.S. since 1877
HIS 1122	(3)	World History to 1500
HIS 1123	(3)	World History from 1500

Area V

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

Additional requirements

Select any minor or area of concentration.

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

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.

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 nine 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	(3)	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 Apps.
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.

Public History 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

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)	University Orientation

Requirements for the Major

HIS 3375	(3)	Research and Methodology
HIS 4425	(3)	Principles of Public History
HIS 4470	(3)	Local History
HIS 4471	(3)	Oral History
HIS 4490	(3)	Senior Seminar
HIS 4499	(3)	Internship in History (90 contact hours)
PHI 2204	(3)	Ethics and the Modern World

Select 9 hours of approved upper-level history courses in any emphasis.

Select 6 hours from the courses listed below:

ANT 3330	(3)	Historical Archaeology
ART 2250	(3)	Survey of Art History I
ART 2251	(3)	Survey of Art History II
CJ 4435	(3)	Grant Writing
GEO 4403	(3)	Conservation
GEO 4406	(3)	Urbanism
GEO 4408	(3)	Rural America: Past & Present
HIS 3360	(3)	Introduction to Archives: Theories and Issues
HIS 3362	(3)	Archival Methods and Practices
HIS 4450	(3)	Environmental History of The United States
MGT 3371	(3)	Principles of Management
MGT 4475	(3)	Small Business Management
POL 4421	(3)	Introduction to Public Administration

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 are prerequisites for upper-level American history courses and must be taken if they have not been taken for general studies.

Note: HIS 1101 and HIS 1102 are prerequisites for upper-level European history courses and must be taken if they have not been taken for general studies.

HOMELAND SECURITY MINOR (18 HOURS)

CJ 1101	(3)	Introduction to Criminal Justice

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

CJ 3335	(3)	Private and Public Security Administration
CJ 4435	(3)	Grant Writing
CJ 4440	(3)	Terrorism
CJ 4470	(3)	Criminal Justice Issues in Homeland Security
CJ 4472	(3)	Cyber Crime
CJ 4488	(3)	Internship (limit one)
POL 3364	(3)	State and Local Politics
POL 4422	(3)	Public Policy Making

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

HUMANITIES MINOR (18 HOURS)

ART 3302	(3)	History of the Arts
CLA 2260	(3)	Classical Mythology
CLA 2290	(3)	Classical Literature in English Translation
PHI 2203	(3)	Introduction to Philosophy
PHI 3301	(3)	Western Philosophy
ANT 2280	(3)	World Religions

LEADERSHIP DEVELOPMENT MINOR (18 HOURS)

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

Select at least an additional six 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
LDR 3310	(3)	Leadership and Interpersonal Skills
LDR 3320	(3)	Great Leaders

LDR 4403	(1)	Contemporary Issues in Leadership
LDR 4444	(3-6)	Leadership Internship
LDR 4450	(1-6)	Leadership Service Learning
LDR 4493-94	(1-3)	Guided Independent Study
MGT 3371	(3)	Principles of Management and Organizational Behavior
MSL 2201	(2)	Individual Leadership Studies
MSL 2202	(2)	Leadership and Teamwork
MSL 2204	(2)	Leadership Lab
PHI 2204	(3)	Ethics and the Modern World
POL 3340	(3)	U.S. Government – Executive Branch

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

ANT 2200	(3)	Anthropology
ECO 2251	(3)	Principles of Macroeconomics
ECO 2252	(3)	Principles of Microeconomics
GEO 2210	(3)	World Regional Geography
PSY 2200	(3)	General Psychology

Required Liberal Studies Courses (30 shrs)

LST 3301	(3)	Methods in Critical Inquiry
LST 3310	(3)	Critical Theory
LST 4499	(3)	Senior Seminar in Liberal Studies

Select 21 hours from the following:

ANT 3310	(3)	Cultural Anthropology
ECO 4456	(3)	Economic Foundations in Capitalism
ENG 3305	(3)	Folklore/Mythology
ENG 4405	(3)	History of the English Language
GEO 3301	(3)	Principles of Cultural Geography
GEO 4402	(3)	Political Geography
HIS 3342	(3)	Renaissance and Reformation
POL 3300	(3)	Foundations of Political Science
POL 3330	(3)	Political Theory
PSY 3370	(3)	Comparative Psychology
PSY 3380	(3)	Social Psychology
SOC 3300	(3)	Social Institutions
SOC 3301	(3)	Social Change

Select at least six hours from each of the following for a total of 30 hours:

Societal Studies (select at least six hours):

ANT 4410	(3)	High Civilizations of the Old World
ANT 4411	(3)	High Civilizations of the New World
ECO 4451	(3)	International Trade
HIS 3342	(3)	Renaissance and Reformation
HIS 3343	(3)	Age of Absolutism
HIS 3344	(3)	Age of Reason
POL 3360	(3)	Contemporary Political Thought
POL 4431	(3)	Comparative Government
SOC 3300	(3)	Social Institutions
SOC 3301	(3)	Social Change
SOC 4420	(3)	Sociological Theory
SOC 4435	(3)	The Sociology of Complex Societies

Behavioral Studies (select at least six hours):

ANT 3360	(3)	Magic, Witchcraft, and Religion
COM 3324	(3)	Gender Communications
POL 3351	(3)	International Relations
POL 4415	(3)	International Conflict
POL 4440	(3)	Political Sociology
POL 4460	(3)	Intercultural Relations
PSY 3304	(3)	Abnormal Psychology
PSY 3312	(3)	Psychology of Women
PSY 3370	(3)	Comparative Psychology
PSY 3380	(3)	Social Psychology
SOC 3332	(3)	Family Violence
SOC 4409	(3)	Political Sociology
SOC 4436	(3)	Social Evolution: Anarchy Democracy

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

ANT 3340	(3)	Language in Culture and Society
COM 3341	(3)	American Public Address
COM 4433	(3)	Literary Criticism
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
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 4431	(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 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 Apps.
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 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
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

Troy University Courses:

BIO 3307	(3)	Invertebrate Zoology
BIO L307	(1)	Invertebrate Zoology Lab

Complete 12 additional semester hours of adviser-approved biology 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.

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

BIO 1100	(3)	Principles of Biology
BIO L100	(1)	Principles of Biology Lab
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
PHY 2252	(3)	General Physics I
PHY L252	(1)	General Physics I 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 V Requirements

TROY 1101	(1)	University Orientation
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.

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.

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)

MSL 3301	(3)	Leadership and Problem Solving
MSL 3302	(3)	Leadership and Ethics
MSL 3304	(1)	Leadership Lab
MSL 3305	(1)	Leadership Lab
MSL 4401	(3)	Leadership and Management
MSL 4402	(3)	Officership
MSL 4404	(1)	Leadership Lab
MSL 4405	(1)	Leadership Lab

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

PHYSICAL SCIENCE MINOR (19-20 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 one series:

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

Select an upper-level course in chemistry or physics (three to four semester hours).

PHYSICS MINOR (19 HOURS)

PHY 3310	(3)	Modern Physics
PHY L310	(1)	Modern Physics Lab
PHY 4420	(3)	Mechanics

Select one series:

PHY 2252	(3)	Gen. Physics I
PHY L252	(1)	Gen. Physics Lab I
PHY 2253	(3)	Gen. Physics II
PHY L253	(1)	Gen. Physics Lab II
or		
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

Select an additional four 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 2241	(3)	American National Government or placement in POL 2240
POL 2260	(3)	World Politics

Major Requirements

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

Select one of the following concentrations:

American Politics and Public Administration Concentration

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 4420	(3)	Constitutional Law
POL 4421	(3)	Introduction to Public Administration
POL 4422	(3)	Public Policy Making
POL 4423	(3)	American Foreign Policy to 1920
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 4471	(3)	Intergovernmental Relations
POL 4472	(3)	Administrative Law

Select an additional 15 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 4415	(3)	International Conflict
POL 4423	(3)	American Foreign Policy to 1920
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 4465	(3)	Politics of the Developing World
POL 4466	(3)	Middle Eastern Politics
POL 4467	(3)	Asian Politics
POL 4470	(3)	European Politics

POL 4474	(3)	Terrorism and Political Violence
POL 4476	(3)	Politics of Southeast Asia

Select an additional 15 hours of upper-level (3000-4000) political science 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 Scientific Inquiry
SS 3376	(3)	Application of Social Scientific 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 24 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 2230) in at least three disciplines.

Geography Concentration:

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

Select at least 18 hours of additional 3000/4000-level courses as approved by your faculty adviser:

Leadership Concentration:

LDR 1100	(3)	Introduction to Leadership
LDR 4400	(3)	Leadership Seminar*

*Requires approval of the director of the Institute of Leadership Development

Select an additional 18 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
MGT 3371	(3)	Principles of Management and Organizational Behavior
MGT 3375	(3)	Human Resources 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

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.

Requirements for the Major

SS 3375	(3)	Introduction to Social Science Inquiry
SS 3376	(3)	Application of Social Scientific Inquiry
SOC 4420	(3)	Sociological Theory
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 GEOM GEOMATICS SCIENCES PROGRAM (59 HOURS)

Area II Requirements:

ART 2201	(3)	Introductory Drawing

Select one of the following courses:

DRA 2200	(2)	Introduction to Drama
MUS 1131	(2)	Music Appreciation

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

Area III Requirements

BIO 1100		(3) Principles of Biology
BIO L100	(1)	Principles of Biology Lab
MTH 1125	(4)	Calculus I

Select a physics course/lab combination:

PHY 2252	(3)	General Physics I
PHY L252	(1)	General Physics I Laboratory
or		
PHY 2262	(3)	Physics I with Calculus
PHY L262	(1)	Physics I with Calculus Laboratory

Area IV Requirements

ECO 2251	(3)	Principles of Macroeconomics
ECO 2252	(3)	Principles of Microeconomics
HIS 1111		(3) U.S. History to 1877
HIS 1112		(3) U.S. History since 1877

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 L100	(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