# **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 intellec-tual 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 21stcentury 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)**

- Students interested in the Accelerated Law Curriculum must complete the requirements for the General Social Science Concentration and the courses outlined in Area V of General Studies by the end of the third year of study at Troy University (or semester prior to attending partnered institution).
- 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.
- Students must successfully complete 30 semester hours of law courses outlined by the partnered institution in order to receive Troy University credit.
- Students are strongly recommended to take PHI 2204 Ethics and Modern World within Area II of General Studies.
- Upon the successful completion of the designated 30 semester hours of courses at the partnered institution, students may be awarded a Bachelor of Science in Social Science with a minor in Legal Studies.

#### For additional information, interested students should see the chair of the Department of Social Science and interested students must meet with the Pre-Law Advisor. Area V

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

# Requirements for the Major (15 hours)

(3) (3) Research Methods in Social Sciences SS 3375 SS 3376 Statistics in the Social Sciences GIS 3320 (3)GIS in the Social Sciences SS 4498 (3)Social Science Theory SS 4499 (3) Senior Seminar

#### **General Social Science Concentration:**

Select at least 21 hours of additional 3000/4000-level courses from anthropology, economics, geography, history, political science, psychology, sociology criminal justice, or as approved by department chair. Six (6) hours may be used from ECO 2251, ECO 2252, GEO 2210, ANT 2200, POL 2241, or SOC 2275 in at least three disciplines.

# Legal Studies Minor (Accelerated Law Curriculum)

Required Courses (9 hours) LGL 2200 (3) Introduc Introduction to Legal Studies LGL 3300 (3) Legal Research and Writing LGL 4400 (3)Seminar in Legal Studies

The remaining nine (9) hours of Legal Studies Minor will consist of courses successfully completed in Law School.

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

AS 3312	(3)	Air Force Leadership Studies I
AS 3313	(3)	Air Force Leadership Studies II
AS 4412	(3)	National Security Affairs/Preparation for
		Active Duty I
AS 4413	(3)	National Security Affairs/Preparation for
		Active Duty 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.

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

AS L312	(1)	Leadership Laboratory I
AS L313	(1)	Leadership Laboratory II
AS L412	(1)	Leadership Laboratory I
AS L413	(1)	Leadership Laboratory II

#### **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 3315	(3)	The Anthropology of Kinship and Social
		Structure
ANT 3340	(3)	Language in Culture and Society
ANT 4499	(3)	Anthropology Theory
SS 3376	(3)	Statistics in the Social Science

Select at least 15 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.

#### **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(36 HOURS)**

		` ,
Area IV Require Choose six credit ANT 2200	ments	
Choose six ĉredit	t hours fro	m the following:
ANT 2200	(3)	Anthropology
CJ 1101	(3)	Introduction to Criminal Justice
ECO 2251	(3)	Introduction to Criminal Justice Principles of Macroeconomics
ECO 2252	(3)	Principles of Microeconomics
GEO 2210	(3) (3) (3)	World Regional Geography Introduction to Leadership
LDR 1110	(3)	Introduction to Leadership
PHI 2205	(3)	Introduction to Logic Critical Thinking
PHI 2210	\3\	Critical Thinking
SOC 2275	\ <u>3</u> {	Introduction to Sociology
500 2275	(3)	introduction to Sociology
Area V Require TROY 1101	ments	
TD OX 1104	111011105	TT :
1KOY 1101	(1)	University Orientation
IS 2241	(3)	Computer Concents and
10 22 11	(3)	A 1: ti
		University Orientation Computer Concepts and Applications

#### Required Core Courses (18 Hours)

MGT 3300 PHI 3310	(3)	Principles of Management Applied Ethics
SCI 3365	(3)	Principles of Applied Science
SS 3375	(3)	Research Methods in the Social Sciences
SS 3376 GIS 3320	(3) (3)	Statistics in the Social Sciences GIS in the Social Sciences

# Select a minimum of 18 semester hours from the courses listed

below:	ium or 10 sc	mester nours from the courses fisted
ANT 4420	(3)	Forensic Osteology
BIO 3340	(3) (3) (3) (3) (3)	Evolution
CJ 3335	\ <u>3</u> {	Security Operations
CS 3310	\3\	Foundations of Computer Science
ECO 3351	\2\ \2\	Intermediate Macroeconomics
ECO 3331 ECO 2252	(3)	
ECO 3352	(3)	Intermediate Microeconomics
GEM 3390	(3)	Fundamentals of Geographic
CTC 2201	(2)	Information and Analysis
GIS 3301	(3)	Cartography and Geovisualization
GIS 3305	(3) (3) (3)	Spatial Information and Analysis
HS 3310	(3)	Human Behavior in the Social
		Environment I
POL 3300	(3) (3) (3) (3)	Foundations of Political Science
POL 3343	(3)	American Political Processes
POL 3364	(3)	State and Local Politics
PSY 4410	(3)	Industrial/Organization Psychology
SCI 4450	(3)	Science in a Regulatory
561	(5)	Environment
SOC 4406	(3)	Urban Sociology
SOC 4413	\ <u>3</u> {	Minorities in U.S. Social Structure
SOC 4421	(3)	Social Inequality
SOC 4445	(3) (3) (3) (3)	Trends in Globalization
SWK 3320	(3)	Human Behavior in the Social
		Environment II

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

#### Eligibility

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

#### **BIOLOGY EDUCATION**

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

# **BIOLOGY MAJOR (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

#### **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

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#### 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 see	quence:	

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
	2.0	

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

DIO 2220			
	(3)	General Ecology	*Special Topics in Biology (BIO 4476), Guided Independen
BIO 2229	(3)		Studies (DIO 4401/4402) and Cuided Independent
BIO L229	(1)	General Ecology Lab	Studies (BIO 4491/4492) and Guided Independent Research (BIO
BIO 3320	(3)	Genetics	4493, 4494) may only be taken for a maximum of 6 semester hours
BIO L320	(1)	Genetics Lab	
BIO 4484	(1)		Specialized General Studies Requirements
DIO 4464	(1)	Senior Seminar in Biological &	Ârea III
		Environmental Sciences	
CHM 3342	(3)	Organic Chemistry I	
CHM L342	(1)	Organic Chemistry I Lab	BIO L100 (1) Principles of Biology Lab
CHM 3343	(3)	Organic Chemistry II	CHM 1142 (3) General Chemistry I
			CHM L142 (1) General Chemistry I Lab
CHM L343	(1)	Organic Chemistry II Lab	MTH 1125 (4) Calculus I
STAT 2210	(3)	Introductory Statistics	W1111 1123 (4) Calculus 1
			4 T/D 1
Complete on	a hatau	w course with its coursenanding lah.	Area V Requirements
		y course with its corresponding lab:	IS 2241 (3) Computer Concepts and Applications
BIO 3325	(3)	Plant Form and Function	TROY 1101 (1) University Orientation
BIO L325	(1)	Plant Form and Function Lab	BIO 1101 (3) Organismal Biology
BIO 4425	(4)	Field Botany	BIO L101 (1) Organismal Biology Lab
			CHM 1143 (3) General Chemistry II
Complete on	e zoolo	gy course with its corresponding lab:	CHM L143 (1) General Chemistry II Lab
BIO 3307		Invertebrate Zoology	
	(3)		Complete one sequence (physics sequence not required for
BIO L307	(1)	Invertebrate Zoology Lab	medical technology concentration):
BIO 4405	(3)	Entomology	PHY 2252 (3) General Physics I
BIO L405	(1)	Entomology Lab	
BIO 4420	(4)	Field Vertebrate Zoology	
			PHY 2253 (3) General Physics II
BIO 4447	(3)	Ornithology	PHY L253 (1) General Physics II Lab
BIO L447	(1)	Ornithology Lab	OR
BIO 4471	(3)	Parasitology	PHY 2262 (3) Physics I with Calculus
BIO L471	(1)	Parasitology Lab	3
DIO L 1/1	(1)	i didsitology Edo	PHY L262 (1) Physics I with Calculus Lab
			PHY 2263 (3) Physics II with Calculus
Complete on	e ecolo,	gy/environmental course with its	PHY L263 (1) Physics II with Calculus Lab
correspondi		~	( )
		Timmala and	Requirements
BIO 4413	(3)	Limnology	
BIO L413	(1)	Limnology Lab	
BIO 4416	(3)	Microbial Ecology	BIO L220 (1) Principles of Cell Biology Lab
BIO L416	(1)	Microbial Ecology Lab	BIO 2229 (3) General Ecology
BIO 4421	(3)	Population Ecology	BIO L229 (1) General Ecology Lab
			BIO 3320 (3) Genetics
BIO L421	(1)	Population Ecology Lab	
BIO 4479	(3)	Environmental Assessment	BIO L320 (1) Genetics Lab
BIO L479	(1)	Environmental Assessment Lab	BIO 4484 (1) Senior Seminar in Biological &
	( )		Environment Sciences
Complete	011 <i>0</i> 11	hysiology/cell/molecular course with its	CHM 3342 (3) Organic Chemistry I
Complete	vne p va lab:	hysiology/cen/molecular course with its	CHM L342 (1) Organic Chemistry I Lab
corresponding		Human Anatamy and Dhysiology I	
BIO 3347	(3)	Human Anatomy and Physiology I	CHM 3343 (3) Organic Chemistry II
BIO L347	(1)	Human Anatomy and Physiology I Lab	CHM L343 (1) Organic Chemistry II Lab
BIO 3348	(3)	Human Anatomy and Physiology II	CHM L343 (1) Organic Chemistry II Lab
	(1)	Transact transacting and Transaction	
BIO L348		Human Anatomy and Physiology II Lab	STAT 2210 (3) Introductory Statistics
BIO 1348 BIO 3372	(3)	Human Anatomy and Physiology II Lab	STAT 2210 (3) Introductory Statistics
	(3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab	STAT 2210 (3) Introductory Statistics  Take an additional 30-32 hours in approved upper level biology,
BIO 3372 BIO L372	(3) (1)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab	STAT 2210 (3) Introductory Statistics
BIO 3372 BIO L372 BIO 3382	(3) (1) (3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology	STAT 2210 (3) Introductory Statistics  Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.
BIO 3372 BIO L372 BIO 3382 BIO L382	(3) (1) (3) (1)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab	STAT 2210 (3) Introductory Statistics  Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION
BIO 3372 BIO L372 BIO 3382 BIO L382 BIO 3386	(3) (1) (3) (1) (3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should select
BIO 3372 BIO L372 BIO 3382 BIO L382 BIO 3386 BIO L386	(3) (1) (3) (1) (3) (1)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab	Take an additional 30-32 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
BIO 3372 BIO L372 BIO 3382 BIO L382 BIO 3386 BIO L386 BIO 4414	(3) (1) (3) (1) (3) (1) (3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology	Take an additional 30-32 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
BIO 3372 BIO L372 BIO 3382 BIO L382 BIO L386 BIO L414	(3) (1) (3) (1) (3) (1) (3) (1)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Lab Food Microbiology Food Microbiology Lab	Take an additional 30-32 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
BIO 3372 BIO L372 BIO 3382 BIO L382 BIO 3386 BIO L386 BIO 4414 BIO L414 BIO L414	(3) (1) (3) (1) (3) (1) (3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Lab Food Microbiology Food Microbiology Food Microbiology Lab Toxicology	Take an additional 30-32 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
BIO 3372 BIO L372 BIO 3382 BIO L382 BIO 3386 BIO L386 BIO 4414 BIO L414 BIO L451	(3) (1) (3) (1) (3) (1) (3) (1)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry as a first major and education as a second major Students should consult with their advisers concerning al certification requirements. CHM 3352 is required for Alabama teacher certification.
BIO 3372 BIO L372 BIO 3382 BIO L382 BIO 3386 BIO L386 BIO 4414 BIO L414 BIO L414	(3) (1) (3) (1) (3) (1) (3) (1) (3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry as a first major and education as a second major Students should consult with their advisers concerning al certification requirements. CHM 3352 is required for Alabama teacher certification.  CHEMISTRY MAJOR (37 HOURS)
BIO 3372 BIO L372 BIO 3382 BIO L382 BIO 3386 BIO L386 BIO 4414 BIO L414 BIO L451	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry as a first major and education as a second major Students should consult with their advisers concerning al certification requirements. CHM 3352 is required for Alabama teacher certification.
BIO 3372 BIO L372 BIO 3382 BIO L382 BIO L386 BIO L444 BIO L414 BIO L414 BIO L451 BIO L451 BIO L480	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Histology Histology	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry as a first major and education as a second major Students should consult with their advisers concerning al certification requirements. CHM 3352 is required for Alabama teacher certification.  CHEMISTRY MAJOR (37 HOURS)
BIO 3372 BIO L372 BIO 3382 BIO L386 BIO L386 BIO 4414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L480 BIO L482	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Lab Molecular Biology	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry 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 3372 BIO L372 BIO 3382 BIO L382 BIO 3386 BIO L386 BIO 4414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L480 BIO L482	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Histology Lab Molecular Biology Molecular Biology Lab	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry 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 3372 BIO L372 BIO 3382 BIO L386 BIO L386 BIO 4414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L480 BIO L482 Complete on	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (4) (1) (2) (1) (2) (1) (2) (1) (2) (3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Lab Molecular Biology	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry 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
BIO 3372 BIO L372 BIO 3382 BIO L382 BIO 3386 BIO L386 BIO 4414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L480 BIO L482	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (4) (1) (2) (1) (2) (1) (2) (1) (2) (3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Histology Lab Molecular Biology Molecular Biology Lab	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry as a first major and education as a second major Students should consult with their advisers concerning al 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
BIO 3372 BIO L372 BIO 3382 BIO L386 BIO L386 BIO 4414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L480 BIO L482 Complete on	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (4) (1) (2) (1) (2) (1) (2) (1) (2) (3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Histology Lab Molecular Biology Molecular Biology Lab	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry 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
BIO 3372 BIO L372 BIO 3382 BIO L386 BIO L386 BIO 4414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L480 BIO L482 Complete on	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) e upper	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Lab Histology Lab Molecular Biology Molecular Biology Lab -level adviser-approved biology course and its	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry as a first major and education as a second major Students should consult with their advisers concerning al 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
BIO 3372 BIO L372 BIO 3382 BIO L386 BIO L386 BIO 4414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L480 BIO L482 Complete on corresponding	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) e upper	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Food Microbiology Lab Toxicology Toxicology Toxicology Lab Histology Histology Lab Molecular Biology Molecular Biology Molecular Biology Lab -level adviser-approved biology course and its	Take an additional 30-32 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 al 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
BIO 3372 BIO L372 BIO L372 BIO 3382 BIO L382 BIO 3386 BIO L386 BIO L414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L480 BIO L482 Complete on correspondin	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) e upper ag lab.	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Histology Lab Molecular Biology Molecular Biology Lab -level adviser-approved biology course and its  OGY MINOR (18-20 HOURS) Tresponding labs must be taken together:	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry as a first major and education as a second major Students should consult with their advisers concerning al 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
BIO 3372 BIO 3372 BIO 3382 BIO L382 BIO 3386 BIO L386 BIO 4414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L482 Complete on correspondin	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) e upper ag lab.	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Histology Histology Lab Molecular Biology Molecular Biology Lab Level adviser-approved biology course and its  OGY MINOR (18-20 HOURS) Tresponding labs must be taken together: Organismal Biology	Take an additional 30-32 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 al 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
BIO 3372 BIO L372 BIO L372 BIO 3382 BIO L386 BIO L386 BIO 4414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L480 BIO L482 Complete on corresponding	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) e upper ag lab. BIOL (the cor (3) (1)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Lab Molecular Biology Molecular Biology Molecular Biology Lab -level adviser-approved biology course and its  OGY MINOR (18-20 HOURS) Tresponding labs must be taken together: Organismal Biology Organismal Biology Organismal Biology Cranismal Biology Organismal Biology Organismal Biology Course and its	Take an additional 30-32 hours in approved upper level biology, biochemistry (CHM 3352), or marine science biology courses.  CHEMISTRY EDUCATION  Students seeking Alabama teacher certification should selecthemistry as a first major and education as a second major Students should consult with their advisers concerning al 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
BIO 3372 BIO L372 BIO L372 BIO 3382 BIO L386 BIO L386 BIO L414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L482 Complete on corresponding  Lectures and BIO 1101 BIO L101 BIO 2220	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1)  E upper ag lab.  BIOL The cor (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Lab Immunology Lab Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Lab Histology Lab Molecular Biology Molecular Biology Lab -level adviser-approved biology course and its  OGY MINOR (18-20 HOURS) Tresponding labs must be taken together: Organismal Biology Organismal Biology Lab Principles of Cell Biology	Take an additional 30-32 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 al 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  CHM L142 (1) General Chemistry I Lab  MTH 1125 (4) Calculus I  Area V Requirements  IS 2241 (3) Computer Concepts and Applications
BIO 3372 BIO L372 BIO L372 BIO J382 BIO L382 BIO J386 BIO L414 BIO L414 BIO L451 BIO L451 BIO L480 BIO L482 Complete on correspondin  Lectures and BIO 1101 BIO L101 BIO 2220 BIO L220	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) e upper ag lab. BIOL (the cor (3) (1) (3) (1)	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Lab Histology Lab Molecular Biology Molecular Biology Molecular Biology Lab -level adviser-approved biology course and its  OGY MINOR (18-20 HOURS) Tresponding labs must be taken together: Organismal Biology Organismal Biology Organismal Biology Organismal Biology Organismal Biology Lab Principles of Cell Biology Principles of Cell Biology	Take an additional 30-32 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.  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  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
BIO 3372 BIO 3372 BIO 3382 BIO L382 BIO 3386 BIO L386 BIO 4414 BIO 4451 BIO 4451 BIO 4480 BIO 4480 BIO 4482 BIO L482 Complete on corresponding  Lectures and BIO 1101 BIO 1101 BIO 1220 BIO L220 Complete 10	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) e upper ag lab.  BIOL the cor (3) (1) (3) (1) (1) (1) (2) (1) (3) (3) (1) (3) (1) (3) (1) (3) (3) (1) (3) (3) (1) (3) (3) (1) (3) (3) (1) (3) (3) (1) (3) (3) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Lab Toxicology Toxicology Lab Histology Histology Lab Molecular Biology Molecular Biology Lab -level adviser-approved biology course and its  OGY MINOR (18-20 HOURS) Tresponding labs must be taken together: Organismal Biology Organismal Biology Principles of Cell Biology Principles of Cell Biology Additional semester hours of approved upper-	Take an additional 30-32 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.  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  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
BIO 3372 BIO 3372 BIO 3382 BIO L382 BIO 3386 BIO L386 BIO 4414 BIO 4451 BIO 4451 BIO 4480 BIO 4480 BIO 4482 BIO L482 Complete on corresponding  Lectures and BIO 1101 BIO 1101 BIO 1220 BIO L220 Complete 10	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3) (1) e upper ag lab.  BIOL the cor (3) (1) (3) (1) (1) (1) (2) (1) (3) (3) (1) (3) (1) (3) (1) (3) (3) (1) (3) (3) (1) (3) (3) (1) (3) (3) (1) (3) (3) (1) (3) (3) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	Human Anatomy and Physiology II Lab Microbiology Microbiology Lab Immunology Immunology Lab Hematology Hematology Lab Food Microbiology Food Microbiology Lab Toxicology Toxicology Lab Histology Lab Histology Lab Molecular Biology Molecular Biology Molecular Biology Lab -level adviser-approved biology course and its  OGY MINOR (18-20 HOURS) Tresponding labs must be taken together: Organismal Biology Organismal Biology Organismal Biology Organismal Biology Organismal Biology Lab Principles of Cell Biology Principles of Cell Biology	Take an additional 30-32 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.  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  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

MTH 1126 \*PHY 2262 \*PHY L262 \*PHY 2263

\*PHY L263

(1) (3)

(1)

Physics II with Calculus Lab

Physics II with Calculus

# BIOLOGY/BIOMEDICAL SCIENCES (56 HOURS)

TROY 1101	(1)	University Orientation ninoring in Physics may replace these with	TROY 1101	(1)	University Orientation
francial activism			D		
* Chemistry	maiors i	minoring in Mathematics may replace MTH ves.	Required Co.		0 1 1711
1126 with fro	ee electi	ves.	BIO 1101	(3)	Organismal Biology
			BIO L101	(1)	Organismal Biology Lab
Required Co		31 Hours)	BIO 2220	(3)	Principles of Cell Biology
CHM 1143	(3)	General Chemistry II	BIO L220	(1)	Principles of Cell Biology Lab
CHM L143	(1)	General Chemistry II Lab	BIO 3320	(3)	Genetics
CHM 2242	(3)	Analytical Chemistry	BIO L320	(1)	Genetics Lab
CHM L242	(1)	Analytical Chemistry Lab	BIO 3347	(3)	Human Anatomy & Physiology I
CHM 3342	(3)	Organic Chemistry I	BIO L347	(1)	Human Anatomy & Physiology I Lab
CHM L342	(1)	Organic Chemistry I Lab			
		Organic Chemistry II	CHM 1143	(3)	General Chemistry II
CHM 3343	(3)		CHM L143	(1)	General Chemistry II Lab
CHM L343	(1)	Organic Chemistry II Lab	CHM 3342	(3)	Organic Chemistry I
CHM 3381	(3)	Physical Chemistry I	CHM L342	(1)	Organic Chemistry I Lab
CHM L381	(1)	Physical Chemistry I Lab	CHM 3343	(3)	Organic Chemistry II
CHM 3382	(3)	Physical Chemistry II	CHM L343	(1)	Organic Chemistry II Lab
CHM 4444	(3)	Advanced Inorganic Chemistry	CHM 3381	(3)	Physical Chemistry I
CHM L444	(1)	Advanced Inorganic Chemistry Lab	CHM L381	(1)	Physical Chemistry 1 Lab
CHM 4445	(3)	Instrumental Analysis	MTH 1126	(4)	Calculus II
CHM L445	(1)	Instrumental Analysis Lab	STAT 2210	(3)	Introductory Statistics
011111 2 1 10	(-)	mon amontar i marjoto zao	PHY 2263	(3)	Physics II w/Calculus
0 1 (					
		the following electives:	PHY L263	(1)	Physics II w/Calculus Lab
CHM 3352	(3)	Biochemistry	PHY 3310	(3)	Modern Physics
CHM L352	(1)	Biochemistry Lab	PHY L310	(1)	Modern Physics Lab
CHM L382	(1)	Physical Chemistry II Lab	PHY 3359	(3)	Waves and Optics
CHM 4400	(3)	Special Topics in Chemistry	PHY L359	(1)	Waves and Optics Lab
CHM 4403	(3)	Advanced Organic Chemistry	PHY 4420	(3)	Mechanics
CHM 4420	(3)	Principles of Polymer Chemistry			
CHM L420	(1)	Principles of Polymer Chemistry Lab	C	<b>OMPU</b>	TER SCIENCE MINOR (18 HOURS)
CHM 4452	(3)	Advanced Biochemistry	CS 2250	(3)	Computer Science I
CHM 4491/2		Guided Independent Research	CS 2255	(3)	Computer Science II
CHM 4493/4		Guided Independent Study	CB 2233	(3)	Computer Science ii
CHM 4499	(1)	Senior Research Seminar	Select 12 sen	iester h	ours of computer science courses with at least
STAT 2210	(3)	Introductory Statistics	one course be	eing at	the 4000 level.
	(-)	,			
	CHEA	AICTED V MINOD (AA HOUDC)	COL	MDIT	ED SCIENCE DDOCDAM (49 HOUDS)
CID ( 1142		MISTRY MINOR (20 HOURS)			ER SCIENCE PROGRAM (48 HOURS)
CHM 1142	(3)	General Chemistry I	Specialized (		ER SCIENCE PROGRAM (48 HOURS) I Studies Requirements
CHM L142	(3) (1)	General Chemistry I General Chemistry I Lab	Specialized ( Area III	Genera	I Studies Requirements
CHM L142 CHM 1143	(3) (1) (3)	General Chemistry I General Chemistry I Lab General Chemistry II	Specialized ( Area III MTH 1125	Genera (4)	I Studies Requirements Calculus I, in lieu of MTH 1110
CHM L142 CHM 1143 CHM L143	(3) (1) (3) (1)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II	Specialized ( Area III MTH 1125	Genera (4)	I Studies Requirements Calculus I, in lieu of MTH 1110
CHM L142 CHM 1143 CHM L143 CHM 3342	(3) (1) (3)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II Conganic Chemistry II	Specialized ( Area III MTH 1125	Genera (4)	I Studies Requirements Calculus I, in lieu of MTH 1110
CHM L142 CHM 1143 CHM L143	(3) (1) (3) (1)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II Corganic Chemistry I Organic Chemistry I Lab	Specialized (Area III MTH 1125  Select a four (Students muphysics. Also	Genera (4)  hour c st comp see Are	Tstudies Requirements  Calculus I, in lieu of MTH 1110  ourse/lab combination from the following: olete an eight hour sequence in chemistry or ea V Requirements.)
CHM L142 CHM 1143 CHM L143 CHM 3342	(3) (1) (3) (1) (3)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II Conganic Chemistry I Conganic Chemistry I Conganic Chemistry I Lab Conganic Chemistry II	Specialized ( Area III MTH 1125  Select a four (Students mu. physics. Also CHM 1142	(4) (4) (4) (bour composee Arc (3) (6)	Calculus I, in lieu of MTH 1110  ourse/lab combination from the following: olete an eight hour sequence in chemistry or ea V Requirements.)  General Chemistry I
CHM L142 CHM 1143 CHM L143 CHM 3342 CHM L342	(3) (1) (3) (1) (3) (1)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II Corganic Chemistry I Organic Chemistry I Lab	Specialized ( Area III MTH 1125  Select a four (Students mu. physics. Also CHM 1142 CHM L142	(4) (4) (bour constant) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	Calculus I, in lieu of MTH 1110  ourse/lab combination from the following: olete an eight hour sequence in chemistry or ea V Requirements.)  General Chemistry I  General Chemistry I Lab
CHM L142 CHM 1143 CHM L143 CHM 3342 CHM L342 CHM 3343	(3) (1) (3) (1) (3) (1) (3)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II Conganic Chemistry I Conganic Chemistry I Conganic Chemistry I Lab Conganic Chemistry II	Specialized (Area III) MTH 1125  Select a four (Students mu. physics. Also CHM 1142 CHM L142 PHY 2252	(4) (6) (6) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	I Studies Requirements  Calculus I, in lieu of MTH 1110  ourse/lab combination from the following: olete an eight hour sequence in chemistry or ea V Requirements.)  General Chemistry I  General Chemistry I Lab  General Physics I
CHM L142 CHM 1143 CHM L143 CHM 3342 CHM L342 CHM 3343 CHM L343	(3) (1) (3) (1) (3) (1) (3) (1)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II Lab Organic Chemistry I Organic Chemistry I Lab Organic Chemistry I Lab Organic Chemistry II Organic Chemistry II	Specialized (Area III MTH 1125)  Select a four (Students muphysics. Also CHM 1142 CHM L142 PHY 2252 PHY L252	(4) (4) (4) (4) (5) (6) (6) (6) (7) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	Calculus I, in lieu of MTH 1110  ourse/lab combination from the following: blete an eight hour sequence in chemistry or ea V Requirements.)  General Chemistry I  General Chemistry I Lab  General Physics I  General Physics I Lab
CHM L142 CHM 1143 CHM L143 CHM 3342 CHM L342 CHM 3343 CHM L343	(3) (1) (3) (1) (3) (1) (3) (1)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II Conganic Chemistry I Conganic Chemistry I Conganic Chemistry I Lab Conganic Chemistry II	Specialized ( Area III MTH 1125  Select a four (Students mu. physics. Also CHM 1142 CHM L142 PHY 2252 PHY L252 PHY L252 PHY 2262	(4) (6) (6) (6) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	I Studies Requirements  Calculus I, in lieu of MTH 1110  ourse/lab combination from the following: olete an eight hour sequence in chemistry or ea V Requirements.) General Chemistry I General Chemistry I Lab General Physics I General Physics I General Physics I Lab Physics I with Calculus
CHM L142 CHM 1143 CHM L143 CHM 3342 CHM L342 CHM 3343 CHM L343	(3) (1) (3) (1) (3) (1) (3) (1)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II General Chemistry II Lab Organic Chemistry I Organic Chemistry I Lab Organic Chemistry II Organic Chemistry II Organic Chemistry II Ab	Specialized (Area III MTH 1125)  Select a four (Students muphysics. Also CHM 1142 CHM L142 PHY 2252 PHY L252	(4) (6) (6) (6) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	Calculus I, in lieu of MTH 1110  ourse/lab combination from the following: blete an eight hour sequence in chemistry or ea V Requirements.)  General Chemistry I  General Chemistry I Lab  General Physics I  General Physics I Lab
CHM L142 CHM 1143 CHM L143 CHM 3342 CHM L342 CHM 3343 CHM L343  Select four as: CHM 2242	(3) (1) (3) (1) (3) (1) (3) (1)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II General Chemistry II Lab Organic Chemistry I Organic Chemistry I Lab Organic Chemistry II Organic Chemistry II Organic Chemistry II Lab  All hours of advanced chemistry courses, such Analytical Chemistry	Specialized (Area III MTH 1125)  Select a four (Students muphysics. Also CHM 1142 CHM L142 PHY 2252 PHY L252 PHY L262 PHY L262	(4) (6) (8) (9) (9) (9) (9) (9) (9) (9) (9) (9) (9	Calculus I, in lieu of MTH 1110  **Ourse/lab combination from the following:* **olete an eight hour sequence in chemistry or ea V Requirements.)*  **General Chemistry I General Chemistry I Lab  **General Physics I General Physics I Lab  **Physics I with Calculus Physics I with Calculus Lab
CHM L142 CHM 1143 CHM L143 CHM 3342 CHM L342 CHM 3343 CHM L343  Select four as: CHM 2242 CHM L242	(3) (1) (3) (1) (3) (1) (3) (1) (4)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II General Chemistry II Lab Organic Chemistry I Organic Chemistry I Lab Organic Chemistry II Organic Chemistry II Ab Organic Chemistry II Organic Chemistry II Lab	Specialized (Area III MTH 1125)  Select a four (Students muphysics. Also CHM 1142 CHM L142 PHY 2252 PHY L252 PHY L262  PHY L262  Select remain	(4) (6) (8) (9) (9) (9) (9) (9) (9) (9) (9) (9) (9	Calculus I, in lieu of MTH 1110  course/lab combination from the following: blete an eight hour sequence in chemistry or ea V Requirements.) General Chemistry I General Chemistry I Lab General Physics I General Physics I Lab Physics I with Calculus Physics I with Calculus Lab  cea III courses as shown in the General
CHM L142 CHM 1143 CHM L143 CHM 3342 CHM L342 CHM 3343 CHM L343  Select four as: CHM 2242 CHM L242 CHM 3352	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II General Chemistry II Lab Organic Chemistry I Organic Chemistry I Lab Organic Chemistry II Organic Chemistry II Ab Organic Chemistry II Organic Chemistry II Lab  Malytical Chemistry Analytical Chemistry Biochemistry Lab Biochemistry	Specialized (Area III MTH 1125)  Select a four (Students muphysics. Also CHM 1142 CHM L142 PHY 2252 PHY L252 PHY L262 PHY L262	(4) (6) (8) (9) (9) (9) (9) (9) (9) (9) (9) (9) (9	Calculus I, in lieu of MTH 1110  course/lab combination from the following: blete an eight hour sequence in chemistry or ea V Requirements.) General Chemistry I General Chemistry I Lab General Physics I General Physics I Lab Physics I with Calculus Physics I with Calculus Lab  cea III courses as shown in the General
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CHM L142 CHM 1143 CHM L143 CHM 3342 CHM L342 CHM 3343 CHM L343  Select four as: CHM 2242 CHM L242 CHM 3352	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (3)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II General Chemistry II Lab Organic Chemistry I Organic Chemistry I Lab Organic Chemistry II Organic Chemistry II Ab Organic Chemistry II Organic Chemistry II Lab  Malytical Chemistry Analytical Chemistry Biochemistry Lab Biochemistry	Specialized (Area III MTH 1125)  Select a four (Students muphysics. Also CHM 1142 CHM L142 PHY 2252 PHY L252 PHY L262  PHY L262  Select remain	hour cost composee Arc (3) (1) (2) (3) (1) (3) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	Calculus I, in lieu of MTH 1110  Course/lab combination from the following: Solete an eight hour sequence in chemistry or ea V Requirements.) General Chemistry I General Chemistry I Lab General Physics I General Physics I Lab Physics I with Calculus Physics I with Calculus Lab  Crea III courses as shown in the General List catalog.
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CHM L142 CHM 1143 CHM 1143 CHM 3342 CHM 3342 CHM L342 CHM 3343 CHM L343  Select four as: CHM 2242 CHM 2242 CHM L242 CHM 3352 CHM L352  COMF  Specialized Area III BIO 1100 BIO L100 CHM 1142 CHM L142 MTH 1125  Area V IS 2241 PHY 2262 PHY L262	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (4) (5) (7) (7) (8) (1) (9) (1) (1) (1) (2) (3) (1) (4) (3) (4) (3) (1) (4)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II General Chemistry II General Chemistry II Organic Chemistry I Lab Organic Chemistry I Lab Organic Chemistry II Organic Chemistry II Organic Chemistry II Analytical Chemistry II Analytical Chemistry Lab Biochemistry Biochemistry Lab  NSIVE GENERAL SCIENCE PROGRAM (54 HOURS)  I Studies Requirements  Principles of Biology Principles of Biology Principles of Biology Lab General Chemistry I General Chemistry I Calculus I  Computer Concepts/Applications Physics I w/Calculus Physics I w/Calculus Lab	Specialized Carea III MTH 1125  Select a four (Students muphysics. Also CHM 1142 CHM L142 PHY 2252 PHY L252 PHY L262  Select remain Studies section Area V Required Select a four (Students muphysics. Also CHM 1143 CHM L143 CHM L143 PHY 2253 PHY L263  Required Control of the section of the se	(4) (6) (7) (8) (8) (9) (9) (9) (9) (9) (9) (9) (9) (9) (9	Calculus I, in lieu of MTH 1110  course/lab combination from the following: colete an eight hour sequence in chemistry or ea V Requirements.) General Chemistry I General Chemistry I Lab General Physics I General Physics I Lab Physics I with Calculus Physics I with Calculus Lab  cea III courses as shown in the General course as shown in the General course of Calculus II University Orientation  course/lab combination from the following: cat III.) General Chemistry II General Chemistry II Lab General Physics II General Physics II Lab Physics II with Calculus
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CHM L142 CHM 1143 CHM 1143 CHM 3342 CHM 3342 CHM L342 CHM 3343 CHM L343  Select four as: CHM 2242 CHM 2242 CHM L242 CHM 3352 CHM L352  COMF  Specialized Area III BIO 1100 BIO L100 CHM 1142 CHM L142 MTH 1125  Area V IS 2241 PHY 2262 PHY L262	(3) (1) (3) (1) (3) (1) (3) (1) (3) (1) (4) (5) (7) (7) (8) (1) (9) (1) (1) (1) (2) (3) (1) (4) (3) (4) (3) (1) (4)	General Chemistry I General Chemistry I Lab General Chemistry II General Chemistry II General Chemistry II General Chemistry II Organic Chemistry I Lab Organic Chemistry I Lab Organic Chemistry II Organic Chemistry II Organic Chemistry II Analytical Chemistry II Analytical Chemistry Lab Biochemistry Biochemistry Lab  NSIVE GENERAL SCIENCE PROGRAM (54 HOURS)  I Studies Requirements  Principles of Biology Principles of Biology Principles of Biology Lab General Chemistry I General Chemistry I Calculus I  Computer Concepts/Applications Physics I w/Calculus Physics I w/Calculus Lab	Specialized Carea III MTH 1125  Select a four (Students muphysics. Also CHM 1142 CHM L142 PHY 2252 PHY L252 PHY L252 PHY L262  Select remain Studies section Area V Requires Studies section (Students muphysics. Also CHM 1143 PHY 2253 PHY L253 PHY L263  Required Co. CS 2255 CS 3310	(4) (6) (7) (8) (8) (9) (9) (9) (9) (9) (9) (9) (9) (9) (9	Calculus I, in lieu of MTH 1110  course/lab combination from the following: colete an eight hour sequence in chemistry or ea V Requirements.) General Chemistry I General Chemistry I Lab General Physics I Lab Physics I with Calculus Physics I with Calculus Lab  cea III courses as shown in the General cis catalog.  cts Computer Science I Calculus II University Orientation  course/lab combination from the following: cea III.) General Chemistry II General Chemistry II General Chemistry II Lab General Physics II General Physics II Lab Physics II with Calculus

GG 2220	(2)	A 1 : CA1 :d	G .1	. C .1	C-11
CS 3329	(3)	Analysis of Algorithms	Select three		
CS 3332	(3)	Software Engineering I	CS 3320	(3)	Business Systems Programming
CS 3360	(3)	Concepts of Object-Oriented Programming I	CS 3332	(3)	Software Engineering I
CS 3365	(3)	Introduction to Computer Organization and	CS 3347	(3)	Advanced Programming II
		Architectures	CS 4449	(3)	Applied Networking
CS 3370	(3)	Nature of Programming Languages	CS 4451	(3)	Computer Security
CS 3372	(3)	Formal Languages and the Theory of	CS 4495	(3)	Special Topics in Computer Science
	` '	Computation	CS 4499````	(1-3)	Internship in Computer Science
CS 4420	(3)	Introduction to Database Systems	CS 4480	(3)	Study Abroad in Computer Science
CS 4445	(3)	Data Communication and Networking	CS 4410	(3)	Introduction to Machine Learning
CS 4448	(3)	Operating Systems			
STAT 2210	. ,	Introductory Statistics	COMP	UTER	SCIENCE A.S. DEGREE (60 HOURS)
MTH 2215	(3)	Applied Discrete Mathematics		Ass	sociate of Science Degree
	(-)		See the acade	emic re	egulations section of this catalog for additional
Select two o	f the f	following:	information i	egardi	ing associate degrees.
CS 3320	(3)	Business Systems Programming	General Stud	lies Re	equirements — — — — — — — — — — — — — — — — — — —
CS 3325	(3)	Operations Research	Area I		
CS 3331	(3)	Fundamentals of Artificial Intelligence	ENG 1101	(3)	Composition and Modern English I
CS 3361	(3)	Concepts of Objected Oriented	ENG 1102	(3)	Composition and Modern English II
CD 3301	(3)	Programming II			
CS 4401	(3)	Advanced Artificial Intelligence	Area II		
CS 4443	(3)	Web Based Software Development	Select one of		
CS 4447	(3)	Systems Analysis and Design	ENG 2205	(3)	World Literature before 1660
CS 4451	(3)	Computer Security and Reliability	ENG 2206	(3)	World Literature after 1660
CS 4451 CS 4461		Software Engineering II	ENG 2211	(3)	American Literature before 1875
	(3)		ENG 2212	(3)	American Literature after 1875
CS 4462	(3)	Special Topics in Object-Oriented	ENG 2244	(3)	British Literature before 1785
CC 4405	(2)	Technology	ENG 2245	(3)	British Literature after 1785
CS 4495	(3)	Special Topics in Computer Science			
DC/MC Com		. Caiarra Annalamatad Damainamanta	Select one of		
		Science Accelerated Requirements:	ART 1133	(3)	Visual Arts
CS 6640	(3)	Advanced Database Concepts	THE 1130	(3)	Introduction to Theatre
CS 6668	(3)	Network Security	MUS 1131	(3)	Music Appreciation
CS 6672	(3)	Distributed Algorithms			
CS 6676	(3)	Advanced Computer Network	Area III		
CS 6634	(3)	Cloud Computing	MTH 1125	(4)	Calculus I
CS 4495	(3)	Special Topics in Computer Science			
<b>3</b> .7				course and corresponding lab:	
Note:			BIO 1100	(3)	Principles of Biology
1. Three (	3) of t	he above courses fulfill nine (9) hours of the lectives courses in the BS in Computer Science.	BIO L100	(1)	Principles of Biology Lab
upper-i	level e	lectives courses in the BS in Computer Science.	SCI 2233	(3)	Physical Science
2. These of	courses	s are restricted to students who have been	SCI L233	(1)	Physical Science Lab
at least	90 cre	edit hours and 18 hours of computer science	SCI 2234	(3)	Earth and Space Science
courses	s, and l	s are restricted to students who have been the BS/MS in Computer Science, have completed sold thours, and 18 hours of computer science have a GPA 3.0 or above. Students must also nents for the graduate program. The sent for admission into Accelerated BS/MS in the sent program is waived for Honors Students (PA of 3.4 or above.	SCI L234	(1)	Earth and Space Science Lab
meet re	equirer	nents for the graduate program.			
3. GRE re	quiren	nent for admission into Accelerated BS/MS in	Area IV		
who ha	ive a G	PA of 3.4 or above	Select one of	the fo	llowing:
WHO HE	.,, .	111013.10140000.			Western Civilization I
CC	MPII	TER SCIENCE, APPLIED MAJOR	HIS 1102	(3)	Western Civilization II
	)1 <b>/11</b> C	(36 HOURS)	HIS 1111	(3)	U.S. to 1877
Specialized	Gene	ral Studies Requirements	HIS 1112	(3)	U.S. since 1877
Area III	Gene	an Studies Requirements	HIS 1122	(3)	World History to 1500
MTH 2201	(3)	Calculus NS Its Applications	HIS 1123	(3)	World History from 1500
Select addit	ional .	Area III requirements as shown in the General		( )	,
Studies secti	ion of i	this catalog.	Area V		
			IS 2241	(3)	Computer Concepts and Applications
Area V Req			TROY 1101	(1)	University Orientation
IS 2241	(3)	Computer Concepts and Applications	1101	(1)	Oniversity Orientation
MTH 2215	(3)	Applied Discrete Mathematics	Additional m		
TROY 1101	(1)	University Orientation	Additional re		Computer Science I
14 · D			CS 2250 CS 2255	(3)	
Major Requ				(3)	Computer Science II
CS 2250	(3)	Computer Science I	CS 3310	(3)	Foundations of Computer Science
CS 2255	(3)	Computer Science II	CS 3323	(3)	Data Structures
CS 2265	(3)	Advanced Programming I	CS 3329	(3)	Analysis of Algorithms
CS 3330	(3)	Data Structures and Algorithms	CS 3332	(3)	Software Engineering I
CS 4420	(3)	Introduction to Database Systems	CS 3365	(3)	Introduction to Computer
CS 4443	(3)	Web-Based Software Development	MTH 2215	(2)	Organization and Architectures
CS 4445	(3)	Data Communications and Networking	MTH 2215	(3)	Applied Discrete Mathematics
CS 4447	(3)	Systems Analysis and Design	Calcat O La	uc af f	and alantinas
CS 4448	(3)	Operating Systems	Select 9 hour	rs of fr	ree 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	I	V
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CJ 2221	(3)	Survey of Law Enforcement
CJ 2231	(3)	Survey of Corrections

# Area V

CJ 3375

CJ 2241	(3)	Survey of Law and Criminal
		Procedure

# Required Courses:

CJ 1101	(3)	Introduction to Criminal Justice
CJ 1110	(3)	Careers in Criminal Justice
CJ 3345	(3)	Criminology
CI 3352	(3)	Constitutional Law

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

Research Methods

#### BS/MSCJ Accelerated Honors Requirements:

(3)

*CJ 6610	(3)	Principles of Administration in Criminal
		Justice
*CJ 6620	(3)	Current Trends in Criminal Law
*CJ 6622	(3)	Seminar in the Administration of Criminal
	` /	Justice

Select an additional 3 hours of upper level (3000-4000) criminal justice courses, as approved by your academic advisor.

\*Students who major in Criminal Justice with Homeland Security Concentration must add Homeland Security as a Minor to be eligible for BS/MSCJ Accelerated Honors Option consideration. \*Students who major in Criminal Justice with Digital Forensics Concentration must add Digital Forensics as a Minor to be eligible for BA/MSCJ Accelerated Honors Option consideration.

# **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 PROGRAM

	01221	22001111110011111				
Area III	(4)					
MTH 1125	(4)	Calculus I				
Select ONE sequ	Select ONE sequence with labs:					
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				
OR						
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				

Area V		
TROY 1101	(1)	Orientation
STAT 2210	(3)	Introduction to Statistics
CS 2250	(3)	Computer Science I
Required Courses	(54 hours)	
CJ 4472	(3)	Cyber Crime
CJ 4473	(3)	Computer Forensics
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

	CYBER SECUI	RITY MINOR (18 HOURS)
CJ 4472	(3)	Cyber Crime
CJ 4473	(3)	Computer Forensics
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: (3)

	( )	$\mathcal{E}$
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

Digital Forensics I

#### **ELECTRONICS ENGINEERING TECHNOLOGY PROGRAM (54 HOURS**

# Area III

CJ 3380

MTH 1125	(4)	Calculus I
CHM 1142	(3)	General Chem

(3) General Chemistry I **CHM L142** General Chemistry I Lab (1)

#### Area V

TROY 1101	(1)	University Orientation
CS 2250	(3)	Computer Science I
GEM 1100	(2)	Computer-Aided Drafting I

# Requirements:

<sup>\*</sup>Registration for courses marked with an asterisk is restricted to students who have been admitted to BS/MS in Criminal Justice Accelerated Honors Option, have completed at least 90 credit hours, and 18 hours of criminal justice courses, and have a GPA of 3.4 or above. Students must also meet requirements for the graduate program.

(4)	Calculus II
(3)	Physics I w/Calculus
(1)	Physics I w/Calculus Lab
(3)	Physics II w/Calculus
(1)	Physics II w/Calculus Lab
(3)	Electronic Devices and Materials
(3)	Analog Circuits and Systems
(1)	Analog Circuits and Systems Lab
(3)	Digital Circuits and Systems
(1)	Digital Circuits and Systems Lab
(3)	Measurement and Instrumentation
(3)	Automation and Control
(1)	Automation and Control Lab
(3)	Fundamentals of Microcontrollers
(1)	Fundamentals of Microcontrollers Lab
(3)	Data Communication & Networking
(3)	Optical Electronics
(4)	LŜI/ VLSI Design
(4)	Electronic Testing with Lab
(3)	Electronic Engineering Technology
` '	Capstone
	(3) (1) (3) (1) (3) (3) (1) (3) (3) (1) (3) (4) (4)

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

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

#### Complete 12 hours from the following: BIO 4479 Environmental Assessment (3)

**BIO 1120** 

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)

DIO 4470	(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 L330	(1)	Principles of Physical Chen
CHM 3352	(3)	Biochemistry
CHM I 352	(1)	Riochemistry Lah

Biochemistry Lab CHM 4445 Instrumental Analysis (3) CHM L445 Instrumental Analysis Lab (1)

# **ENVIRONMENTAL SCIENCE PROGRAM (54-56 HOURS)** \*Special Topics in Biology (BIO 4476), Guided Independent Studies (BIO 4491/4492) and Guided Independent Research (BIO 4493, 4494) may only be taken for a maximum of 6 semester hours.

#### **Specialized General Studies Requirements** Area III

BIO 1100	(3)	Principles of Biology	
BIO L100	(1)	Principles of Biology Lab	
CHM 1142	(3)	General Chemistry I	
CHM L142	(1)	General Chemistry I Lab	
Select one of the following MTH courses:			

MTH 1114 (3) Pre-Calculus Trigonometry OR

MTH 1125 (4) Calculus I\*

## Area V Requirements:

(3)	Computer Concepts and Applications
(1)	University Orientation
(3)	Organismal Biology
(1)	Organismal Biology Lab
(3)	General Chemistry II
(1)	General Chemistry II Lab
the foll	lowing GEO or GEM courses:
(3)	Basic GIS
	(3) (1) (3) (1) (3) (1) (the folio

OR		
GEM 3390	(3)	Fundamentals of Geographical Information
Select one Pl	HÝ lect	ure and lab combination:
PHY 2252	(3)	General Physics I
PHY L252	(1)	General Physics I Lab
OR		
PHY 2262	(3)	Physics I with Calculus
PHY L262	(1)	Physics I with Calculus Lab
D		,

#### **Program Requirements:** DIO 1130

BIO 1120	(3)	Survey of Environmental Science
BIO L120	(1)	Survey of Environmental Science Lab
BIO 2220	(3)	Principles of Cell Biology
<b>BIO L220</b>	(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 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

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

# BS/MSEBS Accelerated Honors Requirements:

STAT 2210 (3) Introductory Statistics

*EBS 6601	(3)	Environmental and Biological Ethics
*EBS 6624	(3)	Public Health
*EBS 6691	(3)	Research Methodology and Experimental Design

Note: These three courses fulfill 9 hours of the upper-level electives courses in the BS in Environmental Science Program.

\*Registration for courses marked with an asterisk is restricted to students who have been admitted to the Environmental and Biological Sciences Accelerated Honors Option, have completed at least 90 credit hours and 18 hours of biology courses, and have a GPA of 3.4 or above. Students must also meet the requirements for the graduate program.

## FIRE SCIENCE AND EMERGENCY MANAGEMENT **MINOR (18 HOURS)**

		WII (OR (IO HOURS)
FS 3300	(3)	Introduction to Fire Science
FS 3305	(3)	Community Risk Reduction for Fire and
		Emergency Services
FS 3310	(3)	Fire and Emergency Services
		Administration
CJ 3305	(3)	Foundations of Emergency Management
Select 6 hor	urs from	the following courses:
FS 3315	(3)	Financial Management in Fire and
	. ,	Emergency Services
FS 3320	(3)	Arson Investigation
CI 3335	(3)	Security Operations

Security Operations CJ 3335

CJ 3345 (3) Criminology CJ 4440 (3) Terrorism

CJ 4470 (3) Criminal Justice Issues in Homeland Security

COM 4460 (3) Crisis Communication

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

Select one	of the	fall	awina
Select one	oi ine	ıvu	บพเทย

GDD 2210/HIS 2210 (3) History Through Games GDD 3310/HIS 3310 (3) History of Game Design

# Required Courses

GDD 3320	(3)	Game Development
GDD 4499	(3)	Game Design Capstone

Select three cou	urses 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:

Seiter one of		ono mis.
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.

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

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

# GENERAL EDUCATION A.S. DEGREE (60 HOURS)

# Associate of Science Degree

See the academic regulations section of this catalog for additional

Information regarding associate degrees.

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

#### **General Studies Requirements**

#### Area I

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

#### Area II

# Select one of the following:

AKT 1133	(3)	Visual Arts
THE 1130	(3)	Introduction to Theatre
MUS 1131	(3)	Music Appreciation

## Select one of the following:

cicci one of		
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
	ENG 2205 ENG 2206 ENG 2211 ENG 2212 ENG 2244	ENG 2206 (3) ENG 2211 (3) ENG 2212 (3) ENG 2244 (3)

# 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
SCLL234	(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)	IIS 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 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 SYSTEMS (GIS) MINOR (18 HOURS)

# **Required Courses: (9 Hours)**

Required Courses: (9 Hours)			
GIS 3301	(3)	Cartography and Geo-Visualization	
GIS 3390	(3)	Fundamentals of Geographical Information and Analysis	
GIS 3305	(3)	Spatial Information and Analysis	

#### Electives: (9 hours)

# Select one course from the following: (3 Hours)

Detect one co	se j.	one the jonowing. (5 from 5)
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 4401	(3)	Spatial Database Design and Management
GIS 4405	(3)	Spatial Modeling and Programming
GIS 3391	(3)	Application of Geospatial Information Sciences
GEM 4410	(3)	Introduction to Global Positions
CS 3310	(3)	Foundations of Computer Sciences

# **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 HIS 1102	(3) (3) <i>QR</i>	Western Civilization I, or placement Western Civilization II, or placement
HIS 1122	(3)	World History to 1500
HIS 1123	(3)	World History from 1500

# Area V Requirements

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

#### Requirements for the Major

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

Select one emphasis:

#### **American/Latin American History Emphasis:**

Select 15 hours of upper-level American/Latin American courses in addition to either HIS 3316 or 4406.

Select an additional nine hours of upper-level European/Asian/ African courses in addition to HIS 4451.

#### **European/Asian/African History Emphasis:**

Select 15 hours of upper-level European/Asian/African courses in addition to HIS 4451.

Select an additional 9 hours of upper-level American/Latin American courses in addition to either HIS 3316 or 4406.

# **HISTORY MAJOR (36 HOURS)**

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

Select one emphasis below:

# American/Latin American Emphasis: Specialized General Studies Requirements

#### Area IV

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

# Area V Requirements

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

# Requirements for the Major

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

Select 18 hours of approved upper-level American/Latin American courses.

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

# European/ Asian/ African Emphasis:

# **Specialized General Studies Requirements**

#### Area IV

Select a six hour sequence in western civilization or world history. Select six hours of additional Area IV courses as specified in the General Studies section of this catalog.

# Area V Requirements

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

# Requirements for the Major

	<b>,</b>	· • - · - · · · · · · · · · · · · · · ·	
HIS 3375	(3)	Research and Methodology	7
HIS 4490	(3)	Senior Seminar	

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

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

# **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 prerequisite for upper-level European/Asian/African history courses.

# **HOMELAND SECURITY MINOR (18 HOURS)**

		,		
<i>Select 18 hours from the following as approved by the adviser:</i>				
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 fo	or the mi			
CJ 3308		(3) Foundations of Intelligence		
Select 15 h	ours fron	n the following courses:		
CJ 3305	(3)	Foundations of Emergency Management		
CJ 3345	(3)	Criminology		
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		

# INTER-CULTURAL COMPETENCY MINOR (18 HOURS)

Cultural Anthropology

Required Core Courses: (9 hours)

(3)

ANT 3310

POL 2260 POL 4460	(3) (3)	World Politics Intercultural Relations
Select 9 hours fro	m the foll	lowing:
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

# **LEGAL STUDIES MINOR (18 HOURS)**

Required C	ourses (9	nours)
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
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

IS 2241	(3)	Computer Concepts and Applications
TROY 1101	(1)	University Orientation
BIO 1101	(3)	Organismal Biology
BIO L101	(1)	Organismal Biology Lab
CHM 1143	(3)	General Chemistry II
CHM L143	(1)	General Chemistry II Lab
Complete or		.anaa (mhusias saayanaa nat naayina

# 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	corresp	onding labs must be taken together.		
BIO 2220	(3)	Principles of Cell Biology		
BIO L220	(1)	Principles of Cell Biology Lab		
BIO 2229	(3)	General Ecology		
BIO L229	(1)	General Ecology Lab		
BIO 3320	(3)	Genetics		
BIO L320	(1)	Genetics Lab		
BIO 4484	(1)	Senior Seminar in Biological		
		& Environment Sciences		
CHM 3342	(3)	Organic Chemistry I		
CHM L342	(1)	Organic Chemistry I Lab		
CHM 3343	(3)	Organic Chemistry II		

Organic Chemistry II Lab CHM L343 (1) STAT 2210 (3) **Introductory Statistics** 

#### Trov University Courses:

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

Complete 12 additional semester hours of adviser-approved biology or marine biology (MB) courses.

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

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

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

#### 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 Ārea III

MTH 1125 Calculus I

#### Area V Requirements

TROY 1101 (1) University Orientation STAT 2210 (3) Introductory Statistics

MTH 2220 (3) Computer Programming for Mathematics

#### Requirements for the Major

MTH 1126 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 Real Analysis II (3)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 STATS 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)**

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

Select an additional three hours of math or STAT 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.

# STATISTICS MINOR (18 HOURS)

#### Requirements for Minor:

Introductory Statistics STAT 2210 (3)

Statistical Methods and Computations STAT 3350 (3)

STAT 4451 (3)Mathematical Statistics I

# Select 9 hours from the following:

STAT 3355 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

Experimental Design STAT 4467 (3)

STAT 4456 STAT 4464 Mathematics of Finance (3)(3)

Multivariate Analysis

#### 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 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 Leadership and Problem Solving (3)

MSL 3302 (3) Leadership and Ethics

MSL 3304 Military Advanced Leadership Lab 111-A (1)

MSL 3305 Military Advanced Leadership Lab 111-B (1)

MSL 4401 (3) Leadership and Management

MSL 4402 Officership (3)

MSL 4404 (1)Military Advanced Leadership Lab IV-A

MSL 4405 Military Advanced Leadership Lab IV-B (1) 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 Ethics and the Modern World (3)

PHI 2205 (3) Introduction to Logic

PHI 2210 (3) Critical Thinking

PHI 2280 (1-3)Travel Study in Philosophy

**REL 2210** Introduction to Biblical Studies (3)

PHI 2215 (3) General Topics in Philosophy

**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

Bioethics in Historical Context PHI/HIS 3365(3)

PHI 3380 Travel Study in Philosophy

PHI 4493-9	4 (3)	Guided Independent Study
PHI 4495	(3)	Selected Topics in Philosophy
PHI 4499	(1-3)	Internship in Philosophy
<b>REL 3380</b>	(3)	Travel Study in Religion
REL 4499	(1-3)	Internship in Religion
ANT 3340	(3)	Language in Culture and Society
ANT 3360	(3)	Magic, Witchcraft, and Religion
CLA 3311	(3)	Civilization of Greece
HIS 3302	(3)	History of Religion in the United States
HIS 3331	(3)	Western Thought since the 17th Century
HIS 4452	(3)	History of the Medieval Middle East
HIS 4453	(3)	History of the Modern Middle East
HIS 4463	(3)	Europe in the Age of Enlightenment

# **PHYSICS MAJOR (37 HOURS)**

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

# Area V

CS 2250 (3) Computer Science I MTH 1126 (4) Calculus II\*

Note: \*Students selecting a minor in Mathematics or a second major in Mathematics will meet the Calculus II requirement in the Mathematics Major/Minor rather than in Area V.

#### Required courses (20 hours)

PHY 2263	(3)	Physics II w/Calculus
PHY L263	(1)	Physics II w/Calculus Lab
PHY 3310	(3)	Modern Physics
PHY L310	(1)	Modern Physics Lab
PHY 3325	(3)	Thermodynamics
PHY 4420	(3)	Mechanics
PHY 4435	(3)	Electricity & Magnetism
PHY 4445	(3)	Ouantum 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)	Equations of Mathematical Physics
PHY 3359	(3)	Waves and Optics
PHY L359	(1)	Waves and Optics Lab
PHY 4438	(3)	Electromagnetic Fields
PHY 4440	(3)	Dynamics of Particles & Systems
PHY 4446	(3)	Quantum Mechanics II
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 4483-83	5 (1)	Seminar in Relativity
PHY 4495	(3)	Topics in Physics
PHY 4491-92	2 (3)	Guided Independent Research
PHY 4493-94	4 (3)	Guided Independent Study

# PHYSICS AND MATHEMATICS DOUBLE MAJOR

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

# **PHYSICS MINOR (18-19 HOURS)**

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

PHY L263	(1)	Physics II with Calculus Lab
PHY 3310	(3)	Modern Physics
PHY L310	(1)	Modern Physics Lab

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

# **POLITICAL SCIENCE MAJOR (36 HOURS)**

Area V Requ	iremen	nts
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
DOI 2220	(a)	D - 15/5 1 /P1

POL 3330 Political Theory

POL 3390 The Art of Political Science Research (3)

#### Select one of the following concentrations:

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

# Select six hours from the following:

Select SIX I	wurs jivi	n ine jouowing.
POL 3343	(3)	American Political Processes
POL 3355	(3)	Southern Politics
POL 3364	(3)	State and Local Politics
POL 3338	(3)	Women in Politics
POL 3339	(3)	African-American Politics
POL 4405	(3)	Political Behavior and Public Opinion
POL 4420	(3)	Constitutional Law
POL 4421	(3)	Introduction to Public Administration
POL 4422	(3)	Public Policy Making
POL 4424	(3)	Contemporary American Foreign Policy
POL 4432	(3)	Comparative Public Policy
POL 4451	(3)	Public Personnel Administration
POL 4453	(3)	Bureaucratic Politics
POL 4469	(3)	Religion in Politics
POL 4472	(3)	Administrative Law
Soloct an a	dditional	12 hours of unner-level (3000-4000) nolit

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

#### **International Politics Concentration:**

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

# Select six hours from the following:

POL 4405	(3)	Political Behavior and Public Opinion
POL 4415	(3)	International Conflict
POL 4424	(3)	Contemporary American Foreign Policy
POL 4432	(3)	Comparative Public Policy
POL 4445	(3)	Inter-American Relations
POL 4450	(3)	Latin American Politics
POL 4452	(3)	International Law
POL 4460	(3)	Intercultural Relations
DOT 4464	(2)	4 1 T 1: C C: .

POL 4464 (3) Arab-Israeli Conflict POL 4465 (3) Politics of the Developing World

POL 4466 Middle Eastern Politics (3)

POL 4467 (3) Asian Politics Russian Politics POL 4468

(3) POL 4470 (3) **European Politics** 

POL 4474 (3) Terrorism and Political Violence

POL 4476 Politics of Southeast Asia (3)

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

Accelerated Honors Requirements: \*IR 5551 (3) Survey of Internat (3) Survey of International Relations \*IR 6601 Research Method in International Relations

\*IR6620 (3) International Political Economy

Select an additional 3 hours of upper-level (3000-4000) political science courses, as approved by your academic advisor.

\*Registration for courses marked with an asterisk is restricted to students who have been admitted to **International Relations Concentration Accelerated Honors Option**, have completed at least 90 credit hours, and 18 hours of political science courses. Students must also meet requirements for the graduate program.

# **POLITICAL SCIENCE MINOR (18 HOURS)**

POL 3300 POL 3330 Foundations of Political Science Introduction to Political Theory

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

# **AMERICAN POLITICS MINOR (18 HOURS)**

#### Required Courses (9 hours)

POL 3340 (3) U. S. Government—Executive Branch U. S. Government—Legislative Branch U. S. Government—Judicial Branch POL 3341 (3)

POL 3342 (3)

#### Select three of the following courses (9 hours)

American Political Processes POL 3343 (3)

POL 3355 (3) Southern Politics

POL 3364 (3) State and Local Politics

**POL 3338** Women in Politics (3)

POL 3339 African-American Politics (3)

POL 4405 (3) Political Behavior and Public Opinion

POL 4420 (3) Constitutional Law

POL 4421 (3) Introduction to Public Administration

Public Policy Making POL 4422 (3)

POL 4424 Contemporary American Foreign Policy (3)

Comparative Public Policy POL 4432 (3)

POL 4451 (3) **Public Personnel Administration** 

POL 4453 (3) **Bureaucratic Politics** 

Religion in Politics POL 4469 (3)

POL 4472 (3)Administrative Law

# **INTERNATIONAL RELATIONS MINOR (18 HOURS)**

# Required course (9 hours)

POL 3351 (3) **International Relations** 

POL 4410 International Political Economy (3)

POL 4433 Comparative Government (3)

#### Select three hours from the following courses (9 hours)

POL 3300 (3) Foundations of Political Science

Political Behavior and Public Opinion POL 4405 (3)

POL 4415 (3) International Conflict

POL 4424 (3)Contemporary American Foreign Policy

**POL 4432** Comparative Public Policy (3)

POL 4445 Inter-American Relations (3)

POL 4450 (3) Latin American Politics

POL 4452 International Law (3)

POL 4460 (3)Intercultural Relations

POL 4464 (3) Arab-Israeli Conflict

POL 4465 Politics of the Developing World (3)

POL 4466 Middle Eastern Politics (3)

Asian Politics POL 4467 (3)

**POL 4468** Russian Politics (3)

POL 4470 **European Politics** (3)

POL 4474 Terrorism and Political Violence (3)

POL 4476 (3)Politics of Southeast Asia

# SCIENCE EDUCATION

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

#### SOCIAL SCIENCE EDUCATION

Students seeking Alabama teacher certification should 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. \*Education students will need to take coursework to include the following disciplines: Geography, Uisteen Political Science and Experiments History, Political Science, and Economics.

# **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.

NOTE: Social Science Education Majors must take HIS 1101 Western Civilization I and HIS 1102 Western Civilization II.

# Requirements for the Major

Research Methods in the Social Sciences SS 3375 (3)

SS 3376 (3) Statistics in the Social Sciences

GIS 3320 GIS in the Social Sciences (3)

SS 4498 (3) Social Science Theory

SS 4499 (3) Senior Seminar

Select one of the following concentrations:

#### **General Social Science Concentration:**

Select at least 21 hours of additional 3000/4000-level courses in at least three disciplines from anthropology, economics, geography, history, political science, psychology, sociology, criminal justice, or as approved by department chair. (Six hours may be used from ECO 2251, ECO 2252, GEO 2210, ANT 2200, POL 2241, or SOC 2275). \*Education students will need to take ECO 2251, POL 2241, and HIS 3375.

#### **Geography Concentration:**

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

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

#### Leadership Development Concentration:

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

#### 9 hours from the following: Select an additional

AS 3312 Air Force Leadership Studies I (3) AS 3313 (3) Air Force Leadership Studies II

COM 3345 Group Discussion and Leadership (3)

HIS 4415 (3) Contemporary America

LDR 3310 Leadership and Interpersonal Skills (3)

LDR 3320 (3)Great Leaders

MGT 3300 (3) Principles of Management

MSL 2202 (2) Leadership and Teamwork Leadership Lab MSL 2204 (1)

POL 4422 (3) **Public Policy Making** POL 3351 Foundations of International Relations (3)

Introduction to Public Administration POL 4421 (3)

Business and Industrial Psychology PSY 4410 (3) SOC 3301 (3) Collective Behavior and Social Movements

# SOCIAL SCIENCE MINOR: GENERAL SOCIAL **SCIENCE (18 HOURS)**

SS 4498 Social Science Theory (3)

Select an additional 15 hours from at least three of the following:

anthropology, criminal justice, economics, geography, history, political science, psychology, social science, or sociology. At least 12 hours must be 3000/4000 level.

# **SOCIOLOGY MAJOR (36 HOURS)**

#### Area IV Requirements

SOC 2275 Introduction to Sociology (3)

#### Area V Requirements

IS 2241 Computer Concepts and Applications (3)

TROY 1101 University Orientation (1)

Social Problems in Contemporary Society SOC 2280 (3)

#### Requirements for the Major

SOC 4420 Sociological Theory (3)

SS 3375 (3) Research Methods in the Social Sciences

SS 3376 (3) Statistics in the Social Sciences

SS 4499 (3) Senior Seminar

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

#### **SOCIOLOGY MINOR (18 HOURS)**

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

#### SURVEYING AND GEOMATICS SCIENCES PROGRAM (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 General Physics I (3)

PHY L252 General Physics I Laboratory (1)

PHY 2253 General Physics II (3)

PHY L253 (1) General Physics II Laboratory

OR

PHY 2262 Physics I with Calculus (3)

PHY L262 Physics I with Calculus Laboratory (1)

PHY 2263 (3)Physics II with Calculus

**PHY L263** (1) Physics II with Calculus Laboratory

# Area V Requirements

Computer Science I CS 2250 (3)

IS 2241 (3) Computer Concepts & Application

MTH 2230 (3) Applied Linear Algebra

STAT 2210 Introductory Statistics (3)

TROY 1101 University Orientation (1)

#### **Program Requirements**

GEM 1100 Computer-Aided Drafting I (2)

Computer-Aided Drafting II GEM 1101 (2)

**GEM 2220** (3) Basics of Surveying

Basics of Surveying Lab **GEM L220** (1)

GEM 3309 (3)Land Survey Principles

**GEM L309** (1) Land Survey Principles Lab

GEM 3310 Land Survey Practice (3)

**GEM L310** Land Survey Practice Lab (1)

GEM 3330 (3) Advanced Measurement Analysis **GEM L330** (1) Advanced Measurement Analysis Lab

**GEM 3366** Photogrammetry and Remote Sensing (3)

Introduction to Least Squares Adjustment GEM 3379 (3)

GIS 3390 (3)Fundamentals of Geographic Information and Analysis

GIS 3391 (3) Application of Geospatial Information Sciences

**GEM 4405** (3) Route & Construction Surveying

Route & Construction Surveying Lab **GEM L405** (1)

GEM 4407 (3) Land Development GEM L407 Land Development Lab (1)

**GEM 4408** (3) Geodesy & Geodetics

Hydrology **GEM 4409** (3)

**GEM L409** (1) Hydrology Lab

Introduction to Global Positions GEM 4410 (3)

**GEM 4490** Geomatics Capstone (1)

#### Select two hours below:

GEM 4499 <i>OR</i>	(2)	Geomatics/GIS Projects
GEM 3395	(1)	Cooperative Work Experience I and
GEM 4496	(1)	Cooperative Work Experience II

# SURVEYING AND GEOMATICS SCIENCES MINOR (20 HOURS)

Required Courses:				
GEM 1100	(2)	Computer-Aided Drafting		
GEM 2220	(3)	Basics of Surveying		
GEM 3309	(3)	Land Surveying Principles		
GIS 3390	(3)	Fundamentals of Geographic Information and Analysis		
GEM 4408	(3)	Geodesy and Geodetics		
GEM 4409	(3)	Hydrology		
GEM 4410	(3)	Introduction to Global Positions (GPS)		

# **UNMANNED AERIAL SYSTEMS (18 HOURS)**

Unmanned Aerial Required Courses:	Systems	Emphasis	(18 hrs.)

UAS 2200 UAS 2202 Unmanned Aerial Systems Overview (3)

(3) Principles of UAS Design

**UAS 2204** (3) Principles of UAS Sensors & Sensing Systems

**UAS 2206** (3) Human Factors In UAS Operations &

Accidents Legal & Ethical Considerations for **UAS 2208** (3) **UAS** Operations

Select 3 semester hours from the following: UAS 2210 (3) UAS Real World Applications UAS 2210 UAS 2212 UAS Piloting Familiarization (3)