

50 · COLLEGE OF ARTS AND SCIENCES

PHY 2253	(3)	General Physics II
PHY L253	(1)	General Physics II Lab
<i>or</i>		
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

hours chosen should be based on the student's future plans for employment, graduate school or professional school.

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 3340	(3)	Evolution
BIO 3382	(3)	Immunology
BIO L382	(1)	Immunology Lab
BIO 4414	(3)	Food Microbiology
BIO L414	(1)	Food Microbiology Lab
BIO 4416	(3)	Microbial Ecology
BIO L416	(1)	Microbial Ecology Lab
BIO 4430	(3)	Applied Genetics
BIO L430	(1)	Applied Genetics Lab
BIO 4451	(3)	Toxicology
BIO L451	(1)	Toxicology Lab
BIO 4471	(3)	Parasitology
BIO L471	(1)	Parasitology Lab
BIO 4480	(3)	Histology
BIO L480	(1)	Histology Lab
BIO 4476	(1-3)	Special Topics in Biology
BIO 4488/4489/ 4490	(1-3)	Internship in the Biological or Environmental Science
BIO 4491/4492	(1-3)	Guided Independent Research
BIO 4494/4494	(1-3)	Guided Independent Study
CHM 3352	(3)	Biochemistry
CHM L352	(1)	Biochemistry Lab

Area V Requirements

IS 2241	(3)	Computer Concepts and Apps.
TROY 1101	(1)	University Orientation
BIO 1101	(3)	Organismal Biology
BIO L101	(1)	Organismal Biology Lab
CHM 1143	(3)	General Chemistry II
CHM L143	(1)	General Chemistry II Lab

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

PHY 2252	(3)	General Physics I
PHY L252	(1)	General Physics I Lab
PHY 2253	(3)	General Physics II
PHY L253	(1)	General Physics II Lab

or

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

BIO 2220	(3)	Principles of Cell Biology
BIO L220	(1)	Principles of Cell Biology Lab
BIO 2229	(3)	General Ecology
BIO L229	(1)	General Ecology Lab
BIO 3320	(3)	Genetics
BIO L320	(1)	Genetics Lab
CHM 3342	(3)	Organic Chemistry I
CHM L342	(1)	Organic Chemistry I Lab
CHM 3343	(3)	Organic Chemistry II
CHM L343	(1)	Organic Chemistry II Lab
MTH 2210	(3)	Applied Statistics

Food Safety Concentration:

BIO 3372	(3)	Microbiology
BIO L372	(1)	Microbiology Lab
BIO 4414	(3)	Food Microbiology
BIO L414	(1)	Food Microbiology Lab
BIO 4451	(3)	Toxicology
BIO L451	(1)	Toxicology Lab
BIO 4418	(3)	Food Laws and Regulations
CHM 3352	(3)	Biochemistry
CHM L352	(1)	Biochemistry Lab
MGT 4466	(3)	

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

Biomedical Sciences Concentration:

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

Complete 16 hours from the courses listed below. One upper level botany, ecology/environmental or zoology course with its corresponding lab may be used towards this requirement. The 16

General Biology Concentration:

Complete one botany course with its corresponding lab:

BIO 3325	(3)	Plant Form and Function
BIO L325	(1)	Plant Form and Function Lab
BIO 3326	(3)	Plant Diversity
BIO L326	(1)	Plant Diversity Lab
BIO 4402	(4)	Spring Flora
BIO 4425	(4)	Field Botany

Complete one zoology course with its corresponding lab:

BIO 3307	(3)	Invertebrate Zoology
BIO L307	(1)	Invertebrate Zoology Lab
BIO 3308	(3)	Vertebrate Zoology
BIO L308	(1)	Vertebrate Zoology Lab
BIO 4405	(3)	Entomology
BIO L405	(1)	Entomology Lab
BIO 4410	(3)	Animal Behavior
BIO L410	(1)	Animal Behavior Lab

Select one series:

PHY 2252	(3)	General Physics I
PHY L252	(1)	General Physics I Lab
PHY 2253	(3)	General Physics II
PHY L253	(1)	General Physics II Lab
<i>or</i>		
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

BIO 3320	(3)	Genetics
BIO L320	(1)	Genetics Lab
CHM 3342	(3)	Organic Chemistry I
CHM L342	(1)	Organic Chemistry I Lab
MTH 2210	(3)	Applied Statistics
PHY 3310	(3)	Modern Physics
PHY L310	(1)	Modern Physics Lab
SCI 3335	(3)	Physical Geology
SCI L335	(1)	Physical Geology Lab
SCI 3336	(3)	Principles of Astronomy

*Select one of the following concentrations:*Biology Concentration:

BIO 2229	(3)	General Ecology
BIO L229	(1)	General Ecology Lab
BIO 3347	(3)	Anatomy & Physiology I
BIO L347	(1)	Anatomy & Physiology I Lab
BIO 3348	(3)	Anatomy & Physiology II
BIO L348	(1)	Anatomy & Physiology II Lab
BIO 3372	(3)	Microbiology
BIO L372	(1)	Microbiology Lab

Select one

56 · COLLEGE OF ARTS AND SCIENCES

CS 4420	(3)	Introduction to Database Systems
CS 4445	(3)	Data Communication and Networking
CS 4448	(3)	Operating Systems
MTH 2210	(3)	Applied Statistics
MTH 2215	(3)	Applied Discrete Mathematics

Select two of the following:

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

Area III

Select 10 hours of free electives.

Criminal justice majors are encouraged to take two semesters of Spanish or another foreign language as part of their general studies requirements.

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

Select A or B below:

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

or

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

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

CJ 1101	(3)	Introduction to Criminal Justice
---------	-----	----------------------------------

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

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

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

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

CS 3380	(3)	Cyber Security
-or-		
CS 4451	(3)	Computer Security

Students may not receive academic credit for both CS 3375 and CS 4445, or CS 3380 and CS 4451.

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

SCI 3335	(3)	Physical Geology
SCI L335	(1)	Physical Geology Lab
SCI 3336	(3)	Astronomy
SCI 3340	(3)	Marine Science
SCI L340	(1)	Marine Science Lab
SCI 3350	(3)	Weather and Climate
SCI L350	(1)	Weather and Science Lab
SCI 4403	(3)	Conservation

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

Complete 12 hours from the following:

BIO 4451	(3)	Toxicology
BIO L451	(1)	Toxicology Lab
BIO 4452	(3)	Industrial Hygiene
BIO L452	(1)	Industrial Hygiene Lab
BIO 4479	(3)	Environmental Assessment
BIO L479	(1)	Environmental Assessment Lab
BIO 4420	(4)	Field Vertebrate Zoology (combined lecture and lab)
BIO 4425	(4)	Field Botany or BIO 4402 (combined lecture and lab)
BIO 4476	(1-4)	Special Topics (combined lecture and lab)
BIO 4491	(1-4)	Guided Independent Research (combined lecture and lab)
CHM 3350	(3)	Principles of Physical Chemistry
CHM L350	(1)	Principles of Physical Chemistry Lab
CHM 3352	(3)	Biochemistry
CHM L352	(1)	Biochemistry Lab
CHM 4445	(3)	Instrumental Analysis
CHM L445	(1)	Instrumental Analysis Lab

PHI 2204 (3) Ethics and the Modern World

62 · COLLEGE OF ARTS AND SCIENCES

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

BIO L101	(1)	Organismal Biology Lab
CHM 1143	(3)	General Chemistry II
CHM L143	(1)	General Chemistry II Lab

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

PHY 2252	(3)	General Physics I
PHY L252	(1)	General Physics I Lab
PHY 2253	(3)	General Physics II
PHY L253	(1)	General Physics II Lab
<i>or</i>		
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

Lectures and corresponding labs must be taken together.

BIO 2220	(3)	Principles of Cell Biology
BIO L220	(1)	Principles of Cell Biology Lab
BIO 2229	(3)	General Ecology
BIO L229	(1)	General Ecology Lab
BIO 3320	(3)	Genetics
BIO L320	(1)	Genetics Lab
CHM 3342	(3)	Organic Chemistry I
CHM L342	(1)	Organic Chemistry I Lab
CHM 3343	(3)	Organic Chemistry II
CHM L343	(1)	Organic Chemistry II Lab
MTH 2210	(3)	Applied Statistics

Troy University Courses:

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

Complete 12 additional semester hours of adviser-approved biology courses.

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.

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.

8 HOURS)

MSL 3301 (3) Leadership and Problem Solving

POL 4471	(3)	Intergovernmental Relations
POL 4472	(3)	Administrative Law

Select an additional 15 hours of upper-level political science courses, as approved by your academic adviser.

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

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

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.

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.

AREA IV

NOTE: Social Science majors with concentrations in anthropology, geography, or sociology should take Area IV electives appropriate for their concentration.

SS 3375	(3)	Introduction to Social Scientific Inquiry
SS 3376	(3)	Application of Social Scientific Inquiry
SS 4498	(3)	Social Science Theory
SS 4499	(3)	Senior Seminar

Select one of the five following concentrations:

Anthropology Concentration:

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

SS 4499 (3) Senior Seminar
 Select an additional 24 hours of approved upper-level sociology courses.

- GEM L220 (1) Basics of Surveying Lab
- GEM 3309 (3) Land Parcel Admin & Law
- GEM L309 (1) Land Parcel Admin & Law Lab
- GEM 3310 (3) Land Surveying Practice
- GEM L310 (1) Boundary Retracement Seminar
- GEM 3330 (3) Advanced Measurement Analysis
- GEM L330 (1) Advanced Measurement Analysis Lab

- GEM 3366 (3) Photogrammetry and Remote Sensing
- GEM L366 (1) Photogrammetry and Remote Sensing Lab
- GEM 3370 (3) Geodesy & Geodetics
- GEM L370 (1) Geodesy & Geodetics Lab
- GEM 3379 (3) Introduction to Least Squares Adjustment
- GEM L379 (1) Introduction to Least Squares Adjustment Lab
- GEM 3390 (3) Introduction to GIS
- GEM L390 (1) Introduction to GIS Lab
- GEM 3391 (3) Applications of GIS
- GEM L391 (1) Applications of GIS Lab
- GEM 4405 (3) Route & Construction Surveying
- GEM L405 (1) Route & Construction Surveying Lab
- GEM 4407 (3) Land Development
- GEM L407 (1) Land Development Lab
- GEM 4409 (3) Hydrology
- GEM L409 (1) Hydrology Lab
- GEM 4410 (3) Introduction to Global Positions
- GEM L410 (1) Introduction to Global Positions Lab
- GEM 4490 (1) Geomatics Capstone

Select two hours below:

- GEM 4499 (2) Geomatics/GIS Projects
- or
- GEM 3395 (1) Cooperative Work Experience I and
- GEM 4496 (1) Cooperative Work Experience II

