

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

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|----------|-----|---------------------------|
| 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

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|-----------|-----|-----------------------------|
| 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 |

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

Biomedical Sciences Concentration:

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| 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

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|--------------------|-------|---|
| 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 |

Food Safety Concentration:

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|----------|-----|---------------------------|
| 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) | |

General Biology Concentration:

Complete one botany course with its corresponding lab:

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| 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:

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|----------|-----|--------------------------|
| 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 |

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| 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:

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| 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

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| 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:

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| 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.

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|---------|-----|---|
| 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:

| | | |
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| 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 |

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| CJ 1101 | (3) | Introduction to Criminal Justice |
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Select 15 additional hours of upper-level criminal justice courses as approved by the adviser.

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| 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:

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|---------|-----|-----------------------------------|
| 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 |

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| 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.

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| 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 |

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| 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:

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| 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

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

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| 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.

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| 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:

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| 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

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|----------|-----|-----------------------------|
| 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.

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| 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.

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|---------|-----|---|
| 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:

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| 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.

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|-------------------------|-----|--|
| 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 |

