

**DEPARTMENT OF BIOLOGY**  
**SCHOOL OF MATHEMATICS, SCIENCE, AND HEALTH SCIENCES**

**Dr. Larry Green, Interim Department Head**

Ms. Claudia Glass

Mr. Don Glass

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Dr. Sue Katz

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Dr. Adele Register

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**MISSION STATEMENT AND PURPOSES**

The mission of the Department of Biology at Rogers State University is to support students in their pursuit of knowledge in biology and life science. Our purposes are:

1. To increase the student's critical thinking and reasoning abilities.
2. To increase the student's understanding and appreciation of the biological world, and the ability to apply this understanding in his/her personal and professional life.
3. To increase the student's awareness of the benefits of incorporation of technology into science studies.
4. To increase the student's ability to interpret and understand his/her world.
5. To prepare a student to matriculate into a four-year degree program in math or science related fields or graduate.
6. To serve as a resource for the community, utilizing the expertise of the faculty.

**PROGRAMS OF STUDY**

**Bachelor of Science**

Biology

Option: Environmental Conservation

Option: Medical/Molecular Biology

**Minor**

Biology

**Associate in Science**

Biological Science

## BACHELOR OF SCIENCE

### BIOLOGY

#### OPTION: ENVIRONMENTAL CONSERVATION (112E)

Under the Bachelor of Science in Biology, there are two emphases: the Medical/Molecular emphasis and the Environmental Conservation emphasis. The four-year program seeks to develop a biologist well founded in either area of emphasis. The student integrates mathematical and physical science concepts into biology. The student uses the scientific method as well as evaluates other's use of this method of inquiry. He/she writes and presents scientific papers and reports. The degree is augmented with individual research and internships for successful postgraduate and professional careers.

REQUIRED HOURS ..... 121

**Communications** ..... 9

- ENGL 1113 Composition I
- ENGL 1213 Composition II
- SPCH 1113 Speech Communication

**Social and Behavioral Sciences** ..... 9

- History ..... 3
- Select from the following:*
- HIST 2483 American History to 1877
- HIST 2493 American History since 1877

- POLS 1113 American Federal Government ..... 3

Social Science ..... 3

- Select from the following:*
- ECON 2113 Principles of Macroeconomics
- ECON 2123 Principles of Microeconomics
- PSY 1113 Introduction to Psychology
- SOC 1113 Introduction to Sociology

**Science and Mathematics** ..... 12

Physical Science ..... 5

- Select from the following:*
- \* **CHEM 1315 General Chemistry I**
- GEOL 1014 Earth Science
- GEOL 1114 Physical Geology
- GEOL 1124 Physical Geography
- GEOL 1224 Historical Geology
- GEOL 2124 Astronomy
- PHYS 1014 General Physical Science
- PHYS 1114 General Physics I

Biological Science ..... 4

- Select from the following:*
- BIOL 1114 General Biology
- BIOL 1134 General Environmental Biology
- \* **BIOL 1144 General Cellular Biology**

Mathematics ..... 3

- Select from the following:*
- MATH 1503 Mathematics for Critical Thinking
- \* **MATH 1513 College Algebra**
- MATH 1613 Trigonometry
- MATH 1715 Pre-Calculus
- MATH 2264 Analytical Geometry & Calculus I

**Humanities** ..... 6

- Select from the following:*
- ART (HUM)1113 Art Appreciation
- COMM (HUM)2413 Theatre Appreciation
- ENGL 2613 Introduction to Literature
- HUM 2113 Humanities I
- HUM 2223 Humanities II
- HUM 2893 Cinema
- MUSC (HUM) 2573 Music Appreciation
- PHIL 1113 Introduction to Philosophy

**Global Studies** ..... 3

- Select from the following:*
- BIOL 3104 Plants and Civilization
- ECON 3003 International Economic Issues and Policies
- GEOG 2243 Human Geography
- HIST 2013 World Civilization I
- HIST 2023 World Civilization II
- HUM 3633 Comparative Religion
- LANG 1113 Foundations of World Languages
- NAMS 1143 Native Americans of North America
- NAMS 2503 Cherokee I
- PHIL 1313 Values and Ethics
- POLS 3053 International Relations
- SOC 3213 Minority Groups
- SPAN 1113 Beginning Spanish I

**Elective** ..... 3

*Select three hours from courses not selected above.*

**\* Required**

**Program Requirements . . . . . 16**

- BIOL 2104 General Botany
- BIOL 2205 General Zoology
- BIOL 3024 Genetics
- BIOL 4602 Biology Research Methods I
- BIOL 4801 Biology Research Methods II

**Environmental Conservation Emphasis . . . . . 23**

- BIOL 3004 Field Botany
- BIOL 3014 Ecology of Mammals
- BIOL 3034 General Ecology
- BIOL 3513 Environmental Conservation
- BIOL 4014 Ornithology
- BIOL 4524 Field Zoology

**Environmental Conservation**

**Required Support Courses . . . . . 14**

- CHEM 1415 General Chemistry II
- CHEM 3125 Organic Chemistry I
- PHYS 1114 General Physics I

**Guided Selected Electives . . . . . 13**

Guided Electives (BIOL, CHEM, GEOL, MATH, PHYS)  
(Minimum 6 hours of 3000–4000 upper-division courses)

**Selected Electives . . . . . 13**

**Total Credit Hours . . . . . 121**

## BACHELOR OF SCIENCE

### BIOLOGY

#### OPTION: MEDICAL/MOLECULAR (112M)

Under the Bachelor of Science in Biology, there are two emphases: the Medical/Molecular emphasis and the Environmental Conservation emphasis. The four-year program seeks to develop a biologist well founded in either area of emphasis. The student integrates mathematical and physical science concepts into biology. The student uses the scientific method as well as evaluates other's use of this method of inquiry. He/she writes and presents scientific papers and reports. The degree is augmented with individual research and internships for successful postgraduate and professional careers.

REQUIRED HOURS ..... 121

**Communications** ..... 9

- ENGL 1113 Composition I
- ENGL 1213 Composition II
- SPCH 1113 Speech Communication

**Social and Behavioral Sciences** ..... 9

History ..... 3

*Select from the following:*

- HIST 2483 American History to 1877
- HIST 2493 American History since 1877

POLS 1113 American Federal Government ..... 3

Social Science ..... 3

*Select from the following:*

- ECON 2113 Principles of Macroeconomics
- ECON 2123 Principles of Microeconomics
- PSY 1113 Introduction to Psychology  
(Psychology required for pre-med.)
- SOC 1113 Introduction to Sociology

**Science and Mathematics** ..... 12

Physical Science ..... 5

*Select from the following:*

- \* **CHEM 1315 General Chemistry I**
- GEOL 1014 Earth Science
- GEOL 1114 Physical Geology
- GEOL 1124 Physical Geography
- GEOL 1224 Historical Geology
- GEOL 2124 Astronomy
- PHYS 1014 General Physical Science
- PHYS 1114 General Physics I

Biological Science ..... 4

*Select from the following:*

- BIOL 1114 General Biology
- BIOL 1134 General Environmental Biology
- \* **BIOL 1144 General Cellular Biology**

Mathematics ..... 3

*Select from the following:*

- MATH 1503 Mathematics for Critical Thinking
- \* **MATH 1513 College Algebra**
- MATH 1613 Trigonometry
- MATH 1715 Pre-Calculus
- MATH 2264 Analytical Geometry & Calculus I

**Humanities** ..... 6

*Select from the following:*

- ART (HUM)1113 Art Appreciation
- COMM (HUM)2413 Theatre Appreciation
- ENGL 2613 Introduction to Literature
- HUM 2113 Humanities I
- HUM 2223 Humanities II
- HUM 2893 Cinema
- MUSC (HUM) 2573 Music Appreciation
- PHIL 1113 Introduction to Philosophy

**Global Studies** ..... 3

*Select from the following:*

- BIOL 3104 Plants and Civilization
- ECON 3003 International Economic Issues and Policies
- GEOG 2243 Human Geography
- HIST 2013 World Civilization I
- HIST 2023 World Civilization II
- HUM 3633 Comparative Religion
- LANG 1113 Foundations of World Languages
- NAMS 1143 Native Americans of North America
- NAMS 2503 Cherokee I
- PHIL 1313 Values and Ethics
- POLS 3053 International Relations
- SOC 3213 Minority Groups
- SPAN 1113 Beginning Spanish I

**Elective** ..... 3

*Select three hours of courses not selected above.*

\* **Required**

<b>Program Core Requirements</b> .....	<b>16</b>	<b>Medical/Molecular Guided</b> .....	<b>8</b>
BIOL    2104    General Botany		<b>Selected Electives</b>	
BIOL    2205    General Zoology		BIOL 3000/4000 Upper-division biology courses.	
BIOL    3024    Genetics		<b>Selected Electives</b> .....	<b>12</b>
BIOL    4602    Biology Research Methods I		<b>Total Credit Hours</b> .....	<b>121</b>
BIOL    4801    Biology Research Methods II			
<b>Medical/Molecular Emphasis</b> .....	<b>16</b>		
BIOL    3204    Physiology			
BIOL    3504    Molecular Biology			
BIOL    3525    Biology of Microorganisms			
BIOL    4153    Molecular Genetics			
<b>Medical/Molecular Required</b> .....	<b>27</b>		
<b>Support Courses</b>			
CHEM    1415    General Chemistry II			
CHEM    3125    Organic Chemistry I			
CHEM    3225    Organic Chemistry II			
CHEM    3404    Biochemistry			
PHYS    1114    General Physics I			
PHYS    1214    General Physics II			

A minor requires completion of at least 18-24 designated credit hours of course work outside the student's major field, including a minimum of 9 upper-division credit hours, and may have a required core. The same courses may not be used to fulfill the requirements for both a major and a minor.

**MINOR IN BIOLOGY (003B)**

**Requirements** ..... **12-14**

BIOL 1144 General Cellular Biology

*and two of the following three courses:*

BIOL 2104 General Botany

BIOL 2205 General Zoology

BIOL 2124 Microbiology

or

BIOL 3525 Biology of Microorganisms

**Electives** ..... **9**

Nine upper-division hours in Biology

Recommendation for Physical Science requirement in General Education:

CHEM 1315 Chemistry I

**Total Credit Hours** ..... **21-23**

*Not open to students choosing Bachelor of Science in Biology degree.*

The same courses may not be used to fulfill the requirements for both a major and a minor.

## ASSOCIATE IN SCIENCE BIOLOGICAL SCIENCE (003)

The Associate in Science in Biological Science consists of the general education curriculum and the supporting science courses. In support of the mission of the University, the school, and the department, the degree seeks to develop a student with a broad and diverse background in science and general education.

REQUIRED HOURS ..... 64

**Communications** ..... 9  
 ENGL 1113 Composition I  
 ENGL 1213 Composition II  
 SPCH 1113 Speech Communication

**Social and Behavioral Sciences** ..... 9  
 History ..... 3  
*Select from the following:*  
 HIST 2483 American History to 1877  
 HIST 2493 American History since 1877

POLS 1113 American Federal Government ..... 3  
 Social Science ..... 3  
*Select from the following:*  
 ECON 2113 Principles of Macroeconomics  
 ECON 2123 Principles of Microeconomics  
 PSY 1113 Introduction to Psychology  
 SOC 1113 Introduction to Sociology

**Science and Mathematics** ..... 12  
 Physical Science ..... 5  
*Select from the following:*  
 \* **CHEM 1315 General Chemistry I**  
 GEOL 1014 Earth Science  
 GEOL 1114 Physical Geology  
 GEOL 1124 Physical Geography  
 GEOL 1224 Historical Geology  
 GEOL 2124 Astronomy  
 PHYS 1014 General Physical Science  
 PHYS 1114 General Physics I

Biological Science ..... 4  
*Select from the following:*  
 BIOL 1114 General Biology  
 BIOL 1134 General Environmental Biology  
 \* **BIOL 1144 General Cellular Biology**

Mathematics ..... 3  
*Select from the following:*  
 MATH 1503 Mathematics for Critical Thinking  
 \* **MATH 1513 College Algebra or higher**  
 MATH 1613 Trigonometry  
 MATH 1715 Pre-Calculus  
 MATH 2264 Analytical Geometry and Calculus I

**Humanities** ..... 6  
*Select from the following:*  
 ART (HUM)1113 Art Appreciation  
 COMM (HUM)2413 Theatre Appreciation  
 ENGL 2613 Introduction to Literature  
 HUM 2113 Humanities I  
 HUM 2223 Humanities II  
 HUM 2893 Cinema  
 MUSC (HUM) 2573 Music Appreciation  
 PHIL 1113 Introduction to Philosophy

**Global Studies** ..... 3  
*Select from the following:*  
 BIOL 3104 Plants and Civilization  
 ECON 3003 International Economic Issues and Policies  
 GEOG 2243 Human Geography  
 HIST 2013 World Civilization I  
 HIST 2023 World Civilization II  
 HUM 3633 Comparative Religion  
 LANG 1113 Foundations of World Languages  
 NAMS 1143 Native Americans of North America  
 NAMS 2503 Cherokee I  
 PHIL 1313 Values and Ethics  
 POLS 3053 International Relations  
 SOC 3213 Minority Groups  
 SPAN 1113 Beginning Spanish I

**Elective** ..... 3  
*Select three hours from courses not selected above.*

**\* Required**

**Program Requirements** ..... 18  
 BIOL (Any course 2000 or higher)  
 BIOL 2104 General Botany  
 BIOL 2205 General Zoology  
 CHEM 1415 General Chemistry II

**Support and Related** ..... 4  
*Select from the following:*  
 BIOL (Any course 2000 or higher)  
 CHEM 3125 Organic Chemistry I  
 CHEM 3225 Organic Chemistry II  
 MATH 2843 Statistics  
 PHYS 1114 General Physics I  
 PHYS 1214 General Physics II

**Total Credit Hours** ..... 64