

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

Dr. Larry Green, Department Head

Ms. Claudia Glass
Mr. Don Glass
Dr. Sue Katz

Dr. Jae-Ho Kim
Dr. Adele Register

Dr. Patricia Seward
Dr. Craig Zimmermann

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 others' 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 additional hours from the courses listed above and not previously selected.

* **Required**

Program Requirements	16	Environmental Conservation	
BIOL 2104 General Botany		Required Support Courses	14
BIOL 2205 General Zoology		CHEM 1415 General Chemistry II	
BIOL 3024 Genetics		CHEM 3125 Organic Chemistry I	
BIOL 4602 Biology Research Methods I		PHYS 1114 General Physics I	
BIOL 4801 Biology Research Methods II			
Environmental Conservation Emphasis	23	Guided Selected Electives	13
BIOL 3004 Field Botany		Guided Electives (BIOL, CHEM, GEOL, MATH, PHYS)	
BIOL 3014 Ecology of Mammals		(Minimum 6 hours of 3000–4000 upper-division courses)	
BIOL 3034 General Ecology		Selected Electives	13
BIOL 3513 Environmental Conservation			
BIOL 4014 Ornithology		Total Credit Hours	121
BIOL 4524 Field Zoology			

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 others' 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 additional hours from the courses listed above and not previously selected.

* **Required**

Program Core Requirements	16	Medical/Molecular Guided	8
BIOL 2104 General Botany		Selected Electives	
BIOL 2205 General Zoology		BIOL 3000-4000 upper-division biology courses	
BIOL 3024 Genetics		Selected Electives	12
BIOL 4602 Biology Research Methods I		Total Credit Hours	121
BIOL 4801 Biology Research Methods II			
Medical/Molecular Emphasis	16		
BIOL 3204 Physiology			
BIOL 3504 Molecular Cell Biology			
BIOL 3525 Biology of Microorganisms			
BIOL 4153 Molecular Genetics			
Medical/Molecular Required	27		
Support Courses			
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 additional hours from the courses listed above and not previously selected.

*** 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