

# BIOLOGY, BA

Biology offers courses in the life sciences designed to teach students biological concepts and principles with emphasis on individual laboratory experiences. The curriculum provides a sound basis for professional training in ecology, biotechnology, biomedical science, medicine, teaching, and other career pathways. Biology majors with strong academic backgrounds are encouraged to apply to the Roosevelt Honors Program, the honors curriculum of the university.

See the Allied Health program listing for degree programs leading to clinical licensing for fields such as Diagnostic Medical Sonography, Histotechnology, Medical Technology, Nuclear Medicine Technology, Radiography, and Radiation Therapy Technology.

The BA in biology is an option for students who wish an in-depth humanistic education in biology while completing a subset of the science and mathematics courses required for the BS in Biology. The Biology BA allows students to fashion a customized undergraduate experience, for example, completing a double-major or minor. However, it may not meet all requirements for admission to graduate and professional training programs. Consult with a science advisor to determine which Biology degree best suits your interests.

## Standards

All courses applying to the biology major, including required supporting courses, must be passed with a C- or higher grade and a minimum cumulative GPA of 2.0.

## Requirements

Requirements for the BA degree include 30 credit hours of acceptable credits in biology and at least one 300-level laboratory course beyond BIOL 301 CELLULAR & MOLECULAR BIOLOGY. Students must also complete three courses covering interdisciplinary topics within the sciences or between the sciences and other disciplines. Students must take at least one class in each of the following six competencies: Applying the Process of Science, Quantitative Reasoning, Modeling and Simulation, Interdisciplinary, Communication and Collaboration, and Science and Society. These competencies can be fulfilled by either biology electives or the three outside electives identified in the course list below. Courses may cover up to two competencies.

- Students must complete the final 30 credit hours of their degree at Roosevelt University; off-site allied health courses do not count towards this requirement.
- At least 20 credit hours in acceptable biology, chemistry, or physics courses must be successfully completed at Roosevelt University; no more than 15 credit hours of acceptable biology courses may be taken completed elsewhere and applied to the BA biology degree.
- Following enrollment, completion of all remaining biology, chemistry, physics and mathematics course requirements for Biology degrees must be accomplished at Roosevelt University. Under special circumstances, written permission to take required courses elsewhere may be granted by Biology advisors.
- Biology courses must have been taken within the last eight years to be accepted for graduation.
- No more than six credit hours total of independent study (BIOL 395 INDEPENDENT STUDY), (BIOL 392 RESEARCH IN BIOLOGY), and internships (BIOL 391 MEDICAL INTERNSHIP, or BIOL 396 BIOLOGY INTERNSHIP) in biology may be used to fulfill the requirements of the major.

- Technical and/or clinical courses are not acceptable for transfer credit.
- AP biology credit with a score of 3.0 or higher may apply toward the major in biology or the general education requirements after consultation with an advisor.
- AP chemistry credit with a score of 4 or higher satisfies the requirements for CHEM 201 with lab.
- At least one biology course with a laboratory above BIOL 301 CELLULAR & MOLECULAR BIOLOGY (not including independent research).
- A grade of C- is the minimal acceptable grade for a course to be applied to the major and the supporting sequence or acceptable as a prerequisite for subsequent courses.
- A minimum GPA of 2.0 is required for all courses in the major.

Code	Title	Credit Hours
<b>Courses Required for the Biology BA</b>		
BIOL 201	ORGANISMIC BIOLOGY (with lab)	5
BIOL 202	ECOLOGY, EVOLUTION, AND GENETICS (with lab)	5
BIOL 301	CELLULAR & MOLECULAR BIOLOGY (with lab)	5
CHEM 201	GENERAL CHEMISTRY I (with lab)	5
CHEM 202	GENERAL CHEMISTRY II (with lab)	5
CHEM 211	ORGANIC CHEMISTRY I	5
MATH 121	COLLEGE ALGEBRA	3
MATH 217	ELEMENTARY STATISTICS	3
<b>Biology Electives</b>		
	Select additional biology electives to bring total to a minimum of 30 semester hours. These courses in combination with the major electives must cover all six core competency areas. Courses may cover up to two competency areas. <sup>1</sup>	15
<b>Area 1 Applying the Process of Science</b>		
Select at least one course from this list. Course offerings will vary by semester.		
BIOL 123	ANATOMY & PHYSIOLOGY I	
BIOL 124	ANATOMY & PHYSIOLOGY II	
BIOL 242	ANIMAL BEHAVIOR	
BIOL 314	QUANTITATIVE ECOLOGY AND CONSERVATION	
BIOL 339	EVOLUTIONARY PHYSIOLOGY (Lab)	
BIOL 351	GENERAL GENETICS (Lecture)	
BIOL 360	MICROBIOLOGY (Lab)	
BIOL 367	IMMUNOLOGY (Lab)	
BIOL 369	CONSERVATION BIOLOGY: AFRICA	
<b>Area 2: Quantitative Reasoning</b>		
Select at least one course from this list. Course offerings will vary by semester.		
BCHM 344	BIOINORGANIC CHEMISTRY	
BCHM 356	EXPERIMENTAL METHODS IN BIOCHEMISTRY & BIOTECHNOLOGY	
BCHM 357	ADVANCED BIOCHEMISTRY	
BIOL 314	QUANTITATIVE ECOLOGY AND CONSERVATION	
BIOL 315	ECOLOGY (Lab)	

BIOL 318	BIOSTATISTICS
BIOL 324	MARINE BIOLOGY
BIOL 351	GENERAL GENETICS (Lecture)
BIOL 381	BIOLOGY OF BIRDS: ORNITHOLOGY

**Area 3: Modeling and Simulation**

Select at least one course from this list. Course offerings will vary by semester.

BIOL 242	ANIMAL BEHAVIOR
BCHM 355	BIOCHEMISTRY
BIOL 325	VIROLOGY
BIOL 363	GENOMICS & APPLIED BIOINFO

**Area 4: Interdisciplinary**

Select at least one course from this list. Course offerings will vary by semester.

BCHM 344	BIOINORGANIC CHEMISTRY
BCHM 355	BIOCHEMISTRY
BCHM 356	EXPERIMENTAL METHODS IN BIOCHEMISTRY & BIOTECHNOLOGY
BCHM 357	ADVANCED BIOCHEMISTRY
BIOL 315	ECOLOGY (Lecture)
BIOL 337	NUTRITION IN AMERICA
BIOL 350	CANCER BIOLOGY
BIOL 360	MICROBIOLOGY (Lecture)
BIOL 381	BIOLOGY OF BIRDS: ORNITHOLOGY

**Area 5: Communication and Collaboration**

Select at least one course from this list. Course offerings will vary by semester.

BIOL 123	ANATOMY & PHYSIOLOGY I
BIOL 124	ANATOMY & PHYSIOLOGY II
BIOL 339	EVOLUTIONARY PHYSIOLOGY
BIOL 351	GENERAL GENETICS (Lab)
BIOL 360	MICROBIOLOGY (Lecture)
BIOL 367	IMMUNOLOGY (Lecture)

**Area 6: Science and Society**

Select at least one course from this list. Course offerings will vary by semester.

BCHM 322	FERMENTATION SCIENCE
BIOL 315	ECOLOGY (Lecture)
BIOL 324	MARINE BIOLOGY
BIOL 337	NUTRITION IN AMERICA
BIOL 350	CANCER BIOLOGY
BIOL 367	IMMUNOLOGY (Lecture)
BIOL 369	CONSERVATION BIOLOGY: AFRICA

Any of the following courses can be taken as general electives to reach the required 30 credit hours in the Biology major

BIOL 221	KINESIOLOGY
BIOL 304	HISTOLOGY & ULTRASTRUCTURE
BIOL 332	ECOLOGY OF TALLGRASS PRAIRIE
BIOL 336	INTRODUCTION TO NEUROSCIENCE
BIOL 383	SPECIAL TOPICS IN BIOLOGY
BIOL 391	MEDICAL INTERNSHIP
BIOL 392	RESEARCH IN BIOLOGY

BIOL 395	INDEPENDENT STUDY
<b>Major Electives outside of BIOL (take 3) <sup>1, 2</sup></b>	
<b>9-15</b>	

**Area 3: Modeling and Simulation**

MATH 307	DIFFERENTIAL EQUATION/MODELING
CST 310	GAME THEORY AND APPLICATIONS

**Area 4: Interdisciplinary**

CHEM 212	ORGANIC CHEMISTRY II
MATH 231	CALCULUS I
MATH 232	CALCULUS II
PHYS 201	PHYSICS I
PHYS 202	PHYSICS II

**Area 6: Science and Society**

HIST 301	HISTORY OF PUBLIC HEALTH
HIST 348	SOCIAL & CULTURAL HISTORY OF MEDICINE 1500-PRESENT
MATH 316	HISTORY OF MATHEMATICS
PHIL 230	ETHICS
PHIL 330	PHILOSOPHY OF NATURE
PHIL 331	PHILOSOPHY OF TECHNOLOGY
POS 250C	PUBLIC HEALTH ISSUES & IDEAS
PSYC 285	RESEARCH METHODS
PSYC 325	SENSATION AND PERCEPTION
PSYC 350	HUMAN NEUROPSYCHOLOGY
SUST 220	WATER
SUST 230	FOOD
SUST 310	ENERGY AND CLIMATE CHANGE
SUST 330	BIODIVERSITY
SUST 360	WRITING URBAN NATURE
SUST 361	URBAN ECOLOGY

**General Education, University Writing Requirement, and Electives**

Courses to total 120	60-54
<b>Total Credit Hours</b>	<b>120</b>

<sup>1</sup> Must be selected in consultation with an advisor.

<sup>2</sup> Student must take three total courses from these electives but these courses can be from any of the listed competencies. The six competencies can be fulfilled by either biology electives or the three outside electives identified in the course list.

**CORE Requirements (General Education)**

Code	Title	Credit Hours
<b>First Year Success Course or Transfer Success Course</b>		
FYS 101	FIRST YEAR SUCCESS COURSE	1
or TRS 101	TRANSFER SUCCESS 101	
<b>Communication Requirement</b>		
ENG 101	COMPOSITION I: CRITICAL READING & WRITING	3
ENG 102	COMPOSITION II: INTRODUCTION TO ACADEMIC RESEARCH	3
COMM 101	PUBLIC SPEAKING (or program specific CORE communications course)	3

**Ideas of Social Justice**

3 credits in coursework categorized as Ideas.	3
<b>Humanities and Fine and Performing Arts</b> <sup>2, 3</sup>	
9 credits from the following subject areas: African-American Studies, Art History, English (excluding ENG 101 and ENG 102), History, Languages, Music, Philosophy, Theatre, Communication and Women's and Gender Studies	9
<b>Mathematics</b>	
MATH 110 QUANTITATIVE LITERACY (or above) <sup>1</sup>	3
<b>Science</b>	
One biological science and one physical science required (one must include a one credit lab).	7-8
<b>Social Sciences</b> <sup>2,3, 4</sup>	
9 credits from the following subject areas: African-American Studies, Criminal Justice, Economics, History, Journalism, Philosophy, Political Science, Psychology, Sociology and Women's and Gender Studies	9
<b>Experiential Learning</b>	
6 credits from coursework categorized as Experiential Learning.	6
<b>Total Credit Hours</b>	<b>47-48</b>

<sup>1</sup> Higher level of Math may be required by major

<sup>2</sup> Coursework must come from outside of students' major discipline

<sup>3</sup> A maximum of 9 credits can be applied from a single discipline towards humanities and social science requirements

<sup>4</sup> Digital Advertising and Public Relations Majors must complete COMM 110 with a grade of C or higher. This course can fulfill one Social Science requirement.

These quantitative requirements also apply to degrees.

- Students must earn a minimum of 120 semester hours.
- Students may apply no more than 60 credit hours of 100-level courses toward the degree.
- Students must apply no fewer than 60 credit hours of 200- and 300-level courses toward the degree.
- Students must have at least 18 credit hours (of the 60 credit hours above) at the 300 level.
- Students may transfer in no more than 70 credit hours from community colleges.
- Students earning less than 60 total hours in residence must take their final 30 hours at Roosevelt University. Note that some majors have additional requirements for RU hours.
- Students must have a grade point average of 2.0 or higher to graduate. Note that some majors have additional GPA requirements.
- Students may apply no more than 51 hours in the major (BA) or 57 hours in the major (BS)

Your degree map is a general guide suggesting courses to complete each term on the academic pathway to your degree. It is based on the most current scheduling information from your academic program. Your program's degree map is reviewed annually and updated as schedules change (although you retain the same course requirements as long as you are continuously enrolled in your degree program).

Always work closely with your academic advisor to understand curriculum requirements and scheduling, as each student's academic plan can look slightly different.

Year 1			
Fall	Credit Hours	Spring	Credit Hours
FYS 101	1	BIOL 202	5
ENG 101	3	Ideas of Social Justice	3
MATH 121	3	ENG 102	3
CHEM 201	5	CHEM 202	5
Humanities #1	3		
		<b>15</b>	<b>16</b>

Year 2			
Fall	Credit Hours	Spring	Credit Hours
BIOL 201	5	BIOL 301 (Experiential Learning #1) <sup>3</sup>	5
MATH 217	3	Social Science #2	3
CHEM 210 or 211	5	Humanities #2	3
Social Science #1	3	Major Elective outside of BIOL #1	3
		<b>16</b>	<b>14</b>

Year 3			
Fall	Credit Hours	Spring	Credit Hours
BIOL 3XX with Lab <sup>2</sup>	5	Biology Elective	3
Major Elective outside of BIOL #2	3	Major Elective outside of BIOL #3	3
Humanities #3	3	Social Science #3	3
COMM 101	3	General Elective <sup>1</sup>	3
		General Elective <sup>1</sup>	3
		<b>14</b>	<b>15</b>

Year 4			
Fall	Credit Hours	Spring	Credit Hours
Biology Elective	3	Experiential Learning #2 <sup>3</sup>	3
Biology Elective	3	Biology Elective	3
General Elective <sup>1</sup>	3	General Elective <sup>1</sup>	3
General Elective <sup>1</sup>	3	General Elective <sup>1</sup>	3
General Elective <sup>1</sup>	3	General Elective <sup>1</sup>	3
		<b>15</b>	<b>15</b>

**Total Credit Hours 120**

<sup>1</sup> Or course towards an optional Minor.

<sup>2</sup> Any course at the 300 level within the discipline above BIOL 301.

<sup>3</sup> Experiential Learning class must be 200/300 level. Satisfies CORE Experiential Learning requirement. EXL courses can satisfy major requirements/electives or CORE requirement.