

BIOLOGY, BS

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.

Students who plan to teach biology in secondary school may qualify for Roosevelt University's recommendation to the Illinois State Board of Education for teacher certification. This program provides biology majors with the flexibility to teach mathematics and general science as well as biology in grades 6-12.

All students considering the BS in Biology should consult an advisor in the Department of Biological, Physical and Health Sciences.

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

- Students must complete the final 30 credit hours of their degree at Roosevelt University.
- A total of 35 credit hours of acceptable biology courses are required for the BS Biology degree. Students must take at least one class in each of the following six competency areas: Applying the Process of Science, Quantitative Reasoning, Modeling and Simulation, Interdisciplinary, Communication and Collaboration, and Science and Society. Courses that fulfill these competencies can be found in the course list below. Each qualifying course may cover up to two competency areas.
- At least 20 credit hours in acceptable biology, chemistry, and physics courses must be taken at Roosevelt University; not more than 15 credit hours of acceptable biology courses may be completed elsewhere and applied to the BS 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 advisors.
- Courses in biology must have been taken within the past eight years to be accepted for prerequisites and 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, BIOL 393 VETERINARY 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 with a score of 4 or 5 satisfies the requirements for CHEM 201 with lab.
- For AP physics credit, consult an advisor.
- At least one biology course with a laboratory above BIOL 301 CELLULAR & MOLECULAR BIOLOGY (not including independent research) must be passed with a grade of C- or better.
- A grade of C- is the minimal acceptable grade for a course to be applied to the major and the supporting sequence, or to be acceptable as a prerequisite for subsequent courses.
- A minimum cumulative GPA of 2.0 is required for all course in the major.

Code	Title	Credit Hours
Courses Required for the Biology BS		
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 (with lab)	5
CHEM 212	ORGANIC CHEMISTRY II (with lab)	5
MATH 121	COLLEGE ALGEBRA	3
MATH 122	TRIGONOMETRY AND PRECALCULUS	3
MATH 217	ELEMENTARY STATISTICS	3
MATH 231	CALCULUS I	5
MATH 232	CALCULUS II	3-5
or BIOL 318	BIOSTATISTICS	
PHYS 201	PHYSICS I (with lab)	5
PHYS 202	PHYSICS II (with lab)	5
ELECTIVES ¹		20

Select additional biology electives to bring total biology credits to a minimum of 35 credit hours. These courses must cover all six core competency areas. Courses may cover up to two competency areas. ¹

Area 1: Applying the Process of Science

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
BIOL 351	GENERAL GENETICS (Lecture)
BIOL 360	MICROBIOLOGY (Lab)
BIOL 367	IMMUNOLOGY (Lab)
BIOL 369	CONSERVATION BIOLOGY: AFRICA

Area 2: Quantitative Reasoning

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
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
BIOL 322	BOTANY
BIOL 323	TROPICAL MARINE BIOLOGY
BIOL 324	MARINE BIOLOGY
BIOL 337	NUTRITION IN AMERICA
BIOL 350	CANCER BIOLOGY
BIOL 369	CONSERVATION BIOLOGY: AFRICA
BIOL 367	IMMUNOLOGY (Lecture)

General Electives

Any of the following courses can be taken as general electives to reach the required 35 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

General Education, University Writing Requirement, and Electives

Courses to total 120	38
Total Credit Hours	120-122

¹ Must be selected in consultation with an advisor; at least one 300-level laboratory course beyond BIOL 301 CELLULAR & MOLECULAR BIOLOGY

CORE Requirements (General Education)

Code	Title	Credit Hours
First Year Success Course or Transfer Success Course		
FYS 101 or TRS 101	FIRST YEAR SUCCESS COURSE TRANSFER SUCCESS 101	1
Communication Requirement		
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
Humanities and Fine and Performing Arts ^{2, 3}		
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
Mathematics		
MATH 110	QUANTITATIVE LITERACY (or above) ¹	3
Science		
One biological science and one physical science required (one must include a one credit lab).		7-8
Social Sciences ^{2, 3, 4}		
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
Experiential Learning		
6 credits from coursework categorized as Experiential Learning.		6
Total Credit Hours		47-48

¹ Higher level of Math may be required by major

² Coursework must come from outside of students' major discipline

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

⁴ 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 ENG 102	3
CHEM 201	5 CHEM 202	5
MATH 121	3 Ideas of Social Justice	3
Social Science #1	3	
	15	16

Year 2

Fall	Credit Hours Spring	Credit Hours
BIOL 201	5 BIOL 301 (Experiential Learning #1) ¹	5
CHEM 211	5 CHEM 212	5
MATH 122	3 MATH 217	3
COMM 101	3 Social Science #2	3
	16	16

Year 3

Fall	Credit Hours Spring	Credit Hours
BIOL 3XX with Lab ²	5 BIOL Elective	3
MATH 231	5 BIOL elective	3
Humanities #1	3 MATH 232 or BIOL 318	3-5
Humanities #2	3 Humanities #3	3
	Social Science #3	3
	16	15-17

Year 4

Fall	Credit Hours Spring	Credit Hours
BIOL Elective	3 BIOL Elective	3
BIOL Elective	3 BIOL Elective	3
BIOL Elective	3 PHYS 202	5
PHYS 201	5 Experiential Learning #2 ¹	3
	14	14

Total Credit Hours 122-124

¹ Experiential Learning class must be 200/300 level. Satisfies CORE Experiential Learning requirement. EXL courses can satisfy major requirements/electives or CORE requirement

² Any course at the 300 level within the discipline above BIOL 301.