

BIOLOGY, MS

The Master of Science in Biology prepares students for employment in a variety of professional settings and for further study toward doctoral degrees. It is a comprehensive biological science program in which students may focus their studies in Cellular & Molecular Biology, Physiology & Developmental Biology or Ecology, Evolution & Conservation Biology. The program is appropriate for students holding a bachelor's degree in biological science, or for bachelor's degree holders in other areas who have completed the prerequisite undergraduate courses.

Students in the program receive:

- Relevant coursework in a rigorous, yet flexible and broad-based curriculum.
- Research, internship, study abroad, community engagement and on-campus employment opportunities.
- Career development and preparation for doctoral programs, professional schools, and the scientific workforce.
- An academic environment that fosters collaboration among students.
- Personalized advising and mentoring from experienced faculty.

The program is course-based and includes a one-semester research experience. Students who are interested in additional experiential learning may pursue independent study or a master's thesis under the sponsorship of a department faculty member.

Admission

Applicants should consult the graduate admission resources (<https://www.roosevelt.edu/admission/graduate/>) on the Roosevelt University website for information on the application process. The graduate program director and department faculty members will evaluate each applicant's individual record of academic achievement, professional experience, and self-assessment. Weakness in one or more areas of preparation will not preclude a positive admission decision. Admissions decisions are at the discretion of the graduate program director and department chair.

APPLICATION MATERIALS

REQUIRED DOCUMENTS

- **Graduate application:** Application (<https://www.roosevelt.edu/admission/apply/>) to the College of Science, Health and Pharmacy at Roosevelt University.
- **Transcript(s):** Unofficial transcripts from all undergraduate and graduate institutions attended. International applicants must submit official transcripts, and all applicants must have official transcripts on file before starting graduate studies.
- **Proof of English language proficiency (for international students):** See the University English Language Proficiency requirement (<https://www.roosevelt.edu/admission/international/english-language-proficiency/>) for details. Applicants can receive an admissions decision if this requirement is not met, but may need to complete ELP coursework before they begin graduate studies.

OPTIONAL DOCUMENTS

- **Resume/Curriculum vita:** A detailed account of academic and extracurricular experiences. Include employment, teaching, leadership, and research experiences as appropriate.

- **Letter of intent:** A brief (one-page) personal statement which outlines personal and professional goals.
- **Letter of recommendation:** Referees may include professors, academic advisors, employment supervisors, or others familiar with the applicant's preparation for graduate study.
- **Official GRE, MCAT, PCAT or DAT score:** Official score in one of the graduate admissions tests that are no more than three years old.

PREREQUISITES

Applicants to the MS Biology program must hold a bachelor's degree with a minimum cumulative GPA of 2.75 (4.0 scale) and should have completed the minimum academic requirements described below for college credit.

- Mathematics - two courses, including at least one semester of calculus or statistics
- Chemistry - three courses, including two courses in general (inorganic) chemistry and one course in organic chemistry
- Physics - two courses, including coverage of classical mechanics, oscillations & waves, thermodynamics, electricity and magnetism
- Biology - three courses, including coverage of evolutionary biology & genetics, ecology, cellular & molecular biology, physiology and biochemistry

Students lacking prerequisite coursework may be admitted provisionally until outstanding courses have been completed satisfactorily (grade of B- or better). None of the prerequisite courses may be used toward fulfillment of the requirements for the master's degree.

CREDIT POLICIES

Graduate transfer credit (up to 9 credit hours) may be applied to the MS Biology degree within one semester of admission. *Credits from a previously earned degree are not transferable.* Exceptions to specific course requirements may be granted to students who have previously completed graduate coursework in a related area and who maintain good academic standing after one semester of study at Roosevelt. Roosevelt undergraduate students who enter the MS Biology program through the accelerated degree pathway (or "4+1") may apply up to 10 credit hours of eligible coursework to both the BA/BS Biology and the MS Biology degrees. All transfer credits and exceptions must be approved by the graduate program director or department chair.

Advising

New students must consult with the a graduate student advisor upon admission to the program. Each graduate student is required to meet with a faculty advisor at least once each semester to select appropriate courses for the following semester. Continuing students who have completed at least one semester of graduate study (or 6 credit hours) with a grade average of 3.0 or higher should consult with their advisors to discuss research, internship, independent study and other experiential learning opportunities.

Requirements

The Master of Science degree in Biology requires a minimum of 36 credit hours, at least 27 of which must be completed at Roosevelt University. Each student will develop an academic plan in consultation with a faculty advisor. Students may focus their studies in the areas of Cellular & Molecular Biology, Physiology & Developmental Biology, or Ecology,

Evolution & Conservation Biology. Students are not required to formally declare a concentration.

See the list below for recommended courses in each area of focus.

RESEARCH AND INDEPENDENT STUDY

All students must complete 3 credit hours of research training by enrolling in either Research in Biology under the sponsorship of a faculty member (BIOL 492 RESEARCH IN BIOLOGY) or in the regularly scheduled Research Methods course (BIOL 468 RESEARCH METHODS). It is recommended that BIOL 492 RESEARCH IN BIOLOGY be taken for 3 credit hours in a single semester, but it may be taken in increments to total 3 credit hours. Following the initial research experience, qualified students may pursue advanced study toward a master's thesis by enrolling in 3 to 6 additional credit hours of thesis work (BIOL 485 THESIS).

Independent study in literature research (BIOL 495 INDEPENDENT STUDY), off-campus internships (BIOL 491 BIOLOGY INTERNSHIP) and course by arrangement options are also available. These options are included in the total graduate credit hours but do not substitute for research requirements. No more than 10 total credit hours may result from independent study or research unless approved by the graduate program director or department chair.

SCHEDULED COURSES

The coursework for the degree may be chosen from the list below, from other scheduled courses (https://banner.roosevelt.edu/ssbprod/bwskzenr.P_CourseFinder/) in BIOL, CHEM or BCHM at the 400-level or through individualized registration as described above.

Code	Title	Credit Hours
Required Courses		
BIOL 492	RESEARCH IN BIOLOGY	
or BIOL 468	RESEARCH METHODS	
Cellular and Molecular Biology		
BCHM 422	FERMENTATION SCIENCE	
BCHM 455	BIOCHEMISTRY	
BCHM 456	EXP. MTHDS BIOCHEM & BIOTECH	
BCHM 457	ADVANCED BIOCHEMISTRY	
BCHM 493	BIOCHEMISTRY SEMINAR	
BIOL 451	GENERAL GENETICS	
BIOL 453	MOLECULAR BIOLOGY	
BIOL 458	CELL BIOLOGY	
BIOL 450	CANCER BIOLOGY	
BIOL 460	MICROBIOLOGY	
BIOL 425	VIROLOGY	
BIOL 463	INTRODUCTION TO GENOME ANALYSIS	
BIOL 467	IMMUNOLOGY	
BIOL 483	SPECIAL TOPICS IN BIOLOGY	
Ecology, Evolution and Conservation Biology		
BIOL 414	QUANTITATIVE ECOLOGY & CONSERVATION	
BIOL 418	BIOSTATISTICS	
BIOL 422	BOTANY	
BIOL 423	TROPICAL BIOLOGY	
BIOL 424	MARINE BIOLOGY	
BIOL 432	ECOLOGY OF TALLGRASS PRAIRIES	

BIOL 451	GENERAL GENETICS
BIOL 463	INTRODUCTION TO GENOME ANALYSIS
BIOL 469	CONSERVATION BIOLOGY: AFRICA
BIOL 481	BIOLOGY OF BIRDS: ORNITHOLOGY
BIOL 483	SPECIAL TOPICS IN BIOLOGY
Physiology and Development Biology	
BIOL 401	HUMAN CADAVER ANATOMY
BIOL 404	HISTOLOGY & ULTRASTRUCTURE
BIOL 430	PHYSIOLOGY: MECHANISMS AND DISORDERS
BIOL 437	NUTRITION IN AMERICA
BIOL 439	EVOLUTIONARY PHYSIOLOGY
BIOL 443	CLINICAL BIOETHICS AND MEDICAL LITERATURE
BIOL 453	MOLECULAR BIOLOGY
BIOL 456	DEVELOPMENTAL BIOLOGY
BIOL 458	CELL BIOLOGY
BIOL 467	IMMUNOLOGY
BIOL 471	BIOLOGY OF AGING
BIOL 483	SPECIAL TOPICS IN BIOLOGY
Total Credit Hours	

36

The degree map is a *general* guide to each term on the academic pathway to the MS Biology degree. It is based on the most current scheduling information and assumes full-time study (although part-time study is allowed in this program). This degree map is reviewed annually and updated as schedules change. Students retain the same course requirements as when they first enroll, as long as they are continuously enrolled in the program. No more than two grades of C (not C-) may be applied toward the 36 hours used for the degree. A graduate course can only be repeated once; no more than two courses can be repeated.

Please note: always work closely with your academic advisor to understand curriculum requirements and scheduling, as each student's academic plan will look different.

Year 1

Fall	Credit Hours	Spring	Credit Hours
BIOL 4XX with Lab		5 BIOL/BCHM 4XX	3
BIOL 468		3 BIOL 4XX	5
BIOL/BCHM 4XX		3 BIOL 4XX	3
	11		11

Year 2

Fall	Credit Hours
BIOL 468 or 492	3
BIOL/BCHM 4XX	3
BIOL 4XX	5
BIOL 4XX	3
	14

Total Credit Hours 36