

Biotechnology, BS (Online)

The Bachelor of Science in Biotechnology seeks to prepare graduates for entry-level positions in diverse occupations within the biotechnology industry. Building on a strong foundation of liberal arts and sciences, courses focus on state-of-the-art biotechnology principles and delivery. The curriculum promotes effective oral and written communications skills, critical thinking, and problem solving to promote professional competency in a variety of high-tech industries related to pharmaceutical manufacturing, vaccine production, medical device creation and fabrication, clinical drug and medical device trials, and governmental regulatory agency oversight.

Graduates of the biotechnology program pursue careers in bench research and development, regulatory affairs, sales and marketing, public relations, or communications at domestic and international biotechnology-related companies or governmental organizations.

Program Requirements

Complete all courses listed below unless otherwise indicated.

Universitywide Requirement

Minimum 120 total semester hours required

Minimum 2.000 GPA required

Students must earn a minimum of 60 Northeastern University semester hours in order to receive a bachelor's degree.

Note: Individual program requirements may exceed the above minima.

CPS Undergraduate Core Requirements

All College of Professional Studies undergraduate students are required to complete the CPS Undergraduate Core Requirements (<https://catalog.northeastern.edu/professional-studies/university-academics/general-education-requirements/>).

Foundation Courses

37 semester hours required

Code	Title	Hours
English		
ENG 1105 and ENG 1106	College Writing 1 and Lab for ENG 1105	4
ENG 1107 and ENG 1108	College Writing 2 and Lab for ENG 1107	4
ENG 3105 and ENG 3106	Writing for the Professions: Science and Engineering and Lab for ENG 3105	4
Mathematics		
MTH 2310	Statistics for the Behavioral and Social Sciences	3
Biology		
BIO 1100 and BIO 1101	Principles of Biology 1 and Lab for BIO 1100	4
BIO 1200 and BIO 1201	Principles of Biology 2 and Lab for BIO 1200	4
Chemistry		
CHM 1100 and CHM 1101	General Chemistry 1 and Lab for CHM 1100	4
CHM 1200 and CHM 1201	General Chemistry 2 and Lab for CHM 1200	4
Information Technology		
ITC 1000 or ITC 2016	Computer Applications End-User Data Analysis Tools	3
Philosophy		
PHL 2140	Ethical Issues in Science and Engineering	3

Major Required Courses

41 semester hours required

Code	Title	Hours
Biotechnology		
BTC 1300 and BTC 1301	Introduction to Biotechnology and Lab for BTC 1300	4
BTC 4300 and BTC 4301	Biotechnology and Pharmaceutical Processing and Lab for BTC 4300	4
BTC 4450	Quality Control and Validation Issues	3
Chemistry		
CHM 2110 and CHM 2111	Organic Chemistry 1 and Lab for CHM 2110	4
CHM 2200 and CHM 2201	Organic Chemistry 2 and Lab for CHM 2200	4
CHM 2300 and CHM 2301	Analytical Chemistry and Lab for CHM 2300	4
Biology		
BIO 2100 and BIO 2101	Microbiology and Lab for BIO 2100	4
BIO 2300	Cell Biology	3
BIO 2500 and BIO 2501	Genetics and Molecular Biology and Lab for BIO 2500	4
BIO 3100 and BIO 3101	Biochemistry and Lab for BIO 3100	4
Capstone		
BTC 4850	Biotechnology Senior Project	3

Concentration or Electives Option

Complete one of the following options to reach 120 semester hours.

- Biological Science (p. 2)
- Regulatory Affairs (p. 2)
- Electives Option (p. 3)

Biological Science Concentration

Note: Please consult with your advisor.

Complete a minimum of 18 semester hours and an additional 24 semester hours of electives to reach 120 semester hours.

Code	Title	Hours
Required Courses		
BTC 3210	Immunology	4
MTH 2100	Calculus 1	3
PHY 1200 and PHY 1201	Physics 1 and Lab for PHY 1200	4
Complete 7 semester hours of the following:		7
BIO 1050	Medical Terminology	
BIO 1600 and BIO 1601	Human Anatomy and Physiology 1 and Lab for BIO 1600	
BIO 1700 and BIO 1701	Human Anatomy and Physiology 2 and Lab for BIO 1700	
BIO 4215	Human Parasitology	
MTH 2105	Calculus 2	
PHY 2200 and PHY 2201	Physics 2 and Lab for PHY 2200	

Regulatory Affairs Concentration

Note: Please consult with your advisor.

Complete a minimum of 19 semester hours and an additional 23 semester hours of electives to reach 120 semester hours.

Code	Title	Hours
Required Courses		
BTC 3210	Immunology	4
RGA 1010	U.S. Regulatory Systems and Agencies	3
RGA 1050	Regulatory Policy Development	3
RGA 1080	Pharmaceutical Regulatory Affairs	3
RGA 3000	Introduction to Safety Science	3
RGA 3300	Strategic Planning and Project Management for Regulatory Affairs	3

Electives Option

Complete 15 semester hours from the following and an additional 27 general elective semester hours to reach 120 semester hours.

Code	Title	Hours
Complete 15 semester hours from the following:		15
Any course from the BIO, BTC, HSC, or PHY subject codes in the 1000-4999 course number range.		
MTH 2100	Calculus 1	
MTH 2105	Calculus 2	