Bachelor of Arts in BIOLOGY: Requirements

Rev: 2009-2010

To obtain a BA in Biology you must satisfy the Biology Major Requirements, the General University Requirements (GURs, http://catalog.njit.edu/undergraduate/frontmatter/generaluniv.php), and complete a minimum of 125 credits.

Biology Major Requirements

The requirements for a BA in Biology consist of 35 credits in Biological Sciences plus cognate courses in Chemistry and, Physics. All required courses listed below, including cognate courses, must be completed with a grade of C or better.

1. CORE COURSES

General Biology (120:101-102)	8 crs.
Foundations of Biology Lecture (120:201)	3 crs.
Foundations of Biology Laboratory (120:202)	1 cr.

2. MAJORS MUST COMPLETE ONE COURSE FROM EACH OF THE THREE CLUSTERS LISTED BELOW.

A. ECOLOGY AND EVOLUTION

All courses three credits

Evolution (120:222 or Biol 322)
Plant Ecology (120:270)
Ecology (120:280)
Ecology & Evolution of Disease (Biol 368)
Conservation Biology (Biol 375)
Animal Behavior (120:382)
Neural Basis of Behavior (Biol 383)

B. THE FUNCTIONAL ORGANISM

All courses four credits

Plant Kingdom (120:211)
Biology of Seed Plants (120:230)
Plant Physiology (120:330)
General Microbiology (120:335)
Mammalian Physiology (120:340)
Developmental Biology & Lab (120:342 & 343 or Biol 342)

C. MOLECULAR AND CELLULAR MECHANISMS

All courses three credits

Genetics (120:352)
Cell Biology (120:355)
Molecular Biology (120:356)
Biochemistry (120:360 OR Chem 473)

3. MAJORS ARE REQUIRED TO HAVE AT LEAST TWO ADDITIONAL LABORATORY COURSES CHOSEN FROM SECTION 2B ABOVE OR FROM THE LIST BELOW:

Laboratory Courses (4 cr.)

Biology of Invertebrates (120:227)
Comparative Vertebrate Anatomy (120:285)
Taxonomy of Vascular Plants (120:311)
Animal Parasites & Lab (120:325 & 326)
Microanatomy (120:358)
Mycology (120:413)
Plant Growth & Dev. (120:430)
Marine Biology (120:481)

Laboratory Courses (3 cr.)

Ecology of Birds (120:328)
Field Studies in Plant Ecology (120:371)
Field Ecology (120:380)
Field Studies in Animal Ecology (120:381)
Ecological Field Methods (Biol 475)
Tropical Field Biology (120:486) **2cr.**

4. THE COURSES LISTED BELOW MAY BE USED TO COMPLETE 35 CREDITS OF BIOLOGY COURSE WORK.

All courses three credits unless specified

Insects and Human Society (Biol 225)
Neurobiology (120:346)
Human Ecology (120:365)
Biological Ultrastructure (120:403)
Light & Elect Microscope (120:404)
Cell Physiology & Imaging (Biol 405)
Biological Invasions (120:422)
Immunology (120:443)
Endocrinology (120:445)
Cellular and Systems Neuroscience (Biol 447)
Cellular Biophysics (120:451) **4 crs.**
Molecular Biotechnology (120:452) **4 crs.**
Molecular Cell Biology (120:455)
Ecological Physiology (120:471)
Systems Ecology (120:487)
Problems in Biol. BIOL 491-492 (6crs. max.)

5. THE FOLLOWING COGNATE COURSES ALSO ARE REQUIRED:

- General Chemistry & Laboratory
  Chem 124, 125, 126 OR
  Chem 121, 122, 123, 124
- Organic Chemistry & Laboratory
  Chem 243, 244, 244A
- Physics & Laboratory
  Phys 111, 111A, 121, 121A OR
  Phys 105/105A, 106/106A, 121/121A

Chem 121, 122 and 123 are equivalent to Chem 125 and 126.
Phys 105, 106 and 121 are equivalent to Phys 111 and 121.
Placement testing determines the appropriate sequence of courses.

B.A. BIOLOGY: 125 Credits
Sample Curriculum

FIRST YEAR

First semester	Courses	Credits	Second semester	Courses	Credits
120:101	General Biology I	4	120:102	General Biology II	4
Chem 125	General Chemistry I	3	Chem 124	General Chem. Lab	1
Math 111	Calculus I	4	Chem 126	General Chemistry II	3
HUM 101	English I	3	Math 112	Calculus II (Optional)[1]	4
BNFO 135	Bioinformatics Prog. I	3	Hum 102	English II	3
Frsh Sem	Freshman Seminar	0	GUR Elective	Physical Education	1
		17			16

SECOND YEAR

First semester	Courses	Credits	Second semester	Courses	Credits
120:201/202	Foundations of Biology	4	Chem 244	Organic Chemistry II	3
Chem 243	Organic Chemistry I	3	Chem 244A	Organic Chemistry Lab	2
Phys 111	Physics I	3	Phys 121	Physics II	3
Phys 111A	Physics I Lab	1	Phys 121A	Physics II Lab	1
Math 105 or 333	Probability and Statistics	3	GUR Elective	English and Cultural Hist.	3
GUR Elective	Social Sciences	3	Biology Elective	Biology	3
		17	GUR Elective	Physical Education	1
					16

THIRD YEAR

First semester	Courses	Credits	Second semester	Courses	Credits
Elective	Technical Elective[2]	3	Elective	Technical Elective[2]	3
GUR Elective	Social Sciences	3	GUR Elective	HSS Upper Level	3
GUR Elective	Management	3	Biology Elective	Biology	3
Biology Elective	Biology	3	Biology Elective	Biology with lab	4
Biology Elective	Biology with lab	4	Elective	Free	3
		16			16

FOURTH YEAR

First semester	Courses	Credits	Second semester	Courses	Credits
GUR Elective	HSS Upper Level	3	GUR Elective	HSS Senior Seminar	3
Biology Elective	Biology with lab	3 or 4	Biology Elective	Biology	3
Elective	Free	3	Elective	Free	3
Elective	Free	3	Elective	Free	3
Elective	Free	3			12
		15 or 16			

Total Minimum Credits: 125

Biology Credits: 35 (Including General Biology I, II, and Foundations of Biology)

[1] Students who do not take Math 112 must take an additional technical elective.

[2] Technical Electives - Any course in biology chemistry, mathematics or physics beyond what is required for the major. Any course in architecture (except history), environmental science, computer science or engineering.