B.A. in Biology

(120 credit minimum)

First Year		
1st Semester		**Credits**
BIOL 200	Concepts in Biology	4
CHEM 125 or CHEM 121	General Chemistry I [1] or Fundamentals of Chemical Principles I	3
MATH 138	General Calculus I	3
ENGL 101	English Composition: Introduction to Academic Writing	3
CHEM 125A	General Chemistry Lab I	1
FYS SEM	First-Year Student Seminar	0
	Term Credits	**14**
2nd Semester		
BIOL 205	Foundations of Biology: Ecology and Evolution Lecture	3
BIOL 206	Foundations of Biology: Ecology and Evolution Lab	1
CHEM 126A	Gen Chemistry Lab II	1
CHEM 126 or CHEM 122	General Chemistry II [1] or Fundamentals of Chemical Principles II	3
ENGL 102	English Composition: Introduction to Writing for Research	3
MATH 105	Elementary Probability and Statistics	3
	Term Credits	**14**
Second Year		
1st Semester		
BIOL 201	Found of Biol: Cell & Molecula	3
BIOL 202	Found of Biol: Cell & Molecula	1
CHEM 243	Organic Chemistry I	3
BNFO 135 or CS 101	Programming for Bioinformatics or Computer Programming and Problem Solving	3
History and Humanities GER 200 level (https://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/)		3
Social Sciences GER (https://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/social-science-ger/)		3
	Term Credits	**16**
2nd Semester		
Biology Functional Laboratory Elective Cluster B		4
CHEM 244	Organic Chemistry II	3
CHEM 244A	Organic Chemistry I Laboratory	2
Free Elective [2]		3
History and Humanities GER 300+ level (https://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/)		3
	Term Credits	**15**
Third Year		
1st Semester		
Biology Laboratory Elective		4
Biology Cluster A or C Elective		3
PHYS 102	General Physics I	3
PHYS 102A	General Physics I Lab	1
History and Humanities GER 300+ level (https://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/)		3
Free Elective [2]		3
	Term Credits	**17**

2nd Semester		
Biology Laboratory Elective [3]		3
Biology Cluster A or C Elective		3
PHYS 103	General Physics II	3
PHYS 103A	General Physics II Lab	1
Technical Elective [4]		3
Biology Elective		3
	Term Credits	**16**
Fourth Year		
1st Semester		
Biology Elective		3
Biology Elective		3
Humanities and Social Science Senior Seminar GER (https://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/)		3
Technical Elective [4]		3
Free Elective [2]		3
	Term Credits	**15**
2nd Semester		
Technical Elective [4]		3
Biology Elective 400 level		3
Technical Elective [4]		4
Free Elective [2]		3
	Term Credits	**13**
	Total Credits	**120**

Biology Credits: 41

Biology Electives

One course must be taken from each cluster.

Concept Cluster Ecology and Evolution

Code	Title	Credits
BIOL 222	Evolution	3
or R216 222	Evolution	
R216 280	Ecology	3
R120 370	Plant Ecology	3
BIOL 382	Animal Behavior	3

Concept Cluster Molecular and Cellular

Code	Title	Credits
R120 355	Cell Biology	3
BIOL 352	Genetics	3
or R120 352	Genetics	
R120 356	Molecular Biology	3
CHEM 473	Biochemistry	3
or R120 360	Biochemistry	

Concept Cluster Functional Organism(4 cr)

Code	Title	Credits
R216 211	Plant Kingdom	4
R216 230	Biology Of Seed Plants	4
R216 330	Plant Physiology	4
R120 335	General Microbiology	4

R120 342 & R120 343	Developmental Biology and Developmental Biology Lab	4
BIOL 340	Mammalian Physiology	4
or R120 340	Mammalian Physiology	

Laboratory/ Field Experience (7 credits, At least one 4-credit lab)

Code	Title	Credits
Four Credit Laboratories		
R216 211	Plant Kingdom	4
R120 227	Biol Invertebrates	4
R216 230	Biology Of Seed Plants	4
R120 311	Flora of New Jersey	4
R120 313	Mycology	4
BIOL 421	Comparative Vertebrate Anatomy	4
R120 325 & R120 326	Animal Parasites and Parasitology Lab	4
R216 330	Plant Physiology	4
R120 335	General Microbiology	4
BIOL 340	Mammalian Physiology	4
or R120 340	Mammalian Physiology	
R120 342 & R120 343	Developmental Biology and Developmental Biology Lab	4
BIOL 347	Lab Approaches in Neuroscience	4
R120 404	Intro to Neuroanatomy	4
R120 405	Microanatomy of Cells	4
R216 430	Plant Growth & Development	4
BIOL 451	Cell Physiology and Imaging	4
R120 452	Molecular Biol Techniques	4
FRSC 307	Crime Scene Investigation &Lab	4
CHEM 475 & CHEM 473	Biochemistry Lab I and Biochemistry	5
FRSC 479	Forensic Biology & Lab	4
FRSC 480	Forensic Microscopy & Lab	4
Three Credit Laboratories		
BIOL 328	Ornithology - The Life of Birds	3
BIOL 475	Ecological Field Methods and Analysis	3
BIOL 484	Evolution of Animal Behavior Laboratory	3

Biology Electives

Code	Title	Credits
Any concept cluster or lab course or any of the following		
BIOL 222	Evolution	3
R216 280	Ecology	3
BIOL 315	Principles of Neurobiology	3
BIOL 320	Discovering Biological Research	3
BIOL 337	Collective Intel in Biol Syst	3
BIOL 338	Ecology of the Dining Hall	3
BIOL 342	Developmental Biology (Embryology)	3
R120 346	Neurobiology	3
BIOL 350	Immunology	3
BIOL 352	Genetics	3
R120 355	Cell Biology	3
R120 356	Molecular Biology	3

R120 360	Biochemistry	3
R216 365	Evolutions of Humans	3
BIOL 375	Conservation Biology	3
BIOL 383	Neural Basis of Behavior	3
BIOL 400	Biology in Science Fiction	3
R120 402	Biology of Cancer	3
R216 422	Biological Invasions	3
BIOL 423	Physiological Mechanisms	3
BIOL 424	Comparative Physiology	3
BIOL 440	Cell Biology of Disease: Cells gone Bad!	3
BIOL 441	Neurophysiology	3
BIOL 443	Biology of Addiction	3
BIOL 445	Endocrinology	3
or R120 445	Endocrinology	
BIOL 468	Disease Ecology & Evolution	3
BIOL 447	Systems Neurobiology	3
BIOL 448	Neuropathophysiology: Nervous System Gone Bad!	3
BIOL 453	Applied Genetics & Genomics	3
BIOL 462	Comparative Biomechanics	3
BIOL 491	Research and Independent Study	3
BIOL 492	Research and Independent Study	3
BIOL 495	Honors Seminar in Biology	3
BIOL 498	Special Topics in Biology	3
FRSC 498	Special Topics in Forensic Science	3
CHEM 473	Biochemistry	3
CHEM 474	Biochemistry II	3

See the **General Education Requirements** "Refer to the General Education Requirements for specific information for GER courses"

1 CHEM 121 and CHEM 122 require permission from academic advisor

2 Free Elective - Any course in any subject at any level (except ENGL 099, ENGL 100, MATH 107, MATH 108, MATH 110)

3 Laboratory Elective - 3 or 4-credit laboratory

4 Technical Elective - Any course in BIOL, BME, CHEM, CS, CPT, EVSC, FRSC, IE, IT, IS, OM, PHYS, MATH (except 107, 108, 110), MIS, MIT. One technical elective must be four credits (PHYS 202 and 202A, PHYS 203 and 203A, FRSC 307, FRSC 359. Consult advisor for additional options.