

# Cell Biology Concentration

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## First Year

1st Semester		Credits
BIOL 200	Concepts in Biology	4
CHEM 125 or CHEM 121	General Chemistry I <sup>1</sup> or Fundamentals of Chemical Principles I	3
CHEM 125A	General Chemistry Lab I	1
MATH 138	General Calculus I	3
ENGL 101	English Composition: Introduction to Academic Writing	3
FYS SEM	First-Year Student Seminar	0
<b>Term Credits</b>		<b>14</b>

## 2nd Semester

BIOL 201	Found of Biol: Cell & Molecula	3
BIOL 202	Found of Biol: Cell & Molecula	1
CHEM 126 or CHEM 122	General Chemistry II <sup>1</sup> or Fundamentals of Chemical Principles II	3
CHEM 126A	Gen Chemistry Lab II	1
ENGL 102	English Composition: Introduction to Writing for Research	3
MATH 105	Elementary Probability and Statistics	3
<b>Term Credits</b>		<b>14</b>

## Second Year

### 1st Semester

BIOL 205	Foundations of Biology: Ecology and Evolution Lecture	3
BIOL 206	Foundations of Biology: Ecology and Evolution Lab	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 ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/</a> )		3
Social Sciences GER ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/social-science-ger/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/social-science-ger/</a> )		3
<b>Term Credits</b>		<b>16</b>

### 2nd Semester

BIOL 222	Evolution	3
CHEM 244	Organic Chemistry II	3
CHEM 244A	Organic Chemistry I Laboratory	2
History and Humanities GER 300+ level ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/</a> )		3
BIOL 340 or R120 340	Mammalian Physiology or Mammalian Physiology	4
<b>Term Credits</b>		<b>15</b>

## Third Year

### 1st Semester

R120 356	Molecular Biology	3
PHYS 102	General Physics I	3
Cell Biology Laboratory Elective		4
PHYS 102A	General Physics I Lab	1
History and Humanities GER 300+ level ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/</a> )		3
Free Elective <sup>2</sup>		3
<b>Term Credits</b>		<b>17</b>

**2nd Semester**

R120 355	Cell Biology	3
PHYS 103	General Physics II	3
PHYS 103A	General Physics II Lab	1
Cell Biology Elective		3
Technical Elective <sup>3</sup>		3
Cell Biology Elective 400-level		3
<b>Term Credits</b>		<b>16</b>

**Fourth Year****1st Semester**

Cell Biology Laboratory Elective		4
Technical Elective <sup>3</sup>		3
Biology Elective 400 level		3
Free Elective <sup>2</sup>		3
Humanities and Social Science Senior Seminar GER ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/</a> )		3
<b>Term Credits</b>		<b>16</b>

**2nd Semester**

Technical Elective <sup>3</sup>		3
Technical Elective <sup>3</sup>		3
Free Elective <sup>2</sup>		3
Free Elective <sup>2</sup>		3
<b>Term Credits</b>		<b>12</b>
<b>Total Credits</b>		<b>120</b>

Biology Credits: 42

<sup>1</sup> CHEM 121 and CHEM 122 require permission from the academic adviser<sup>2</sup> Free Elective - Any course in any subject at any level<sup>3</sup> Technical Elective - Any course in BIOL, BME, CHEM, CS, EVSC, FRSC IE MIS, MIT, IT, IS, PHYS.**Cell Biology Electives**

Code	Title	Credits
BIOL 315	Principles of Neurobiology	3
BIOL 350	Immunology	3
or R120 350	Immunology	
BIOL 352	Genetics	3
or R120 352	Genetics	
BIOL 441	Neurophysiology	3
BIOL 423	Physiological Mechanisms	3
BIOL 440	Cell Biology of Disease: Cells gone Bad!	3
BIOL 447	Systems Neurobiology	3
BIOL 448	Neuropathophysiology: Nervous System Gone Bad!	3
BIOL 453	Applied Genetics & Genomics	3
BIOL 491	Research and Independent Study	3
BIOL 492	Research and Independent Study	3
CHEM 473	Biochemistry	3
CHEM 474	Biochemistry II	3
R120 360	Biochemistry	3
R120 402	Biology of Cancer	3
R120 444	Cell Neurobiology	3

R120 455	Molec Cell Biology	3
R120 456	Virology	3

### Cell Laboratory Electives(Two Required)

Code	Title	Credits
BIOL 347	Lab Approaches in Neuroscience	4
BIOL 451	Cell Physiology and Imaging	4
R120 325 & R120 326	Animal Parasites and Parasitology Lab	4
R120 330	Plant Physiology	4
R120 335	General Microbiology	4
R120 404	Intro to Neuroanatomy	4
R120 405	Microanatomy of Cells	4
R120 452	Molecular Biol Techniques	4
CHEM 473 & CHEM 475	Biochemistry and Biochemistry Lab I	5
FRSC 479	Forensic Biology & Lab	4
FRSC 480	Forensic Microscopy & Lab	4