

# Neurobiology 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

CHEM 244	Organic Chemistry II	3
CHEM 244A	Organic Chemistry I Laboratory	2
BIOL 315	Principles of Neurobiology	3
BIOL 340 or R120 340	Mammalian Physiology or Mammalian Physiology	4
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
<b>Term Credits</b>		<b>15</b>

## Third Year

### 1st Semester

PHYS 102	General Physics I	3
PHYS 102A	General Physics I Lab	1
BIOL 222	Evolution	3
Cellular and Systems Neuroscience Elective		3
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>16</b>

**2nd Semester**

PHYS 103	General Physics II	3
PHYS 103A	General Physics II Lab	1
Cellular and Systems Neuroscience Elective		3
Neuroscience Laboratory Elective		4
Technical Elective <sup>3</sup>		3
Neuroscience Elective		3
<b>Term Credits</b>		<b>17</b>

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

Neurobiology Laboratory Elective <sup>4</sup>		3
Technical Elective <sup>3</sup>		4
Technical Elective <sup>3</sup>		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**

Neuroscience Elective		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: 41

- <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 IT, IE, IS, PHYS, MIT, MIS.  
One technical elective must be four credits (PHYS 202 and 202A, PHYS 203 and 203A, FRSC 307, FRSC 359, Additional BIOL Lab)
- <sup>4</sup> Three or four credit neuroscience laboratory elective

**NEUROBIOLOGY LABORATORY ELECTIVES (Two Required)**

Code	Title	Credits
BIOL 421	Comparative Vertebrate Anatomy	4
R120 342 & R120 343	Developmental Biology and Developmental Biology Lab	4
BIOL 347	Lab Approaches in Neuroscience	4
BIOL 484	Evolution of Animal Behavior Laboratory	3
BIOL 451	Cell Physiology and Imaging	4
R120 452	Molecular Biol Techniques	4
R120 404	Intro to Neuroanatomy	4

**CELLULAR AND SYSTEMS NEUROSCIENCE ELECTIVES (Two Required)**

Code	Title	Credits
BIOL 441	Neurophysiology	3
BIOL 447	Systems Neurobiology	3
R120 444	Cell Neurobiology	3

**ADDITIONAL NEUROBIOLOGY ELECTIVES**

<b>Code</b>	<b>Title</b>	<b>Credits</b>
BIOL 337	Collective Intel in Biol Syst	3
BIOL 352	Genetics	3
BIOL 382	Animal Behavior	3
BIOL 383	Neural Basis of Behavior	3
BIOL 423	Physiological Mechanisms	3
BIOL 424	Comparative Physiology	3
BIOL 432	Intro to Comp Neuroscience	3
BIOL 436	Advanced Neuroscience Modeling	3
BIOL 441	Neurophysiology	3
BIOL 443	Biology of Addiction	3
R120 444	Cell Neurobiology	3
BIOL 445 or R120 445	Endocrinology Endocrinology	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 470	Dynamic Princ in Systems BIOL	3
BIOL 491	Research and Independent Study	3
BIOL 492	Research and Independent Study	3