

# Neuroscience

## Faculty:

Dana Professor Karen Hinkle, Professor Lauren Howard; Associate Professors Megan Doczi (Neuroscience Program Coordinator), Scott Page (Chair); Assistant Professors Allison Neal and Simon Pearish; Lecturers Kylie Blodgett, David Ebenstein, Mary Beth Klinger-Lawrence and Virginia Kunkel.

The Neuroscience major exposes students to a rapidly growing field at the intersection of biology and psychology. Educating students about the human nervous system in health and disease prepares them for managing the public health challenges of our global population, while exposing them to interdisciplinary learning at the earliest stages of their undergraduate careers. Neuroscience graduates draw knowledge from a variety of specialties, effectively mastering the human nervous system from cellular, molecular, biochemical, cognitive, and behavioral perspectives.

Through the inherently diverse nature of the Neuroscience field, students engage in a broad-based curriculum spanning multiple disciplines. During the first year of study, the Neuroscience curriculum introduces students to fundamental concepts in biology, psychology, chemistry, and mathematics, while developing communication skills through concurrent introductory English courses. Successful students will progress to intermediate level courses designed to provide a thorough background in the anatomy and physiology of the human nervous system, with an emphasis on cellular and molecular biology, and carbon compounds. The third year of the Neuroscience major builds upon the knowledge gained in previous years by engaging students in applied research methods courses, coupled with an analytical reasoning of the natural properties of the physical world. The third and fourth year curricula seek to refine the students' understanding through specialized courses detailing the human nervous system through health and disease. With five free electives, the third and fourth years of study also offer the flexibility for students to pursue a minor in a discipline of their choice.

## Mission:

The mission of the Neuroscience curriculum is to provide undergraduate students with a working knowledge of the human brain and nervous system, while emphasizing a strong foundation in the natural sciences.

## Goals:

- To educate students about the human nervous system in health and disease
- To prepare students to manage the public health challenges of our global population

## Outcomes:

- Acquire a basic proficiency for information literacy and exercise effective written and oral communication skills.
- Conduct hands-on, experiential laboratory research, effectively exposing students to common experimental methodology, approach, and design within the Neuroscience discipline.
- Demonstrate a fundamental competency in Neuroscience via an array of disciplines including biology, psychology, chemistry, physics, and mathematics.

## Careers for this Major:

- Healthcare
- Education
- Biotechnology
- Research and Development
- Pharmaceutical Industry
- Neuroimaging
- Neuropsychology
- Science Writing
- Medical Liaison

## Major

### B.S. in Neuroscience - Curriculum Map 2018-2019 Catalog

Print PDF Curriculum Map ([http://catalog.norwich.edu/residentialprogramscatalog/collegeofscienceandmathematics/neuro/neuro\\_1532376223395.pdf](http://catalog.norwich.edu/residentialprogramscatalog/collegeofscienceandmathematics/neuro/neuro_1532376223395.pdf))

Course	Cr.Comp	Course	Cr.Comp.
<b>FRESHMAN</b>			
<b>Fall</b>		<b>Spring</b>	
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
BI 101 Principles of Biology I (General Education Lab Science) <sup>1</sup>	4	PY 211 Introduction to Psychology (General Education Social Science)	3
CH 103 General Chemistry I (General Education Lab Science)	4	CH 104 General Chemistry II	4
MA 107 Precalculus Mathematics	4	MA 108 Applied Calculus (General Education Math)	4
Fall Semester Total Cr.:		Spring Semester Total Cr.:	
15		14	

SOPHOMORE			
Fall		Spring	
BI 215 Human Anatomy & Physiology I <sup>1</sup>	4	BI 226 Cell Biology <sup>1</sup>	4
BI 303 Genetics <sup>1</sup>	4	General Education Literature ( <a href="http://catalog.norwich.edu/archives/2018-19/residentialprograms/catalog/generaleducationgoals">http://catalog.norwich.edu/archives/2018-19/residentialprograms/catalog/generaleducationgoals</a> )	3
CH 225 Organic Chemistry I	4	MA 232 Elementary Statistics (General Education Math)	3
General Education Leadership ( <a href="http://catalog.norwich.edu/archives/2018-19/residentialprograms/catalog/generaleducationgoals">http://catalog.norwich.edu/archives/2018-19/residentialprograms/catalog/generaleducationgoals</a> )	1-3	PY 263 Perception	3
PY 230 Biopsychology	3	Free Elective	3
Fall Semester Total Cr.:	16-18	Spring Semester Total Cr.:	16
JUNIOR			
Fall		Spring	
BI 370 Introduction to Neuroscience <sup>1</sup>	4	PY 344 Cognition	4
PS 201 General Physics I	4	PS 202 General Physics II	4
BI 300-400 Elective OR	4-3	BI 300-400 Elective OR	3-4
PY 313 Experimental Psychology I		PY 314 Experimental Psychology II	
Free Elective	3	General Education History ( <a href="http://catalog.norwich.edu/archives/2018-19/residentialprograms/catalog/generaleducationgoals">http://catalog.norwich.edu/archives/2018-19/residentialprograms/catalog/generaleducationgoals</a> )	3
		Free Elective	3
Fall Semester Total Cr.:	15-14	Spring Semester Total Cr.:	17-18
SENIOR			
Fall		Spring	
BI 415 Neuroanatomy (or in Junior year) <sup>1</sup>	4	BI 420 Diseases of the Nervous System (or in Junior year) <sup>1</sup>	4
BI 401 Senior Seminar (General Education Capstone) <sup>1</sup> or PY 401 Senior Seminar	3	BI Elective <sup>1</sup>	4
PH 303 Survey of Ethics (General Education Ethics) or PY 350 Environmental Psychology	3	General Education Arts & Humanities ( <a href="http://catalog.norwich.edu/archives/2018-19/residentialprograms/catalog/generaleducationgoals">http://catalog.norwich.edu/archives/2018-19/residentialprograms/catalog/generaleducationgoals</a> )	3
PY Elective	3	Free Elective	3
Free Elective	3		
Fall Semester Total Cr.:	16	Spring Semester Total Cr.:	14
TOTAL CREDITS FOR THIS MAJOR: 123-125			

<sup>1</sup> All Biology classes must be passed with a grade of C or better.

## Minor

### Neuroscience Minor Curriculum Map 2018-2019 Catalog

The Neuroscience option is a Concentration for Psychology and Biology majors, a minor for all other students.

All courses must be passed with a C or higher.

BI 215	Human Anatomy & Physiology I	4
BI 370	Introduction to Neuroscience	4
PY 230	Biopsychology	3
PY 344	Cognition	4
Choose one Biology course from below: <sup>1</sup>		
BI 302	Embryology	4
BI 304	Physiology	4
BI 415	Neuroanatomy	4
BI 420	Diseases of the Nervous System	4
Choose one Psychology course from below: <sup>1</sup>		
PY 212	Abnormal Psychology	3

PY 220	Developmental Psychology	3
PY 263	Perception	3
PY 352	Learning and Memory	4
Total Cr.		22-23

- <sup>1</sup> Students may also choose the following two chemistry courses: CH 324, CH 325, in lieu of the additional biology/psychology courses. However, this option requires additional prerequisites: CH 103, CH 104 and either CH 205, CH 226 or concurrent enrollment in CH 226.