

NEURAL SCIENCE (BS)

Department Website (<http://as.nyu.edu/cns/>)

NYSED: 92353 **HEGIS:** 0425.00 **CIP:** 26.1501

Program Description

Neural science spans multiple disciplines for studying the function of the brain. Experimental approaches in neural science vary from analyses of molecular and cellular mechanisms in nerve cells and groups of nerve cells to behavioral and psychological studies of whole organisms. Theoretical tools include mathematical and computational modeling approaches that have proved useful in other areas of science. Experimental questions include issues related to biophysical and neurochemical mechanisms within single nerve cells, functional neural circuits consisting of small numbers of neurons, the behavior of large systems of neurons, and the relationship between the activity of elements of the nervous system and the behavior of organisms. The Center for Neural Science confers the B.S. degree in neural science (there is no B.A degree for this major, nor is there a minor).

Honors Program

To graduate with honors in neural science, students must achieve a GPA of 3.65 in both the major and overall.

In the fall semester of their senior year, students seeking honors must complete NEURL-UA 301 Honors Seminar. In the spring of their senior year, they must present a paper at the College's annual Undergraduate Research Conference and the department's Undergraduate Research Conference and submit an honors thesis that is accepted by the faculty sponsor and the director of undergraduate studies.

Admittance to the laboratory courses associated with NEURL-UA 210 Cellular & Molecular Neurobiology and NEURL-UA 220 Behavioral & Integrative Neuroscience is assured and required only for students in the honors track.

Admissions

New York University's Office of Undergraduate Admissions supports the application process for all undergraduate programs at NYU. For additional information about undergraduate admissions, including application requirements, see How to Apply (<https://www.nyu.edu/admissions/undergraduate-admissions/how-to-apply.html>).

Program Requirements

Course	Title	Credits
General Education Requirements		
First-Year Seminar		4
EXPOS-UA 1	Writing The Essay:	4
Foreign Language ¹		16
Texts and Ideas		4
Cultures and Contexts		4
Societies and the Social Sciences		4
Expressive Culture		4
Major Requirements		
<i>Neural Science Courses</i>		
NEURL-UA 100	Intro to Neural Science (see note below)	4

NEURL-UA 210	Cellular & Molecular Neurobiology	4
NEURL-UA 220	Behavioral & Integrative Neuroscience	4
Select three elective courses in neural science ²		12
<i>Other Courses</i>		
CHEM-UA 125 & CHEM-UA 126	General Chemistry I & Laboratory and General Chemistry II & Laboratory	10
BIOL-UA 11	Principles of Biology I	4
BIOL-UA 12		4
BIOL-UA 21	Molecular and Cell Biology I	4
PHYS-UA 12	General Physics II ³	5
MATH-UA 121	Calculus I	4
Select one approved statistics course ⁴		4
Select one approved upper-level course in either psychology or biology		4
Electives		
Other Elective Credits		25
Total Credits		128

1

The foreign language requirement is satisfied upon successful completion through the Intermediate level of a language. This may be accomplished in fewer than 16 credits, but those credits must then be completed as elective credit.

2

May include NEURL-UA 302 Special Topics in Neural Science, NEURL-UA 305 Development and Dysfunction of the Nervous System

3

Please note that PHYS-UA 11 General Physics I, or credit for AP Physics C (Mechanics), is a prerequisite for General Physics II. Exceptions may be made on a case-by-case basis by the Department of Physics. Students are not automatically permitted to take PHYS-UA 12 General Physics II before/without PHYS-UA 11 General Physics I.

4

Such as PSYCH-UA 10 Statistics for The Behavioral Sciences

Prehealth students must take, in addition to the above, BIOL-UA 123 , PHYS-UA 11 General Physics I, CHEM-UA 225 Organic Chemistry I & Laboratory, CHEM-UA 226 Organic Chemistry II & Laboratory, and CHEM-UA 881 Biochemistry I. These courses are not required for the major in neural science.

AP or other advanced standing credit is only accepted for the calculus and statistics requirements. This is on a case-by-case basis and must be approved by a neural science adviser.

A grade of B- or higher in NEURL-UA 100 Intro to Neural Science is the prerequisite to declaring the major (a grade of C or better is required for all other courses in the major). Exceptions may be made for students taking NEURL-UA 100 Intro to Neural Science in the spring of sophomore year; however, they must earn a B- or better in NEURL-UA 100 Intro to Neural Science to remain declared.

Note: NEURL-UA 100 Intro to Neural Science is offered only in the spring term. Students may take it as early as their first year if they are well-prepared and their schedules permit it, but taking it in the spring of their sophomore year does not endanger their ability to complete this major and graduate in two more years.

Students should meet with a neural science adviser as early in their NYU career as possible (freshman year is recommended).

Sample Plan of Study

Course	Title	Credits
1st Semester/Term		
BIOL-UA 11	Principles of Biology I	4
CHEM-UA 125	General Chemistry I & Laboratory	5
MATH-UA 121	Calculus I	4
First-Year Seminar		4
Credits		17
2nd Semester/Term		
BIOL-UA 12		4
CHEM-UA 126	General Chemistry II & Laboratory	5
NEURL-UA 100	Intro to Neural Science	4
EXPOS-UA 1	Writing The Essay:	4
Credits		17
3rd Semester/Term		
BIOL-UA 21	Molecular and Cell Biology I	4
PHYS-UA 11	General Physics I	5
Texts and Ideas		4
Foreign Language		4
Credits		17
4th Semester/Term		
NEURL-UA 220	Behavioral & Integrative Neuroscience	4
PHYS-UA 12	General Physics II	5
Cultures and Contexts		4
Foreign Language		4
Credits		17
5th Semester/Term		
NEURL-UA 210	Cellular & Molecular Neurobiology	4
Approved Course in Statistics		4
Expressive Culture		4
Foreign Language		4
Credits		16
6th Semester/Term		
NEURL-UA XXX	Major Elective 1 of 3	4
Approved Upper-Level Biology or Psychology Course		4
Societies and the Social Sciences		4
Foreign Language		4
Credits		16
7th Semester/Term		
NEURL-UA XXX	Major Elective 2 of 3	4
Elective		4
Elective		4
Elective		4
Credits		16
8th Semester/Term		
NEURL-UA XXX	Major Elective 3 of 3	4
Elective		4
Elective		4
Elective		4
Credits		16
Total Credits		132

Note: Students may replace 4-credit degree electives with 2-credit electives as necessary to graduate with the minimum 128 credits.

Learning Outcomes

Upon completion of program requirements, students are expected to have acquired:

1. Foundational knowledge in the field of Neural Science, including molecular, cellular, developmental, systems, cognitive, behavioral, and computational approaches to understanding the brain.
2. The ability to conduct and utilize research.
3. Skills in critical reading, quantitative analysis, clear writing, and verbal presentation.

Policies NYU Policies

University-wide policies can be found on the New York University Policy pages (<https://bulletins.nyu.edu/nyu/policies/>).

College of Arts and Science Policies

A full list of relevant academic policies can be found on the CAS Academic Policies page (<https://bulletins.nyu.edu/undergraduate/arts-science/academic-policies/>).