

NEUROSCIENCE, B.S.

Contact

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Mission

The mission of UNE's Neuroscience program is to produce independent, self-motivated learners who have acquired the analytical and research skills that will help them to think creatively while integrating complex ideas. This training prepares them to help solve the critical challenges facing our society and to contribute to the furthering of human knowledge. We accomplish this using a variety of experiential and engaged learning techniques to provide a foundation in the concepts and methodologies of the interdisciplinary field of neuroscience at the cellular, molecular, cognitive systems, and behavioral levels.

Major Description

A Bachelor of Science degree with a major in Neuroscience is an interdisciplinary major offered by faculty from various schools and colleges with expertise in neuroscience. The neuroscience curriculum offers students an opportunity to explore the structure and function of the nervous system. The major requires a general science background, a number of courses specifically devoted to the brain and nervous system, and an in-depth experience that explores the limits of knowledge in at least one aspect of neuroscience. The major allows considerable flexibility for students to develop the last two years along the lines of individual preferences and interests, with potential foci in areas of cellular/molecular neurobiology, behavioral neuroscience, or cognitive science. The majority of students who graduate with a major in Neuroscience enter graduate or professional programs culminating with careers in medicine/health care, research, and/or education.

Transfer Credit

See Undergraduate Admissions (<https://catalog.une.edu/undergraduate/admissions/>) for more information.

Admissions

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Financial Information

Tuition and fees for subsequent years may vary. Other expenses include books and housing. For more tuition and fee information, please consult this catalog's Financial Information (<https://catalog.une.edu/undergraduate/financial-information-undergraduate-programs/>) section.

Curricular Requirements

Code	Title	Hours
Nor'easter Core Requirements		
Nor'easter Core Requirements (https://catalog.une.edu/undergraduate/core-curriculum/)		40
Program Required Courses		
BIO 105 & 105L	Biology I: Ecology/Evolution and Bio I: Ecology/Evolution Lab	4

BIO 106 & 106L	Biology II: Cellular/Molecular and Bio II:Cellular/Molecular Lab	4
Select one of the following:		4
CHE 110 & 110L	General Chemistry I and General Chemistry I Lab	
CHE 150 & 150L	University General Chemistry I and University General Chemistry I Lab	
Select one of the following:		4
CHE 111 & 111L	General Chemistry II and General Chemistry II Lab	
CHE 151 & 151L	University General Chemistry II and University General Chemistry II Lab	
CHE 201 & 201L	Organic Chemistry I and Organic Chemistry I Lab	4
Select one of the following:		4
CHE 202 & 202L	Organic Chemistry II and Organic Chemistry II Lab	
CHE 310 & 310L	Fundamentals of Biochemistry and Biochemistry Lab	
MAT 190	Calculus I	4
NEU 205 & 205L	Introduction to Neurobiology and Intro to Neurobiology Lab	4
Select one of the following:		3
NEU 300	Neuroscience Internship	
NEU 495	Neuroscience Lab Research	
PSY 300	Psychology Internship I	
NEU 306 & 306L	Behavioral/Cognitive Neuro and Behavioral/Cognitive Neuro Lab	4
NEU 374	Medical Neuroanatomy	4
NEU 410	Neurobiology of Mental Illness	3
PHY 110	General Physics I w/Lab	4
PHY 111	General Physics II w/Lab	4
PSY 105	Introduction to Psychology	3
PSY 225	Psychology Statistics	3
or MAT 150	Statistics for Life Sciences	
PSY 250	Lifespan Dev in Context	3
One Program Specific Electives from List A		3-5
One Program Specific Electives from List B		3-4
Open Elective Courses (Students complete open elective credits as necessary to meet the University's 120-credit minimum for graduation. The total number of elective credits required will depend on the student's completed program, core, and other degree requirements.)		11
Total Hours		120-123

Program-Specific Electives

Code	Title	Hours
List A		
BIO 214 & 214L	Genetics and Genetics Lab	4
BIO 245 & 245L	Gen Prin Anat/Phys/Pathophys I and Gen Prin Anat/Phys/Path I Lab	4
BIO 322	Comparative Animal Physiology	3
BIO 330 & 330L	and (Comparative Vertebrate Anatomy w/Lab)	4

BIO 340	Biology of Sex & Gender	3
BIO 345 & 345L	Gen Prin Anat/Phys/PathophysII and Gen Prin Anat/Phys/Path II Lab	5
BIO 365	Immunology	3
BIO 370	Cell & Molecular Biology	3
BIO 407	Developmental Biology	3
BIO 450	Biology Topics (with program approval)	3
CHE 405	Medicinal Chemistry	3
List B		
ANB 275	Intro Tech in Animal Behavior	3
ANB 335 or BIO 335	Comparative Animal Behavior	3
ANB 362	Animal Cognition	3
ANB 425	Capstone in Animal Behavior	3
PHI 370	Philosophy of Psychology	3
PHI 380	(Philosophy of Mind)	3
PSY 205	Abnormal Psychology	3
PSY 226	Motivation & Emotion	3
PSY 245	(Evolutionary Psychology)	3
PSY 285	Research Methods	3
PSY 290	Developmental Psychopathology	3
PSY 316	(Psychology of Consciousness)	3
PSY 325	Psychology of Aging	3
PSY 364	Soc & Emotion Dev in Childhood	3
PSY 370	Drugs, Society, and Behavior	3
Select one of the following:		3-4
ANB 384 & 384L	Animal Learning and Behavior and Animal Learning and Behav Lab	
PSY 380	Human Learning and Behavior	
PSY 383	Memory & Cognition	3

Please note: While some courses can fulfill both core and program requirements, the credits earned do not count twice towards the minimum total required credits for the degree.

Students in this major can participate in the pre-health graduate school preparation tracks. (<https://catalog.une.edu/programs/science-prerequisites-health-professions/>)

Academic and Technical Standards

A grade point average of 2.25 is necessary to be approved to add a major Neuroscience. Double majoring or completing a major and a minor is possible with careful planning and close consultation with the Assistant Academic Director and/or Academic Advisor. To ensure that each credential represents a substantive and independent program of study, overlap between majors and minors, including core requirements, should be kept to a minimum.

A minimum grade of C- must be achieved in all courses used to fulfill the requirements for the Neuroscience major. Students must also complete the Nor'easter Core quantitative reasoning requirement by the end of the first year. The School of Psychology and Brain Sciences strongly recommends that students take PSY 225 Psychology Statistics or MAT 150 Statistics for Life Sciences in their sophomore year. The School of Psychology and Brain Sciences requires that PSY 225 Psychology Statistics or MAT 150 Statistics for Life Sciences be completed by the

end of the junior year. See Undergraduate Academic Policy also. (<https://catalog.une.edu/undergraduate/academic-policy-regulations/>)

Learning Outcomes

Students who graduate with a B.S. with a major in Neuroscience from UNE will be able to:

- Demonstrate a broad foundation in the concepts and methodologies of the interdisciplinary field of neuroscience at the cellular, molecular, cognitive, systems, and behavioral levels.
- Demonstrate research skills including the ability to design experiments, and collect, analyze, and interpret data through research projects, lab work, internships, and coursework.
- Demonstrate critical thinking skills by analyzing and evaluating Neuroscience Minor neuroscience primary literature.
- Communicate in written and oral format scientific information in an organized and clear manner.