NEUROSCIENCE AND 
BEHAVIOR (NSB)

Neuroscience is one of the fastest-growing scientific fields, and the
discoveries that are being made today are having an immediate and
significant impact on our society. The importance of understanding
animal behavior is likewise increasing, particularly in the face of a rapidly-
changing environment. The B.S. in Neuroscience and Behavior is a
great way for students to combine interests in neurobiology and animal
behavior. The curriculum prepares students for various post-graduate
degrees, including medical, veterinary, and graduate school, and we offer
students a variety of opportunities to get hands-on research experience.

https://cola.unh.edu/psychology/program/bs/neuroscience-behavior-
major

Programs

• Neuroscience and Behavior Major (B.S.) (http://catalog.unh.edu/
undergraduate/liberal-arts/programs-study/neuroscience-behavior/
neuroscience-behavior-major-bs)

Courses

Neuroscience and Behavior (NSB)

NSB 400 - Topics Neuroscience & Behavior
Credits: 1
This seminar type course is designed as an introductory experience
for incoming first-year students, although it may be taken by students
transferring into the major. Topics covered will include sensory biology,
learning and memory, homing and navigation, neuromodulators and
stress, reproductive behaviors. The format will rely heavily on discussion,
prompted either by assigned readings or presentations by program
faculty on their areas of expertise. Credit/Fail. 1 cr.

NSB 500 - Fundamentals of Neuroscience and Behavior I
Credits: 3
The course will introduce students to the fundamental neural processes
underlying behavior. It will begin with a detailed examination of the
properties of individual neurons and then move on to demonstrate how
neurons can communicate together to produce complex behaviors. Some
of the basic concepts that will be covered will include: the molecular
basis of electrical and chemical communication, sensory transduction
and processing, neuropharmacology, the neural basis of reflexes and
simple behavior, development of the nervous system and the influence of
external stimuli on neural processing. Prereq: BIOL 411 and BIOL 412 and
CHEM 403 and CHEM 404.
Co-requisite: NSB 501

NSB 501 - Fundamentals of Neuroscience and Behavior I Laboratory
Credits: 2
The course is designed to expose students to some of the classic
experiments in cellular and molecular Neurobiology. They will record
from sensory and motor neurons, stain and view neurons, carry out
simple behavior experiments and record from muscles in freely behaving
animals. The laboratory exercises will run parallel with the concepts
taught in lecture and complement the lecture material in many ways.
Students will conduct actual experiments, analyze the results and write
lab reports as well. Prereq: BIOL 411 and BIOL 412 and CHEM 403 and
CHEM 404. Special fee.
Co-requisite: NSB 500

NSB 502 - Fundamentals of Neuroscience and Behavior II/Systems
Neuroscience
Credits: 3
This course is an introduction to the questions addressed by scientists
who aim to understand the biological basis of behavior and cognition.
This semester we will review the major organization of the central
nervous system and how these systems interact with each other
to produce behavior and cognition. Major topics will include: the
development and emergence of behavior; movement; the neural basis of
cognition, and language, thought, affect and learning. Prereq: BIOL 411
and BIOL 412 CHEM 403 and CHEM 404, NSB 500 and NSB 501.
Co-requisite: NSB 503

NSB 503 - Fundamentals of Neuroscience and Behavior II Laboratory
Credits: 2
This laboratory class with compliment the material being taught
in NSB 502. The laboratory will focus on behavioral and cognitive
neuroscience experiments. Students will learn about neuroanatomy
and neuroscience research methods, including experimental design,
data collection, statistical analysis, data interpretation, and manuscript
preparation through conducting actual experiments. Students will write
research reports describing their experiments and will receive some basic
computer programming and research ethics training. Prereq: NSB 500,
NSB 501.
Co-requisite: NSB 502

NSB 600 - Field Experience
Credits: 1-4
A supervised experience providing the opportunity to apply academic
experience to settings associated with future professional employment
or graduate opportunities. Must be approved by supervising faculty. 1-4
credits for a maximum of 8 credits. Cr/F.

NSB 705 - Molecular and Cellular Neurobiology
Credits: 4
The overarching goal of this course is to examine the molecular and
 cellular mechanisms underlying neuronal function. This course builds
on fundamental knowledge in neuroscience. Students will be exposed to
primary literature regarding how different model organisms have been
used to understand neurons. Prereq: BIOL 411 and BIOL 412. CHEM 403
and CHEM 404. NSB 500 and NSB 502.
NSB 727 - Animal Communication
Credits: 4
This course examines the principles underlying how animals communicate with each other and why they communicate the way they do by using perspectives drawn from a broad range of disciplines including physics, chemistry, ecology, psychology, economics, and behavioral ecology. Students will explore the primary literature, and work in teams to conduct independent research. The course is intended for advanced undergraduate or graduate students interested in neuroscience and behavior, evolution, wildlife and conservation biology, or zoology. Prereq: BIOL 412.

NSB 728 - Research Methods in Animal Behavior
Credits: 4
This course provides hands-on experience with modern methods for studying animal behavior in the field and laboratory, and immersion in the primary literature. Animal behavior research projects will be complemented with a sequence of technical training sessions, the goals of which are to provide students with practical expertise in modern ethological techniques. The course takes a 'learn by doing' approach, with student research teams building relevant methodological proficiencies in the context of an investigation of their own design. Special fee. Prereq: BIOL 412 Pre- or Coreq: ZOOL 613.

NSB 795 - Special Investigations
Credits: 1-4
Independent research with any member of the NSB faculty in various areas including, but not limited to, neuroscience, neuroendocrinology, animal behavior. Prereq: Permission of faculty concerned. Credits 1-4. May be repeated for up to 8 credits. 795W is writing intensive.

NSB 795W - Special Investigations
Credits: 1-4
Independent research with any member of the NSB faculty in various areas including but not limited to neuroscience, neuroendocrinology, animal behavior. Prereq: Permission of faculty concerned. Writing intensive.
Attributes: Writing Intensive Course

NSB 798 - Capstone
Credits: 0
This is a 0 credit course to indicate on the transcript that capstone requirement is fulfilled. Permission required.

NSB 799 - NSB Senior Thesis
Credits: 2-4
Working under the direction of a faculty sponsor, the student plans and executes independent research resulting in a written thesis and public presentation. Limited to students entering their senior year. Prereq: permission. A two-semester sequence 2-4 credits each semester, 8 credits maximum. IA (continuous grading) given first semester.

NSB 799H - Honors Senior Thesis
Credits: 2-4
Working under the direction of a faculty sponsor, the student plans and executes independent research resulting in a written thesis and public presentation. Limited to student entering their senior year or under exceptional circumstances their junior year. Required for students working toward University Honors or Honors-in-Major. Prereq: permission. A two-semester sequence 2-4 credits each semester, 8 credits maximum. IA (continuous grading) given first semester. Writing intensive.
Attributes: Writing Intensive Course