

Neuroscience



WASHINGTON
& JEFFERSON
COLLEGE

The Neuroscience major and minor are rigorous interdisciplinary programs designed to provide a **foundation in neuroscience** and to allow students to focus their **research interests** in a variety of levels of nervous system functioning, from the activity of **single neurons to the complexity of behavioral systems**. Majors distribute their coursework across the fields of **biology, chemistry, philosophy, physics, and psychology** as these disciplines all contribute to the interdisciplinary nature of the brain sciences.

Major Requirements

Cell & Molecular Biology (BIO 121)
Organismal Biology (BIO 131)
Organic Chemistry I (CHM 160)
Intro/Gen Physics I (PHY 101/107)
Intro/Gen Physics II (PHY 102/108)
Elementary Psychology I (PSY 101)
Math requirement:
• Introductory Statistics (MTH 125)
• Calculus (MTH 151)
• Applied Statistics for the Life Sciences (BIO 245)
Introduction to Neuroscience (NSC 210)
Experimental Neuroscience (NSC 300)
Advanced Topics in Neuroscience (NSC 400)

Three NSC electives from BIO, PSY, PHL or other approved programs to help shape their individual NSC major to reflect their interest and expertise, such as:

- Animals Physiology
- Medical Histology
- Systems and Development Neuroscience
- Comparative Psychology
- Psychopathology
- Cognitive Psychology
- Psychology of Stress
- Biochemistry
- Molecular Biology
- Philosophy of the Mind

Capstone: Approved research projects from summer internship, Independent Study, or approved advanced experimental lab course in Biology or Psychology

Minor Requirements

Two introductory science courses from different disciplines (BIO, CHM, PHY, or PSY)
Introduction to Neuroscience (NSC 210)
Experimental Neuroscience (NSC 300)
Advanced Topics in Neuroscience (NSC 400)

Program Director

Kelly Weixel, Ph.D.
kweixel@washjeff.edu

Faculty

Ronald Bayline, Ph.D.
rjbayline@washjeff.edu

Sean Coyne, Ph.D.
scoyne@washjeff.edu

Michael Leonard, Ph.D.
mleonard@washjeff.edu

Kelly Lohr, Ph.D.
klohr@washjeff.edu

Nobunaka Matsuno, Ph.D.
nmatsuno@washjeff.edu

Beyond the Classroom

Students in Neuroscience have opportunities to explore **research, internships, and networking** outside of their classroom. Furthermore, the structure of the **NSC curriculum permits flexibility** in pursuing unique interests and pairing this program with a wide range of complementary majors and minors available at the College.

Research & Internships

The interdisciplinary nature of the NSC program offers students opportunities to work in areas that cross disciplines and **capitalize on their broader education while developing unique and specialized expertise**. Recent students have engaged in the following while pursuing their degree at W&J:

- Collaboration with Dr. Sean Coyne under a partnership with the Maryland Zoo investigating the effects environmental variables on large mammal behavior across different seasons.
- Conduct research on the role of gut microbiome on neurodegeneration and present research at the Society for Neuroscience Conference under the direction of Dr. Kelly Lohr.
- Develop structurally novel neurotoxic compound in collaboration with Dr. Michael Leonard and present research at the American Chemical Society Conference.
- Neurorepair research at the Lewis Katz School of Medicine at Temple University.
- Develop artificial grammars to test language learning at the Institute of Neuroscience, Newcastle University Medical School in Newcastle upon Tyne, England.
- Research effects of radiation exposure on the behavior, cognition, and neurochemistry of rats as a model for long-term human space flight at the Johns Hopkins School of Medicine and present work at a NASA workshop.

Recent Alumni Employment & Education

- Graduate Program in Public Health, University of Pittsburgh
- Medical School: University of Colorado, LECOM, LKSOM, West Virginia University
- Ph.D. candidates in Neuroscience: Case Western University, University of Delaware, Purdue University Weldon School of Biomedical Engineering, Washington University in St. Louis School of Medicine
- Behavioral Specialist, Wexford, PA
- U.S. Medical Lead, Teva Pharmaceuticals
- Research Health Science Specialist at Providence VAMC, Center for Neurorestoration and Neurotechnology, Providence, RI
- Cognitive Behavioral Researcher, University of Arizona
- Research Specialist in Pediatrics, Washington University in St. Louis School of Medicine



Program Website

washjeff.edu/neuroscience