Neuroscience PhD

Introduction

Delaware State University offers the only **Doctor of Philosophy (PhD) Degree in Neuroscience in Delaware — and is one of the most innovative in the mid-Atlantic region.** Launched in 2007, this rapidly growing program combines the resources of three institutions and unites researchers from multiple disciplines working at the cutting edge of neuroscience.

Our program unites neuroscience faculty from across Delaware in a statewide research and training network; partner institutions include the Nemours Foundation (associated with the A.I. DuPont Children's Hospital) and the University of Delaware. Our PhD students can pursue dissertation research with faculty from Delaware State University in three different departments, or any of its partner institutions.

The neuroscience network's size and breadth enables PhD students to explore the full range of neuroscience subspecialties, including

- Molecular biology
- Neurochemistry
- Neurophysiology and electrophysiology
- Neuroanatomy
- Diseases and disorders of the nervous system
- Psychology/behavior

The program establishes a nurturing environment for emerging scholars, with emphasis on mentorship and collaboration.

Professional Preparation

Delaware State's neuroscience PhD program cultivates a broad range of professional skills. Doctoral candidates have the opportunity to perform research and to collaborate with investigators in the private, public, and nonprofit sectors, while getting first-hand experience in

- writing grants
- publishing scientific papers
- attending and presenting at national conferences
- teaching undergraduate courses
- attending seminars at DSU and partner institutions

The program enables doctoral students to develop professional networks and build research skills, laying the foundation for a career in neuroscientific research.

Research and Experience

Delaware State University has active research projects in many different areas of neuroscience, including

- behavior
- development
- aging
- cellular / molecular
- clinical neuroscience
- biomechanics
- model systems of learning and memory
- neurophysiology

Partnership with University of Delaware and the Nemours Foundation

The Nemours Foundation associated with the A.I. duPont Children's Hospital has an active basic neuroscience research program, but no graduate program. The University of Delaware has neuroscientists scattered across six departments, but the only neuroscience graduate program is the Behavioral Neuroscience PhD program in the Psychology Department.
DSU's neuroscience program will bring together neuroscience faculty across the state into a research training network. Six researchers at the Nemours Foundation and 16 faculty at UD are part of the neuroscience research and education network and serve as mentors for students in DSU's PhD program.

Both UD and A.I. duPont Hospital are less than a one hour drive from DSU, and all three institutions have videoconferencing capabilities making joint seminars, classes and an inter-institutional research training program easily managed.

Faculty

DSU has fourteen faculty doing neuroscience related research in three different departments. Because the PhD program in Neuroscience is interdisciplinary and multi-institutional, doctoral candidates work with a broad array of faculty and are exposed to diverse perspectives, techniques, and theoretical approaches. Faculty members at Delaware State and its partner institutions are engaged in pioneering research funded by the National Science Foundation, National Institute of Health, and other agencies.

Current DSU Biology faculty with Research Related to Neuroscience

- Dr. Harbinder Dhillon: Chemotaxis and other odor-guided behaviors in D. melanogaster and C. elegans
- Dr. Michael Gitcho: Vertebrate models of Alzheimer's Disease
- Dr. Melissa Harrington: Multielectrode physiology with invertebrate and mammalian cell culture model systems
- Dr. Y. Hwan Kim: Vertebrate models of Parkinson's Disease
- Dr. Hakeem Lawall: Parkinson's disease and Alzheimer's disease models using D. melanogaster
- Dr. Theresa Szabo-Maas: Neuronal basis of behavior and electrophysiology
- Dr. Murali Temburni: Electrophysiology and epilepsy studies in an avian chick embryo model system
- Dr. Cynthia van Golen: Growth factors in growth and metastasis of pediatric neuroblastoma

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