The Neuroscience Track at Wake Forest University constitutes a graduate program that includes more than 100 participating faculty members across 16 departments. With them, 45 current graduate students and 26 postdoctoral fellows study how the brain and the nervous system work, how they develop, and how they can be affected by the environment and by disease. The track offers training opportunities in state-of-the-art research that span virtually all areas of modern neuroscience, including molecular, developmental and behavioral neurobiology, as well as cognitive and computational neuroscience. These resources, along with our open and collaborative environment, translate into a wide range of personal and professional opportunities for young neuroscientists.

The Neuroscience Track was formed in 2010 in order to consolidate multiple groups within Wake Forest University that perform research in neuroscience and which themselves had expanded significantly in the last few years. These groups are now integrated into a diverse community with multiple cross-collaborations and synergistic interactions.

There never has been a better time to seek training in the field of neuroscience, as so many areas within it are rapidly unfolding. Those involved in such research within the next decade will likely witness and participate in major breakthroughs in our understanding of genetic and cellular bases of brain function, behavior and cognition, and will see these discoveries applied to the development of new drugs and treatments for neurological diseases.

**The Graduate Program**

The Neuroscience Track at Wake Forest University offers a PhD degree tailored for a research career within one of the most challenging and fascinating scientific endeavors ever attempted — the study of the brain and the nervous system.

Our graduate program provides a fundamental framework for understanding the biological basis of behavior and the causes of neurological and psychiatric disorders. Accordingly, our major goal is to train students to be able to carry out meaningful and significant research in all areas of modern neuroscience, and to give them an appreciation of the importance of characterizing functional organization at all levels, from molecular and cellular structures, to local neural circuits and brain areas, to whole organisms and their behavior.

Our program is designed to train students in a variety of modern methodologies and to prepare them to use whatever conceptual and technological approaches are most appropriate for pursuing promising new areas of research.

**Major Areas of Research**

Addiction and Substance Abuse, Behavioral and Systems Neurobiology, Development and Plasticity, Cellular and Molecular Neurobiology, Neurological Disease and Aging, Neuropharmacology, Sensory Neurobiology, Translational Neuroscience, and multiple other sub-specialties.

**Faculty**

Drawing from 16 different departments, the Neuroscience Track has over 100 faculty members. More than 60 of them have funded research programs and laboratories and are available as research advisers to students in the Neuroscience Track. In addition, there are over 40 faculty in clinical departments who may participate in teaching and serve as consultants and collaborators with research scientists.

Functional magnetic-resonance image (MRI) showing that individuals who are highly sensitive to pain exhibit greater activation of brain regions such as the anterior cingulate cortex and primary somatosensory cortex than individuals who are relatively insensitive. Photo courtesy of Dr. Robert Coghill.
Training Schedule
First year: students complete a core set of courses covering fundamental topics in neuroscience and rotate through three laboratories. By the end of the first year, they find a home lab in which to carry out their dissertation research.

Second year: students take three upper-level courses, leading to a specialization in one of several possible areas. By the end of the second year, students who pass all course requirements present a qualifying exam, with oral and written components, describing their proposed thesis work.

Third+ years: having advanced to candidacy, students devote most of their time to research.

Time to graduation is approximately 5 years.

Financial Aid
University fellowships are available to all graduate students accepted into the Neuroscience Track. In 2010-2011, students are projected to receive financial support totaling $55,512, which includes a 12-month stipend of $23,942, tuition scholarships, which are covered in full by the University, and a new IBM ThinkPad computer. The Graduate School also contributes generously to students' health insurance.

Wake Forest
Wake Forest is a relatively small, highly ranked private university. It has an enrollment of more than 5,000 students, of which approximately 1,500 are in graduate programs. The Neuroscience track is projected to admit up to 15 new students each year.

Location
Winston-Salem, a city of approximately 225,000 inhabitants within the North Carolina Piedmont region. It is about midway between Atlanta and Washington DC, and close both to the Atlantic coast and the Blue Ridge mountains. The climate is mild, with long and colorful spring and fall seasons. Winston-Salem has the convenience of a small town — everything is close by and life is relatively inexpensive — but offers a variety of options for entertainment, culture and recreation, including multiple sports and artistic events.

The Biomedical Sciences campus of Wake Forest University, home to the Neuroscience Graduate Program and to the university's Medical School, is located on a 45-acre medical center, which also includes its partner, North Carolina Baptist Hospital.

Admission
The Neuroscience Track welcomes applications from both US citizens and international students interested in pursuing a PhD degree and studying the nervous system — its function, development and disease states. Applicants should have a strong undergraduate preparation in biology, chemistry (including biochemistry) and mathematics. To apply, a completed application form, including official college transcripts, GRE scores, and three letters of recommendation, should be submitted to the Graduate School (graduate.wfu.edu/admissions). Application deadline is December 15 for entry during the following fall.

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Photomicrograph of midbrain cells labeled with immunofluorescent dyes. Two types of neurons in the substantia nigra project to the superior colliculus, some cross from one hemisphere to the other (green) and others do not cross (red). These segregated neuronal populations control the eye-movement commands generated by the colliculus. Photo courtesy of Dr. John McHaffie.