



Graduate Program in Neuroscience Student Handbook

GRADUATE PROGRAM PERSONNEL

Program Director is **Dr. Giovanni Manfredi**
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Program Chair is **Dr. M. Elizabeth Ross**
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Program Coordinator/Manager is **Ms. Alessandra De Nardo**
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INDIVIDUALIZED FLEXIBLE PROGRAM

Neuroscience by its very nature is a multi-disciplinary field, and our students therefore explore their varied research interests through a combination of activities in the lab and in classroom, as well as personal study. The curriculum is flexible and is developed by each student through consultation with the Director and with her/his Advisor to include basic coursework and lab rotations completed during the first 2 years, followed by an Admission to Candidacy Exam (the ACE), and then completion of a thesis.

COURSES

Each student must complete 6 required courses and 3 electives that complement each student's areas of interest by July 1st of their second year.

In addition all students must complete the *Responsible Conduct of Research* course.

Mandatory Course for the Graduate School:

Responsible Conduct of Research: A Tri-institutional Program for Research Trainees

Mandatory Courses in Neuroscience:

From Neuron to Brain: An Introduction to Neuroscience (Q1-3)

Logic and Experimental Design (Q 1-2)

Neuroscience Faculty and their Research (Q1-3)

Progress in Neuroscience (Q1-4)

Molecular Neuropharmacology (Q3-4)

Quantitative Understanding in Biology (Q1)



Examples of Elective Courses in Neuroscience:

Addiction and Society (Q3-4)

Math Review for Biologists (Q 1-2)

The Molecular Basis of Neural Disease (Q 3-4)

Ion Channels of Excitable Membranes (Q 3-4)

Mathematical Methods in Neuroscience (random years)

Developmental Neurobiology (Rockefeller University- random years)

Drug Development; A Business Approach (contact John Wagner)

Research Proposals and Scientific Journalism: Inspiration, Writing and Evaluation (Q 3)

Other Elective Courses in the Graduate School:

Introduction to Pharmacology (Q 1,2)

Genetics (Q 1,2)

Biochemistry and Structural Biology (Q 1,2)

Eucaryotic Gene Structure & Function (Q 3,4)

LABORATORY ROTATIONS

All students must complete 3 lab rotations during the first two years. The student will choose a Thesis mentor based on the lab rotation experience and acceptance by the faculty member directing the lab.

Laboratory rotations last 2-3 months each, and students can arrange to work in a laboratory as a rotation student during the summer before entering graduate school.

Students should decide on laboratory rotations by discussing opportunities with individual faculty members. Rotations allow students to get hands-on experience with experimental approaches that interest them and provide an opportunity for students to get to know faculty with whom they may wish to do their thesis work. Most importantly, they provide an opportunity to learn how to design controlled experiments, evaluate data, present their data to scientific colleagues, and make new discoveries!

***Rotation 1) agreements and 2) evaluations must be completed by both the faculty member (preceptor) and the student in LEARN.**

ACE (QUALIFYING) EXAM

Prior to July 1st of year 2, students must successfully complete the ACE (admission to candidacy examination). The ACE is designed to test the student's general knowledge of neuroscience and includes preparation of an original written research proposal. In



consultation with the thesis advisor and with the consent of the director of the program, the student chooses an ACE topic and committee.

Guidelines: The ACE topic MAY deal with the topic of the proposed thesis, but it is not required that the topic of the ACE should eventually be incorporated into the student's PhD dissertation. No preliminary experimental data are required for the ACE. The written and oral are expected to be grounded in the published literature, not the student's own data. The topic may differ from the thesis in model system, methodology or question. The student can meet with the committee about the proposed topic and the thesis advisor can give general feedback on the appropriateness of the aims and design. The format follows the instructions to the individual NRSA NIH graduate fellowship application, except that no experimental pilot data are required or expected in the ACE.

The committee should consist of at least 4 examiners, 3 of who must be on the neuroscience graduate faculty. These members will include a designated neuroscience faculty member to serve as chair of the committee, the student's thesis advisor and two other faculty members. **The written ACE should be submitted to the graduate school and program manager 2 weeks before the oral defense** of the ACE. The format of the ACE should be the new NRSA format, with a complete abstract for the proposal, a 1 page specific aims and 6-page research plan and separate pages for references. Please be sure to read and cite empirical studies rather than reviews.

Please reference the "ACE Checklist" form for further information on formatting and your committee.

THE BIG D (DISSERTATION)

After successful completion of coursework and the ACE, the student should form a special committee to oversee their thesis that consists of a designated neuroscience faculty member to serve as chair of the committee, the student's thesis advisor and two other graduate faculty members. This **special committee must meet at least once a year** to provide advice concerning the direction of the thesis. Upon completion of the thesis, the student will prepare the work for publication, present it to the University in an open seminar, and defend the validity of the work before the committee and the members of the Program.

Forms and more information are available from the Graduate School and can be found at this link: <https://nexus.med.cornell.edu/display/gradschool>.



PROGRAM & GRADUATE SCHOOL ACTIVITIES

Graduate students are encouraged and expected to participate in Program and Graduate school activities, including the annual retreat (mandatory), recruitment, Vincent du Vigneaud Research Symposium and other neuroscience activities posted by the Program.

If a student is interested in traveling to a conference, she/he must be presenting a poster and first submit a travel request form to the graduate school. The student pays for costs up front, and is reimbursed up to \$800.

NEUROSCIENCE GRADUATE STUDENTS AND EMAIL CONTACT

First Years:

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