Educational Neuroscience PhD Program Structure & Requirements

Prospective Ph.D. Students

Applications to the Educational Neuroscience Program are processed through the same mechanism as the Systems and Cellular/Molecular Neuroscience Program tracks. Applications will be reviewed by a committee of Neuroscience faculty and as such successful applications will have to meet the admissions requirements of the Neuroscience program at large.

The types of students that will be attracted to and thrive in this program will be those who have neuroscience, psychology, or biology backgrounds with an interest in applying those research methods to educationally relevant questions, and should have demonstrated potential for conducting research through productive experience in research labs. Preference will be given to students who have research interests that closely align with a specific primary advisor.

Primary and Secondary Faculty Advisors

Primary faculty advisors are neuroscience training faculty affiliated with the Vanderbilt Brain Institute with a stated emphasis in educational neuroscience, which currently includes the following individuals: Laurie Cutting, Mark Wallace, and Gavin Price. Primary faculty may have their primary appointment in Peabody College, in the College of Arts and Sciences (e.g. Department of Psychology) and in the School of Medicine (e.g., Departments of Pediatrics, Psychiatry, etc.).

Secondary faculty advisors will include (a) neuroscience faculty who are not primarily focused on education, but have interests in educational research collaborations or (b) educational faculty who are not primarily focused on neuroscience, but have interests in neuroscience collaborations. It is expected that students will have one primary and one or more secondary faculty advisors. Primary advisors must be identified prior to program entry, while secondary advisors may be identified during the first or second year of the program as research interests/opportunities evolve.

Program Plan

The table on the next page shows required and elective courses. Students will follow the course sequence of Cognitive and Systems or Cellular/Molecular tracks and will participate in the same seminars and research forums as other neuroscience trainees (Neuroscience Discussions and Neuroscience Research Forum). However, there will also be adaptations to the standard neuroscience curriculum.

- First, given the importance of statistics in psychological/educational research, students will be required to take a minimum of two statistics courses.
Second, all students will be required to take 9 credits of educationally related coursework, which will consist of a combination of courses (6 credits) and fieldwork (3 credits). Focal education areas will be in math, reading, psychosocial development or other educationally focused content specialties.

Third, along with the Neuroscience Discussions and Neuroscience Research Forum courses, students will be required to participate in a 3 credit Educational Neuroscience graduate class.

Fourth, students in the Educational Neuroscience program will be required to complete a research project under the guidance of a secondary advisor. This project should focus on an aspect of education research not addressed by the primary faculty advisor (e.g. behavioral intervention, data collection in classrooms, data collection with special populations, etc).

Educational Neuroscience Track Requirements

**Summary of Requirements**
A minimum of 72 total hours of graduate credit are required for the Neuroscience Ph.D. degree. In most cases course work will be completed during the first two years. At the end of the second year, a Ph.D. Qualifying Examination must be satisfactorily completed for the student to then be admitted into doctoral candidacy for a Ph.D. degree in neuroscience. If needed, remaining course electives may be taken following the qualifying Examination. After a student completes the qualifying process, the student’s effort is largely directed towards completing her/his dissertation project.

**Didactic Requirements**
Graduate students in the Educational Neuroscience Track are required to take a minimum of 33 hours of coursework by the time they are ready for qualifying exams in the summer and fall of their second to third years. In addition to the formal requirements below, by the time they are ready for qualifying exams, students are expected to have acquired expertise in at least one area of education (e.g., reading, mathematics, or psychosocial development) and one methodology (e.g., neuroimaging or genetics).
Minimum required courses in the Educational Neuroscience Track include:

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Credits, Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURO 325</td>
<td>Neuroscience Discussions I and II</td>
<td>2, TBD</td>
</tr>
<tr>
<td>TBD</td>
<td>Educational Neuroscience</td>
<td>3/4, TBD</td>
</tr>
<tr>
<td>NURO 320</td>
<td>Neuroscience Research Forum</td>
<td>0, TBD</td>
</tr>
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<td>NURO 340</td>
<td>Systems Neuroscience</td>
<td>4, TBD</td>
</tr>
<tr>
<td>NURO 352</td>
<td>Seminar in Neuroscience</td>
<td>2, TBD</td>
</tr>
<tr>
<td>NURO 327</td>
<td>Graduate Neuroanatomy</td>
<td>3, TBD</td>
</tr>
<tr>
<td>NURO 330</td>
<td>Cognitive Neuroscience</td>
<td>3, TBD</td>
</tr>
<tr>
<td>NURO 345</td>
<td>Molecular and Cellular Neuroscience</td>
<td>4, TBD</td>
</tr>
<tr>
<td>PSY 310</td>
<td>Statistical Inference</td>
<td>3, TBD</td>
</tr>
<tr>
<td>PSY 312</td>
<td>Multivariate Statistics</td>
<td>3, TBD</td>
</tr>
</tbody>
</table>

*Students must take 6 credits of the educational content area that they are focusing on, and 3 credits of field experience.

Third year:

**FALL:** Qualifying Examination (review & oral); research hours; course electives (if needed).

**SPRING:** Dissertation Thesis Proposal meeting (Qualifying Examination Phase III & IV), Research Forum; research hours; course electives (if needed).

**SUMMER:** Research Forum; research hours.

Fourth and Fifth years: Successful completion of Teaching Apprenticeship, Research Forum and Neuroscience Graduate Seminars; thesis research and defense of thesis.

Accumulating Credits

72 credit hours are required to graduate with the Ph.D. degree from Vanderbilt University. This allows 25 credits for individualized coursework that is constructed in consultation with the doctoral advisor. The hours of course work may be increased (but not decreased), with a corresponding reduction in research hours. All graduate students who have completed their required 72 credit hours will be required to register for NURO 399 (Ph.D. Dissertation Research) for 0 credits until they graduate.

Secondary Advisor Research Project

Students in the Educational Neuroscience program will be required to complete a secondary research project lasting 1-2 semesters, under the guidance of a secondary advisor. This project should focus on an aspect of education research not addressed by the primary faculty advisor.
(e.g. behavioral intervention, data collection in classrooms, data collection with special populations, etc).