What is Molecular/Cellular Neuroscience?
Molecular/Cellular Neuroscience is a subfield of neuroscience that examines the mechanisms related to the basic biological processes of neurons and support cells of the nervous system. Molecular/Cellular neuroscientists tend to study how neurons communicate, how parts of neurons (e.g. axons and dendrites) function, and explore the anatomy/physiology of neurons.

**DECLARATION REQUIREMENTS**
In order to declare the major, students must meet with a Neuroscience Advisor to discuss the requirements. To set up an appointment:

1. Stop by room 10 of Townshend Hall
2. Give us a call at (614) 292-8512
3. E-mail us at NeuroAdvising@osu.edu
4. Attend an Info Session [NeuroscienceMajor.osu.edu/declare](http://NeuroscienceMajor.osu.edu/declare)

**CONTACT US**
Neuroscience Undergraduate Program
College of Medicine & College of Arts and Sciences
10 Townshend Hall
1885 Neil Avenue Mall
Columbus, OH  43210
Phone: (614) 292-8512
[http://NeuroscienceMajor.osu.edu](http://NeuroscienceMajor.osu.edu)

**Molecular/Cellular Specialization**
The requirements for the 36 semester hour (12 classes) neuroscience major are distributed across four categories: Core, Data Analysis, Specialization, and Breadth.

**I. CORE REQUIREMENTS**
Take all 4 of the courses below
Pre-major students must complete Psych 3313 and Neuro 3000 with grades of "B" or higher in both classes and earn a minimum 3.0 cumulative GPA

- **Psych 3313**  
  Introduction to Behavioral Neuroscience  
  3hrs | Au, Sp, Su | (Pre-reqs: Psych 1100)

- **Neuro 3000**  
  Introduction to Molecular/Cellular Neuroscience  
  3hrs | Au, Sp | (Pre-reqs: Bio 1113)

**Students must complete Psych 3513 and Neuro 3050 with a 'C' or higher in both classes**

- **Psych 3513**  
  Introduction to Cognitive Neuroscience  
  3hrs | Au, Sp | (Pre-reqs: Psych 1100)

- **Neuro 3050**  
  Structure & Function of the Nervous System  
  3hrs | Au | (Pre-reqs: Bio 1113 & Neuro 3000)

**II. DATA ANALYSIS REQUIREMENT**
Take 1 of the 4 courses below

- **Psych 2220**  
  Introduction to Data Analysis in Psychology  
  3hrs | Au, Sp, Su | (Pre-reqs: Psych 1100 & Math 1148)  
  | Au, Sp | (Honors Version)

- **Stats 2480**  
  Statistics for Life Sciences  
  3hrs | Sp | (Pre-reqs: Math 1151)

- **Stats 2450**  
  Introduction to Statistical Analysis  
  3hrs | Au | (Pre-reqs: Math 1151)

- **MolGen 5650**  
  Analysis & Interpretation of Biological Data I  
  3hrs | Au | (Pre-reqs: Math 1150 & 10hrs 3000-level Bio)

**III. SPECIALIZATION REQUIREMENTS**
Choose at least 5 specialization courses from the options below

- **Neuro 3010**  
  Neurophysiology  
  3hrs | Au | (Pre-reqs: Neuro 3000)

- **Neuro 4050H**  
  Neurogenetics  
  3hrs | Au | (Pre-reqs: Neuro 3000)

- **Neuro 4100**  
  Basic & Clinical Foundations of Neurological Disease  
  3 hrs | Au | (Pre-reqs: Neuro 3000)

- **Neuro 4640**  
  Neuronal Signal Transduction  
  3hrs | Sp | (Pre-reqs: Neuro 3000 & 3050)

- **Neuro 5790H**  
  Developmental Neuroscience  
  3hrs | Sp | (Pre-reqs: Neuro 3000 & 3050)

- **Psych 4305**  
  Intro to Psychopharmacology  
  3hrs | Au, Sp | (Pre-reqs: Psych 3313 & Neuro 3000)  
  Not Open to Students With Credit For Psych 3305

- **Psych 4644**  
  Hormones & Behavior  
  3hrs | Sp | (Pre-reqs: Psych 3313 & Neuro 3000)  
  Not Open to Students With Credit For Neuro 5644

- **Biochem 4511**  
  Intro to Biological Chemistry  
  4hrs | Au, Sp | (Pre-reqs: Chem 1210/1220 & 2510)

- **Neuro 4623**  
  Biological Clocks and Behavior  
  3hrs | Sp | Spring ’16 ‘18 (Pre-reqs: Neuro 3000)

- **MolGen 4500**  
  General Genetics  
  3hrs | Au, Sp, Su | (Pre-reqs: Bio 1113 & 3+hrs Bio)  
  | Au, Sp | (Honors Version)
IV. BREADTH REQUIREMENT
Choose at least 2 additional courses from the list below

- **Neuro 3025**
  History of Neuroscience
  3hrs | Sp | (Pre-reqs: Psych 3313 & Neuro 3000)

- **Ling 3701**
  Language and The Mind
  3hrs | Au, Sp | (Pre-reqs: Psych 1100)

- **Psych 3321**
  Quantitative and Statistical Methods in Psychology
  3hrs | Au, Sp | (Pre-reqs: B or higher in 2220)

- **Math 4350**
  Quantitative Neuroscience
  3hrs | Sp | (Pre-reqs: Math 1151 & 1152)

- **Philos 5840**
  Advanced Philosophy of Cognitive Science
  3hrs | Au, Sp | (Pre-reqs: Psych 1100)

- **EEOB 4550**
  Neurobiology of Behavior
  3hrs | Au | (Pre-reqs: 2 courses in Bio)

- **Neuro 4623**
  Biological Clocks & Behavior
  3hrs | Sp | (Pre-reqs: Psych 3313 & Neuro 3000)

- **CSE 5526**
  Introduction to Neural Networks
  3hrs | Au | (Pre-reqs: Psych CSE 3521)

- **Psych 5600**
  Psychobiology of Learning & Memory
  3hrs | Sp | (Pre-reqs: Psych 3313 & Neuro 3000)

- **Psych 5602**
  Behavioral Genetics
  3hrs | Sp | (Pre-reqs: Psych 3313 & Neuro 3000)

- **Psych 5622**
  The Development of Brain and Behavior
  3hrs | Au | (Pre-reqs: Psych 3313 & Neuro 3000)

- **Psych 5608**
  Intro to Mathematical Psychology
  3hrs | Au | (Pre-reqs: Psych 3321)

- **CSE 5052**
  Survey of Artificial Intelligence for Non-Majors
  3hrs | Au | (Pre-reqs: Psych CSE 2221)

- **Psych/CSE/Ling/Philos 5612**
  Introduction to Cognitive Science
  3hrs | Au | (Pre-reqs: 12hr in Psych/CSE/Ling/Philos)

- **Psych 5603**
  Stem Cells and The Brain
  3hrs | Au | (Pre-reqs: Psych 3313 and Neuro 3000)

- **Psych 5614**
  Cognitive Neuroscience
  3hrs | Au | (Pre-reqs: Psych 3313 & Neuro 3000)

- **Psych 4501**
  Advanced Behavioral Neuroscience
  3hrs | Sp | (Pre-reqs: B or higher in 3313 & Neuro 3000)

- **SHS 5760**
  Neurology of Speech and Hearing Mechanisms
  3hrs | Au, Sp | (Pre-reqs: Permission of Instructor)

- **Neuro 4998/3193**
  Undergraduate Research & Individual Studies
  Pre-approval required.

  Up to 3 credit hours of any combination of Undergraduate Research (4998) and Individual Studies (3193) can be applied to the breadth requirement. 3 credit hours equals 1 course toward the breadth requirements.

**HONORS REQUIREMENT**

All honors students are required to take at least one approved graduate level course. This course should be selected in conjunction with your honors advisor. A complete list of honors and graduate level courses offered can be found online at https://neurosciencemajor.osu.edu/honors.