Cognitive/Computational 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, Sp | (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

- **Econ 5870** Neuroeconomics and Decision Neuroscience
  3hrs | Sp | (Pre-reqs: Stat 2450 & Psych 3313)

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

- **Ling 3701** Language and The Mind
  3hrs | Au, Sp | (Pre-reqs: Psych 1101)
  | Au, Sp | (Honors Version)

- **Philos 5840** Advanced Philosophy of Cognitive Science
  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)

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

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

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

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

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

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

What is Cognitive/Computational Neuroscience?

Cognitive/Computational neuroscience is a subfield of neuroscience that studies the neural mechanisms that underlie mental processes. Cognitive/Computational neuroscientists tend to study how specific areas of the brain are related to thought and sensory processing, create mathematical models to understand cognitive processes, and may conduct research in areas of artificial intelligence.

**DECLARATION REQUIREMENTS**

In order to declare the pre-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)
Welcome to the Honors Program

In the Honors Program, you will develop a deeper understanding of major content, and you will be challenged to think at a higher level. Honors students may be eligible for4th year honors college advisors.

I. PROGRAM OVERVIEW

Program Goals
- Meet with an advisor to officially be declared as a pre-neuroscience major.
- Complete at least 32 hours in approved neuroscience coursework.
- Have at least a 3.0 cumulative GPA.
- Have completed the Bachelor of Science curriculum.
- At least half of the major’s curriculum must be completed at Ohio State.
- Majors will follow the Bachelor of Science curriculum for GE and other degree requirements.
- Students are encouraged to focus on completion of core requirements before beginning their specialization coursework.
- To earn your degree you must earn at least a “B.”
- To earn your degree you will need an overall GPA of at least a 2.0.
- Research experience is also strongly encouraged for students considering graduate and professional training. You may enroll in a variety of 4998 opportunities.
- Up to 3 hours of experiential coursework can be applied to the breadth requirements of the major.
- Pre-approval from your neuroscience major advisor is required.
- Students planning to graduate “With Honors in Arts and Sciences” should visit our website for information on Honors Contract requirements for neuroscience majors.
- Courses cannot count for both a minor and a major.

II. PROGRAM ADMINISTRATION

honors.college.ohio-state.edu

III. GENERAL EDUCATION REQUIREMENTS

A minor in Neuroscience

IV. BREADTH REQUIREMENT

Choose at least 2 additional courses from the list below

- Neuro 3025 History of Neuroscience
  - 3 hrs | Sp | (Pre-reqs: Psych 3313 & Neuro 3000)
- Psych 4305 Intro to Psychopharmacology
  - 3 hrs | Au, Sp | (Pre-reqs: Psych 3313 and Neuro 3000)
  - Not Open to Students With Credit For Psych 3305
- Psych 5602 Behavioral Genetics
  - 3 hrs | Sp | (Pre-reqs: B or higher in 3313 and Neuro 3000)
- Psych 5898 Seminar in Behavioral Neuroscience
  - 3 hrs | Au | (Pre-reqs: Psych 4501 & Instructor Consent)
- Neuro 4623 Biological Clocks & Behavior
  - 3 hrs | Sp | Spring ’16, ’18 (Pre-reqs: Psych 3313)
- Psych 4644 Hormones & Behavior
  - 3 hrs | Sp | (Pre-reqs: Psych 3313 and Neuro 3000)
  - Not Open to Students With Credit For Psych 5644
- Psych 5603 Stem Cells and the Brain
  - 3 hrs | Au | (Pre-reqs: Psych 3313 and Neuro 3000)
- Psych 5622 The Development of Brain and Behavior
  - 3 hrs | Au | (Pre-reqs: Psych 3313 and Neuro 3000)
- Neuro 3010 Neurophysiology
  - 3 hrs | Au | (Pre-reqs: Neuro 3000)
- Neuro 4050H Neurogenetics
  - 3 hrs | 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
  - 3 hrs | Sp | (Pre-reqs: Neuro 3000 & 3050)
- Neuro 5790H Developmental Neuroscience
  - 3 hrs | Sp | (Pre-reqs: Neuro 3000 & 3050)
- EEOB 4550 Neurobiology of Behavior
  - 3 hrs | Sp | (Pre-reqs: 2 courses in Bio)
- MolGen 4500 General Genetics
  - 3 hrs | Au, Sp, Su | (Pre-reqs: Bio 1113 & 3+ hrs Bio)
  - (Honors Version)
- Biochem 4511 Intro to Biological Chemistry
  - 4 hrs | Au, Sp, Su | (Pre-reqs: Chem 1210/1220 & 2510)
- 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.

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