What is Systems/Behavioral Neuroscience?

Systems/Behavioral Neuroscience studies how neurons work together in networks to understand the mechanisms that underlie behavior. Systems/Behavioral neuroscientists tend to study how the nervous system is related to psychiatric and neurological disorders, how groups of neurons form systems that are related to specified functions (e.g. motor control, learning & memory), and what happens when such systems dysfunction.

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 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

CONTACT US

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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

Systems/Behavioral 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

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

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

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

- **Psych 4644**  Hormones & Behavior
  3hrs  |  Sp  |  (Pre-reqs: Psych 3313 & Neuro 3000)  
  Not Open to Students With Credit For Neuro 5544

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

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

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

- **MolGen 4500**  General Genetics
  3hrs  |  Au, Sp, Su  |  (Pre-reqs: Bio 1113 & 3+ hrs Bio)  
  |  Au, Sp  |  (Honors Version)

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

- **EEOB 4550**  Neurobiology of Behavior
  3hrs  |  Au  |  (Pre-reqs: 2 courses in Bio)
IV. BREADTH REQUIREMENT
Choose at least 2 additional courses from the list below

- **Neuro 3025**  History of Neuroscience  
  3hrs  |  Au  |  (Pre-reqs: Psych 3313 & Neuro 3000)
- **Neuro 3010**  Neurophysiology  
  3hrs  |  Au  |  (Pre-reqs: Neuro 3000)
- **Neuro 4050H**  Neurogenetics  
  3hrs  |  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)
- **Ling 3701**  Language and the Mind  
  3hrs  |  Au, Sp  |  (Pre-reqs: Psych 1100)  
  |  Au, Sp  |  (Honors Version)
- **Psych/CSE/Ling/Philos 5612**  Introduction to Cognitive Science  
  3hrs  |  Au  |  (Pre-reqs: 12hr in Psych/CSE/Ling/Philos)
- **Psych 5614**  Cognitive Neuroscience  
  3hrs  |  Au  |  (Pre-reqs: Psych 3313 or 3513)
- **SHS 5760**  Neurology of Speech and Hearing Mechanisms  
  3hrs  |  Sp  |  (Pre-reqs: Permission of Instructor)
- **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)
- **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)
- **CSE 5526**  Introduction to Neural Networks  
  3hrs  |  Au  |  (Pre-reqs: Psych CSE 3521)
- **Econ 5870**  Neuroeconomics and Decision Neuroscience  
  3hrs  |  Sp  |  (Pre-reqs: Stat 2450 & Psych 3313)
- **Philos 5840**  Advanced Philosophy of Cognitive Science  
  3hrs  |  Au, Sp  |  (Pre-reqs: Psych 1100)
- **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.