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

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

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

**Additional Core**

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

- **Neuro 3050** Structure & Function of the Nervous System  
  3hrs | Au, Sp | (Pre-req: 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-req: Psych 1100 & Math 1148)  
  | Au, Sp | (Honors Version)

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

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

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

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

- **Psych 3310** Sensation and Perception  
  3hrs | Au, Sp | (Pre-req: Psych 1100)

- **Psych 3312** Memory & Cognition  
  3hrs | Au, Sp | (Pre-req: Psych 1100)

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

- **Psych 5606** High Level Vision  
  3hrs | Sp | (Pre-req: Psych 3310)

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

- **Psych 5614** Cognitive Neuroscience  
  3hrs | Au | (Pre-req: Psych 3313 or 3513)

- **Psych 5618** Introduction to Computational Cognitive Neuroscience  
  3hrs | Au | (Pre-req: Psych 3513)

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

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

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

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

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

- **Psych 5609** Intro to Mathematical Models in Experimental Psych  
  3hrs | Au | (Pre-req: Psych 5608)
### IV. BREADTH REQUIREMENTS

Choose at least 2 additional courses from the list below.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Terms</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psych 4305</td>
<td>Intro to Psychopharmacology</td>
<td>3hrs</td>
<td>Au, Sp</td>
<td>Pre-req: Psych 3313</td>
</tr>
<tr>
<td>Psych 4501</td>
<td>Advanced Behavioral Neuroscience</td>
<td>3hrs</td>
<td>Sp</td>
<td>Pre-req: B or higher in 3313</td>
</tr>
<tr>
<td>Psych 5602</td>
<td>Behavioral Genetics</td>
<td>3hrs</td>
<td>Sp</td>
<td>Pre-req: B or higher in 3313</td>
</tr>
<tr>
<td>Psych 5898</td>
<td>Seminar in Behavioral Neuroscience</td>
<td>3hrs</td>
<td>Au</td>
<td>Pre-req: Psych 4501 &amp; Instructor Consent</td>
</tr>
<tr>
<td>Neuro 4623</td>
<td>Biological Clocks &amp; Behavior</td>
<td>3hrs</td>
<td>Sp</td>
<td>Pre-req: Psych 3313</td>
</tr>
<tr>
<td>Psych 4644</td>
<td>Hormones &amp; Behavior</td>
<td>3hrs</td>
<td>Sp</td>
<td>Pre-req: Psych 3313</td>
</tr>
<tr>
<td>Psych 5613H</td>
<td>Biological Psychiatry</td>
<td>3hrs</td>
<td></td>
<td>Pre-req: Psych 4501</td>
</tr>
<tr>
<td>Neuro 3010</td>
<td>Neurophysiology</td>
<td>3hrs</td>
<td>Au</td>
<td>Pre-req: Neuro 3000</td>
</tr>
<tr>
<td>Neuro 4050</td>
<td>Neurogenetics</td>
<td>3hrs</td>
<td>Au</td>
<td>Pre-req: Neuro 3000</td>
</tr>
<tr>
<td>Neuro 4100</td>
<td>Basic &amp; Clinical Foundations of Neurological Disease</td>
<td>3hrs</td>
<td>Au</td>
<td>Pre-req: Neuro 3000</td>
</tr>
<tr>
<td>Neuro 4640</td>
<td>Neuronal Signal Transduction</td>
<td>3hrs</td>
<td>Sp</td>
<td>Pre-req: Neuro 3000 &amp; 3050</td>
</tr>
<tr>
<td>Neuro 5790H</td>
<td>Developmental Neuroscience</td>
<td>3hrs</td>
<td>Sp</td>
<td>Pre-req: Neuro 3000 &amp; 3050</td>
</tr>
<tr>
<td>EEOB 4550</td>
<td>Neurobiology of Behavior</td>
<td>3hrs</td>
<td>Au</td>
<td>Pre-req: 2 courses in Bio</td>
</tr>
<tr>
<td>MolGen 4500</td>
<td>General Genetics</td>
<td>3hrs</td>
<td>Au, Sp, Su</td>
<td>Pre-req: Bio 1113 &amp; 3+ hrs Bio</td>
</tr>
<tr>
<td>Biochem 4511</td>
<td>Intro to Biological Chemistry</td>
<td>4hrs</td>
<td>Au, Sp, Su</td>
<td>Pre-req: Chem 1210/1220 &amp; 2510</td>
</tr>
<tr>
<td>Neuro 4998/3193</td>
<td>Undergraduate Research &amp; Individual Studies</td>
<td>Pre-approval required.</td>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

### HONORS AND GRADUATE LEVEL COURSE OFFERINGS

Honors students* and students with a 3.4 or higher cumulative and major GPAs are eligible to take graduate level courses. Course credit at the graduate level may be substituted for credit within the specialization and/or breadth requirements. To see current course offerings, please visit:

[http://neurosciencemajor.osu.edu/honors](http://neurosciencemajor.osu.edu/honors)

*Honors students are required to take at least one honors or graduate level course.

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**Important information about the Neuroscience Major**

1. **Students must meet the following requirements to declare the neuroscience major:**
   - First, meet with an advisor to officially be declared as a pre-neuroscience major.
   - Complete 24 total semester credit hours.
   - At least 12 of those semester credit hours must be from graded OSU coursework.
   - An overall GPA greater than or equal to 3.0.
   - Earn at least a “B” in Psych 3313 and Neuro 3000.

2. **Thirty-six (36) semester credits in approved Neuroscience coursework.**

3. **At least half of the major’s curriculum must be completed at Ohio State.**

4. **Majors will follow the Bachelor of Science curriculum for GE and other degree requirements.**

5. **Students are encouraged to focus on completion of core requirements before beginning their specialization coursework.**

6. **For courses to apply toward the major, you must earn at least a “C”.**

7. **To earn your degree you will need an overall GPA of at least 2.0.**

8. **Research experience is also strongly encouraged for students considering graduate and professional training. You may enroll in a variety of 4998 opportunities.**

   [http://neurosciencemajor.osu.edu/4998](http://neurosciencemajor.osu.edu/4998)

9. **Up to 3 hours of experiential coursework can be applied to the breadth requirements of the major.**
   - This experiential coursework can be from any combination of the following classes: Undergraduate Research (4998) and Individual Studies.
   - **Pre-approval from your neuroscience major advisor is required.**

10. **Students planning to graduate "With Honors in Arts and Sciences" should visit our website for information on Honors Contract requirements for neuroscience majors.**

   [http://neurosciencemajor.osu.edu/honors](http://neurosciencemajor.osu.edu/honors)

11. **Courses cannot count for both a minor and a major.**

The interdisciplinary major in neuroscience was created by a joint venture between the College of Arts and Sciences & the College of Medicine.