Neuroscience is a scientific field that investigates the organization, development, and function of the nervous systems and their relationship to behavior, cognition, and disorders.

It combines diverse subjects such as psychology, biology, genetics, chemistry, biochemistry, physics, and computer science. If you have a broad interest in many disciplines of science, neuroscience is a great field within which to develop those interests.

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 like axons and dendrites function, and explore the anatomy/physiology of neurons.

Major Requirements
The requirements for the 36 semester hour neuroscience major are distributed across four categories: Core Requirements (12 credits), Data Analysis Requirement (3 credits), Specialization Requirements (15 credits), and Breadth Requirements (6 credits).

I. CORE REQUIREMENTS
Take all 4 of the courses below

- Psych 3313 Introduction to Behavioral Neuroscience
  3hrs  |  Au, Sp  |  Su  |  (Pre-reqs: Psych 1100)
- Psych 3513 Introduction to Cognitive Neuroscience
  3hrs  |  Au, Sp  |  (Pre-reqs: Psych 1100)
- Neuro 3000 Introduction to Neurosciences
  3hrs  |  Au, Sp  |  (Pre-reqs: Bio 1113)
- 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 & 10 hr 3000-level Bio)

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

- Psych 3305 Drugs & Behavior
  3hrs  |  Au, Sp  |  (Pre-reqs: Psych 1100)
- Neuro 3010 Neurophysiology
  3hrs  |  Ma  |  (Pre-reqs: Neuro 3000)
- Neuro 4100 Basic & Clinical Foundations of Neurological Disease
  3hrs  |  Au  |  (Pre-reqs: Neuro 3000 & 3050)
- MolGen 4500 General Genetics
  3hrs  |  Au, Sp,  |  Su  |  (Pre-reqs: Bio 1113 & 3+ hrs Bio)
  |  Au, Sp  |  (Honors Version)
- Psych 4501 Advanced Behavioral Neuroscience
  3hrs  |  Sp  |  (Pre-reqs: B or higher in 3313; Even Year Sp)
- Biochem 4511 Intro to Biological Chemistry
  4hrs  |  Au, Sp,  |  Su  |  (Pre-reqs: Chem 1210/1220 & 2510)
- Psych 4644 Hormones & Behavior
  3hrs  |  Sp  |  (Pre-reqs: Psych 3313)
  Not Open to Students With Credit For Neuro 5644
- Neuro 5644 Behavioral Endocrinology
  3hrs  |  Au  |  (Pre-reqs: Neuro 3000; Even Year Au)
  Not Open to Students With Credit For Psych 4644
IV. BREADTH REQUIREMENT

Choose at least 2 additional courses from the list below:

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

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

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

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

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

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

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

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

- **Psych 5613H** Biological Psychiatry
  3hrs | Sp | (Pre-req: Psych 4501; Odd Year:5p)

- **Psych 5898** Seminar in Behavioral Neuroscience
  3hrs | Sp | (Pre-req: Psych 4501; Odd Year:5p)

- **Psych 4623** Biological Clocks & Behavior
  3hrs | Au | (Pre-req: Psych 4501; Odd year: Au)

- **Math 4194** Quantitative Neuroscience
  3hrs | Sp | (Pre-req: Math 1151 &1152).

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

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

**GRADUATE LEVEL COURSE OFFERINGS**

Course credit at the graduate level may be substituted for credit within the specialization and breadth requirements.

Courses below may also count toward the specialization requirements:

- **Neuro 7001** Foundations of Neuroscience I
  6hrs | Au | (Pre-req: Permission of Instructor)

- **Neuro 7002** Foundations of Neuroscience II
  6hrs | Sp | (Pre-req: Permission of Instructor)

- **Neuro 7050** Neurobiology of Disease
  3hrs | Sp | (Pre-req: Permission of Instructor)

- **MVIMG 7500** Neuroimmunology
  3hrs | Sp | (Pre-req: Permission of Instructor)

Courses below may also count toward the breadth requirements:

- **CSE 5539** Intermediate Studies in AI
  2hrs | Au, Sp | (Pre-req: Permission of Instructor)

- **Neuro 7900** Developmental Neurobiology
  2hrs | TBA | (Pre-req: Permission of Instructor)

Important information about the Neuroscience Major

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

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

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

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

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

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

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

http://neurosciencemajor.osu.edu/4998

8. 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 (3193).

   Pre-approval from your neuroscience major advisor is required.

   An additional 2 credit hours can count toward the major’s 36 hour requirement.

9. 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

10. 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.

Sheet updated 9/17/12