

# Certificate in Neuroscience

The Certificate in Neuroscience will provide students the opportunity to explore the many disciplines within the neurosciences, including brain imaging, molecular neuroscience, cognitive neuroscience, behavioral neuroscience, bio-engineering, clinical neuroscience, developmental neuroscience, and neuropsychology. Students will identify processes in the organization and function of the nervous system that contribute to cognition and behavior. The certificate will prepare students for post-graduate training and work in neuroscience related jobs and disciplines. These areas include medicine, clinical and physical therapy, forensics, biotechnology, pharmacy, science writing, and science education.

## Requirements

Twelve credit hours are required for completion of the certificate. At least 6 hours must be at the 3000-level or above. A maximum of 6 hours from a department may be applied to the 12 hour requirement. All grades must be "S" or "C-" or better. Grades of "U" or "D+" or below will not be accepted. A maximum of 3 hours from problems/readings and/or internship sections may be applied and the student must demonstrate that the experiential learning was related to neuroscience. All certificate coursework must be completed at the University of Missouri-Columbia.

A certificate consists of at least 12 credits; at least 12 credits must be taken in MU course work. Students must meet the minimum GPA requirements for a certificate, which in no case can be lower than 2.0. In addition, a student cannot receive a grade lower than a C- in any course applied towards a certificate in the College. For more information, please see Requirements for an Optional Certificate (<https://catalog.missouri.edu/collegeofartsandscience/#requirementsforanoptionalcertificate>).

### Bioengineering

BME 2017	World of Neuroscience	1
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### Biological Sciences

BIO_SC 2017	World of Neuroscience	1
BIO_SC 2020	How the Brain Works	1
BIO_SC 3700	Human Physiology	5
BIO_SC 4500	Neurobiology	3
BIO_SC 4590	Computational Neuroscience	3
BIO_SC 4640	Behavioral Biology	3-4

### Biomedical Engineering

BIOL_EN 4070	Bioelectricity	3
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### Computer Science

CMP_SC 2017	World of Neuroscience	1
CMP_SC 4540	Neural Models and Machine Learning	3
CMP_SC 4590	Computational Neuroscience	3
CMP_SC 4730	Building Intelligent Robots	4

### Electrical & Computer Engineering

ECE 2001	Experimental Course	1-99
ECE 2017	World of Neuroscience	1
ECE 4590	Computational Neuroscience	3

### Electrical Engineering

BIOL_EN 4075	Brain Signals and Brain Machine Interfaces (Electrical & Computer Engineering)	3
BIOL_EN 2017	World of Neuroscience	1

### Linguistics

LINGST 2820	Minds, Brains, and Machines	3
<b>Medical School</b>		
MPP 3202	Elements of Physiology	5
MPP 4202	Medical Physiology	4
MPP 4204	Medical Pharmacology	4
<b>Neuroscience</b>		
NEUROSCI 1000	Career Foundations in Neuroscience	1
NEUROSCI 1010	Neuroscience Foundations	3
NEUROSCI 3010	Behavioral Neuroscience	3
NEUROSCI 3020	Cognitive Neuroscience	3
NEUROSCI 3030	Cellular Molecular Neuroscience	3
NEUROSCI 3040	Structure and Function of the Nervous System	3
<b>Philosophy</b>		
PHIL 2820	Minds, Brains, and Machines: An Introduction to Philosophy of Cognitive Science	3
<b>Psychological Sciences</b>		
PSYCH 2017	World of Neuroscience	1
PSYCH 2110	Learning, Memory, and Cognition	3
PSYCH 2210	Mind, Brain, and Behavior	3
PSYCH 2220	Drugs and Behavior	3
PSYCH 2820	Minds, Brains, and Machines	3
PSYCH 3140	Cognitive Psychology	3
PSYCH 3150	Human Memory	3
PSYCH 3160	Perception and Thought	3
PSYCH 3511	Emotion Regulation and the Brain	3
PSYCH 3890	Music and the Mind	3
PSYCH 4110	Perception	3
PSYCH 4210	Physiological Psychology	3
PSYCH 4240	Cognitive Neuroscience	3
PSYCH 4561	Psychosis and the Brain	3
PSYCH 4564	Psychobiology of Sex and Gender	3
PSYCH 4570	Pediatric Neuropsychology	3
PSYCH 4973W	Human Cognition Capstone - Writing Intensive	3
PSYCH 4974W	Psychology of Art Capstone - Writing Intensive	3
PSYCH 4986W	Perception and Action Capstone - Writing Intensive	3
<b>Speech, Language and Hearing Sciences</b>		
SLHS 3890	Music and the Mind	3