The undergraduate Certificate Program in Neuroscience is an interdisciplinary program requiring 18 credits of training in Neuroscience. The Program provides a group of related courses capped by a research experience. The Program is likely to be of particular interest to students who want to pursue graduate or professional training, but it is intended to appeal to any student interested in Neuroscience.

Courses taken for the certificate in the lower division (1000 and 2000 level) may satisfy general education requirements (that is, breadth requirements), if they are approved general education courses. Courses in the upper division (3000 level and above) may satisfy requirements for the student’s major, consistently with the major’s requirements. All required courses must be completed with a “B-“average or higher. Pass/Fail grades will not count.

Most courses required by the Neuroscience Certificate have prerequisites. Some students may satisfy prerequisites by virtue of their prior curriculum. When this is not the case, students are responsible for satisfying the prerequisites.

Prospective students should contact Jamie Gunn (jlgn65@umsl.edu), Allyssa Daughetry (als253@umsl.edu) or the Psychology Department Advising PRIOR TO BEGINNING THE PROCESS

Requirements

(1) The two entry level courses (8 credit hours):
   BIOL 1831: Introductory Biology: From Molecules to Organisms
   PSYCH 2211: Introduction to Biological Psychology

(2) One statistics course selected from the list below (3 credit hours):
   BIOL 4122: Biometry
   MATH 1320: Applied Statistics I
   PSYCH 2201: Psychological Statistics
   SOC 3220: Sociological Statistics

(3) Two elective courses (6 credit hours). At least one elective must be taken outside the student’s major: Any one of the following classes:

Psychology

- PSYCH 2200: Drugs and Behavior. Prerequisite: PSYCH 1003
- PSYCH 3205: Evolutionary Psychology. Prerequisite: PSYCH 2211
- PSYCH 4300: Introduction to Psychopharmacology. Prerequisite: 9 hours of psychology
- PSYCH 4314: Behavioral Neuroscience. Prerequisite: PSYCH 2211 and 9 hours of psychology or biology
- PSYCH 4330: Hormones, the Brain and Behavior. Prerequisite: One from 2200, 2211, 4300 and 9 hours of psychology or biology
- PSYCH 4349: Human Learning and Memory. Prerequisite: PSYCH 2211 and 6 hours of psychology
• PSYCH 4350: Emotions and the Brain. Prerequisite: PSYCH 2211 and 6 hours of psychology
• PSYCH 4356: Cognitive Processes. Prerequisite: 9 hours of psychology
• PSYCH 4374: Introduction to Clinical Neuropsychology. Prerequisite: 9 hours of psychology

Biology
• BIOL 1131: Human Physiology and Anatomy. Prerequisite: BIOL 1012 or equivalent
• BIOL 1162: General Microbiology. Prerequisite: BIOL 1012 or equivalent
• BIOL 2012: Genetics. Prerequisite: BIOL 1831, MATH 1030 & CHEM 1111
• BIOL 2482: Microbiology. Prerequisite: BIOL 1831, MATH 1030 & CHEM 1111
• BIOL 3102: Animal Behavior. Prerequisite: BIOL 1821 & BIOL 1831
• BIOL 3622: Cell Biology. Prerequisite: BIOL 1831, BIOL 2012, MATH 1030 & CHEM 2612
• BIOL 4822: Introductory Neuroscience. Prerequisite: BIOL 3802

Chemistry
• CHEM 1052: Chemistry for Health Care Professionals. Prerequisite: none
• CHEM 1602: Chemistry for Health Care Professionals. Prerequisite: none
• CHEM 2612: Biochemistry. Prerequisite: BIOL 1831 or CHEM 2622

Philosophy
• PHIL 1178: Superhuman Mind. Prerequisite: none
• PHIL 2280: Minds, Brains, and Machines. Prerequisite: none
• PHIL 3378: Philosophy of Mind: Prerequisite: none
• PHIL 3380: Philosophy of Science: Prerequisite: none
• PHIL 4478: Topics in Philosophy and Mind: Prerequisite: PHIL 3378 or 6 hours of philosophy
• PHIL 4479: Philosophy of Cognitive Science. Prerequisite: PHIL 3378 or PHIL 7487 or 9 hours of philosophy
• PHIL 4480: Topics in Philosophy of Science. Prerequisite: Consent of the instructor.

Physics
• PHYSICS 4347: Biophysics of Imaging. Prerequisite: PHYSICS 3231, BIOL 1821 & BIOL 1831

Other
• CMP SCI 4300: Introduction to Artificial Intelligence. Prerequisite: CMP SCI 2261, CMP SCI 2750 & CMP SCI 3130
• CMP SCI 4340: Introduction to Machine Learning. Prerequisite: CMP SCI 2261, CMP SCI 2750 & CMP SCI 3130
• HONORS 3160: Honors Writing in the Sciences. Prerequisite: See Honors College
(4) At least 3 credits from two semesters of research experience related to neuroscience. This requires completion of a Directed Research Assistantship with a Neuroscience faculty member within any of the participating departments. The research project MUST BE APPROVED in advance by the undergraduate advisor with the assistance of a committee of Neuroscience faculty. It is expected that this research will lead to a presentation at the UM-St. Louis Neuroscience seminar, the Undergraduate Research Symposium or a similar conference outside of UMSL.

BIOL 4905: Research  
CHEM 3905: Chemical Research  
CMP SCI 4880: Individual Studies  
PHIL 4450: Special Readings in Philosophy  
PHYSICS 3390: Research  
PSYCH 3390: Directed Studies