Minor in Computational Neuroscience

Computational neuroscience is becoming an important tool for neuroscientists to understand how complex brain circuits work, for example, what causes post-traumatic stress disorder. This intersection of engineering and neuroscience is allowing great advances in health care, manufacturing and communication.

Requirements

<table>
<thead>
<tr>
<th>Required Core</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE/BIO_SC 4590 Computational Neuroscience</td>
<td>4</td>
</tr>
</tbody>
</table>

**Biology Core for Engineering/Physics/Math Students**

Take 6 credit hours from the following list:

- BIO_SC 1010 General Principles and Concepts of Biology
- & BIO_SC 1020 and General Biology Laboratory
- or F_W 1100 Introductory Zoology with Laboratory
- or BIO_SC 1500 Introduction to Biological Systems with Laboratory
- or BIO_SC 2300 Introduction to Cell Biology
- PSYCH 2210 Mind, Brain, and Behavior
- or PSYCH 4210 Physiological Psychology
- ECE 2017 World of Neuroscience
- or BIO_SC 2017 World of Neuroscience
- or CMP_SC 2017 World of Neuroscience

**Engineering/Physics/Math Core for Biology/Psychology Students**

Take 6 credit hours from the following list:

- PHYSICS 1220 College Physics II
- or PHYSICS 2760 University Physics II
- INFOTC 1040 Introduction to Problem Solving and Programming
- BIOL EN 2080 Introduction to Programming for Engineers
- ECE 2017 World of Neuroscience
- or CMP_SC 2017 World of Neuroscience
- or BIO_SC 2017 World of Neuroscience

**All students must select two courses from the following list:**

**Biological Science Courses:**

- MPP 3202 Elements of Physiology
- BIO_SC 3700 Animal Physiology
- BIO_SC 4500 Neurobiology
- BIO_SC 4560 Sensory Physiology and Behavior
- BIO_SC 4986 Neurology of Motor Systems
- BIO_SC 4988 Nerve Cells and Behavior
- ECE 2017 World of Neuroscience
- or CMP_SC 2017 World of Neuroscience
- or BIO_SC 2017 World of Neuroscience

**Engineering or Physics Courses:**

- BIOL EN 4075 Brain Signals and Brain Machine Interfaces
- or BME 4075 Brain Signals and Brain Machine Interfaces
- BIOL_EN 4540 Neural Models and Machine Learning
- or BME 4540 Neural Models and Machine Learning
- ECE 2017 World of Neuroscience
- or CMP_SC 2017 World of Neuroscience
- or BIO_SC 2017 World of Neuroscience
- or BIOL EN 4075 Brain Signals and Brain Machine Interfaces
- or BME 4075 Brain Signals and Brain Machine Interfaces
- or BIOL_EN 4540 Neural Models and Machine Learning
- or BME 4540 Neural Models and Machine Learning
- ECE 4310 Feedback Control Systems
- ECE 4830 Introduction to Digital Signal Processing
- PHYSICS 4310
- PHYSICS 4500 Computational Biological Physics

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University of Missouri