NEUROSCIENCE (B.S.)

The field of neuroscience is highly interdisciplinary and has been built from many different areas of study. A well-rounded education in neuroscience includes investigations into the molecular, cellular, and genetic aspects of nervous system functioning as well as their influences on behavior. The neuroscience curriculum at Keene State mirrors the interdisciplinarity of the field. The core of the neuroscience major draws courses from biology, chemistry, and psychology. Students may also take elective courses from Computer Science, Health Science, Math, Philosophy, and Physics.

The major places a strong emphasis on direct research experience within neuroscience, with each student conducting a research project as part of the major. In addition, the neuroscience major creates an environment where faculty and students work collaboratively and discuss current issues in neuroscience.

The curriculum spans a diverse course of study incorporating the interdisciplinary nature of a liberal arts education and a rigorous study of subjects, such as:

- The regions of the brain
- Circuits in the brain
- The function of neurons
- The effects and influences of the brain on behavior
- Research methodologies
- The molecular, cellular, and genetic characteristics of the nervous system.

**Integrative Studies Requirements**

*40 credits*

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Completed</th>
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<tbody>
<tr>
<td>Major Requirements (72 credits)</td>
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<tr>
<td>Core Courses (36 Credits)</td>
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<tr>
<td>INBIO-110</td>
<td>Cells and Molecules</td>
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<tr>
<td>INBIO-111</td>
<td>Evolution &amp; Ecology</td>
<td>4</td>
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<tr>
<td>ISPSYC-101</td>
<td>General Psychology</td>
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<td>INCHEM-111</td>
<td>General Chemistry</td>
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<td>CHEM-112</td>
<td>Gen Chemistry II</td>
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<td>PSYC-252</td>
<td>Research Meth Psyc</td>
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<td>PSYC-253</td>
<td>Brain &amp; Behavior</td>
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<tr>
<td>BIO-312</td>
<td>Cell Biology</td>
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<tr>
<td>MATH-141</td>
<td>Introductory Statistics</td>
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<tr>
<td>or PSYC-251</td>
<td>Psychological Statistics</td>
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<tr>
<td>Research Courses (8 Credits)</td>
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<tr>
<td>PSYC-498</td>
<td>Independent Study (Must take Independent Study twice to total 8 credits)</td>
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**Capstone**

- PSYC-475 Human Psychophysiology

**Foundation Courses**

Select two of the following:

- BIO-311 Genetics
- BIO-382 Neurobiology
- BIO-445 Animal Behavior
- PSYC-453 Sensation & Perception
- PSYC-457 Cognitive Neuroscience

**Related Science Courses:**

- CHEM-221 Organic Chemistry I
- CHEM-222 Organic Chemistry II
- INPHYS-141 College Physics I or INPHYS-241 University Physics I

**Recommended Science Courses (Not Required)**

- PHYS-142 College Physics II or PHYS-242 University Physics II

**Elective Courses (4 Credits)**

Select one additional 200/300/400 level course from one of the following disciplines (not including independent studies or practica, PSYC-298/498 or PSYC-470):

- Biology (BIO)
- Chemistry (CHEM)
- Computer Science (CS)
- Health Sciences (HLSC)
- Math (MATH)
- Philosophy (PHIL)
- Psychology (PSYC)

**Total Credits**

72

1 Can be repeated as allowed

**Electives**

Select courses to reach a total of 120 credits.

**Degree Requirements**

*120 credits*

40 credits at the upper-level

Upon completion of the Neuroscience B.S. degree, students will:

- Gain the theoretical background necessary for exploring the fundamental questions that neuroscience researchers in the fields of biology, chemistry and psychology ask when studying the brain.
- Develop familiarity with major theories and research methodologies that underlie current neuroscience research.
• Learn the major topics involved in an understanding of the neuroscientific foundations of human and animal behavior and how the central and peripheral nervous systems as well as the endocrine system relate to these behaviors.

• Be able to develop testable hypotheses, design experiments to test hypotheses and conduct experiments including data collection, analysis, interpretations and presentation. They will also be able to effectively search computer databases for relevant literature (primary and secondary) on scientific topics.

• Understand and be able to critically evaluate research literature in neuroscience.

• Engage in academic activities that support the important interdisciplinary connections in neuroscience research and theories.