Neuroscience, B.S.

Learning Outcomes

Students will:

• learn how molecules and cells generate brain circuits that build human behavior and cognition;
• design effective experiments;
• think critically about scientific data;
• communicate effectively about neuroscience; and
• be prepared for graduate education in neuroscience or related life-science fields; for medical school or other health-related programs such as public health or nursing; or for a first step in a career, including work in biomedical industries, academic laboratories, and science education.

Requirements

The Bachelor of Science with a major in neuroscience requires a minimum of 120 s.h., including at least 63 s.h. of work for the major. Course work includes neuroscience, chemistry, biochemistry, mathematics, and physics courses. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences GE CLAS Core.

Students who major in neuroscience may not earn a major in biology or psychology, but may earn a minor in biology or psychology as long as no more than 3 s.h. are double counted.

The B.S. with a major in neuroscience requires the following course work:

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
<td>Cognate Requirements</td>
<td>23-26</td>
</tr>
<tr>
<td></td>
<td>Introductory Courses</td>
<td>8</td>
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<tr>
<td></td>
<td>Core Courses</td>
<td>19</td>
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<tr>
<td></td>
<td>Laboratory Course</td>
<td>4-5</td>
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<tr>
<td></td>
<td>Neuroscience Electives</td>
<td>9-12</td>
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<tr>
<td></td>
<td>Total Hours</td>
<td>63-70</td>
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Cognate Requirements

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<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BIOL:3244</td>
<td>Animal Behavior (with lab)</td>
<td>5</td>
</tr>
<tr>
<td>BIOL:3656</td>
<td>Neurobiology Laboratory</td>
<td>4</td>
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</tbody>
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Honors

Honors in the Major

Students majoring in neuroscience have the opportunity to graduate with honors in the major. Departmental honor students must maintain a major g.p.a. and a UI g.p.a. of at least 3.33.
In order to earn honors in the neuroscience major, students must complete the following:

A minimum of 6 s.h. over two or more semesters of an independent laboratory research project undertaken in the laboratory of an Iowa Neuroscience Institute (INI) faculty member chosen from a list of approved mentors. Students enroll in BIOL:4995/PSY:4995 Honors Research in Neuroscience.

A brief initial research proposal summarizing the background and goals of the planned honors investigations research, submitted to the honors coordinator, typically at the end of the first semester of honors research.

An acceptable honors thesis describing the research submitted to the honors coordinator near the end of the final semester of enrollment in BIOL:4995/PSY:4995 Honors Research in Neuroscience.

An oral presentation of the honors research findings during the student's final semester.

Honors students also are encouraged to participate in the Iowa Center for Research by Undergraduates (ICRU) and to apply for research scholarships, including the Iowa Neuroscience Institute (INI) Summer Scholars Fellowships.

Neuroscience majors interested in graduating with honors in the major should contact the honors coordinator as early as possible, preferably during their sophomore or junior year.

University of Iowa Honors Program

In addition to honors in the major, students have opportunities for honors study and activities through membership in the University of Iowa Honors Program. Visit Honors at Iowa to learn about the University’s honors program.

Students who satisfy the requirements for honors in the neuroscience major also satisfy the Level Two: Learning by Doing requirement of the University Honors Curriculum.

Membership in the UI Honors Program is not required to earn honors in the neuroscience major.

Academic Plans

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan. Courses in the major are those required to complete the major; they may be offered by departments other than the major department.


Before the fifth semester begins: BIOL:3343 Animal Physiology, PHYS:1511 College Physics I or PHYS:1611 Introductory Physics I, PSY:2811 Research Methods and Data Analysis in Psychology I, PSY:2812 Research Methods and Data Analysis in Psychology II, and PSY:2975 Introduction to Cognitive Neuroscience

Before the seventh semester begins: BIOC:3110 Biochemistry, or BIOC:3120 Biochemistry and Molecular Biology I and BIOC:3130 Biochemistry and Molecular Biology II; BIOL:3253 Neurobiology; BIOL:3244 Animal Behavior (with lab) or BIOL:3656 Neurobiology Laboratory; BIOL:3753 Developmental Neurobiology; and PHYS:1512 College Physics II or PHYS:1612 Introductory Physics II

Before the eighth semester begins: two required neuroscience electives

During the eighth semester: one required neuroscience elective, enrollment in all remaining course work in the major, all remaining GE CLAS Core courses, and a sufficient number of semester hours to graduate

Career Advancement

The major provides students with a rigorous and broad background in neuroscience, from the cellular and molecular levels to the behavioral and cognitive levels. Students earning a degree in neuroscience will be well prepared to pursue graduate work in neuroscience or related life sciences, to attend medical school, or to enter other health-related programs such as a physician's assistant program, public health, or nursing. Graduates also will be prepared to directly enter the workforce in biotechnology industries, academic life science laboratories, or in science education, and science writing.

The Pomerantz Career Center offers multiple resources to help students find internships and jobs.