BS in Neuroscience (285620) MAP Sheet
Life Sciences, Neuroscience Center
For students entering the degree program during the 2022-2023 curricular year.

The neuroscience undergraduate program is an interdisciplinary program that allows students to seek advisement at Life Sciences Advisement.

University Core and Graduation Requirements

<table>
<thead>
<tr>
<th>University Core Requirements:</th>
<th>Suggested Sequence of Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>University Core Requirements:</strong></td>
<td><strong>FRESHMAN YEAR</strong></td>
</tr>
<tr>
<td><strong>Requirements</strong></td>
<td><strong>1st Semester</strong></td>
</tr>
<tr>
<td><strong>#Classes</strong></td>
<td><strong>Hours</strong></td>
</tr>
<tr>
<td><strong>Religion Cornerstones</strong></td>
<td></td>
</tr>
<tr>
<td>Teachings and Doctrine of The Book of Mormon</td>
<td>1</td>
</tr>
<tr>
<td>Jesus Christ and the Everlasting Gospel</td>
<td>1</td>
</tr>
<tr>
<td>Foundations of the Restoration</td>
<td>1</td>
</tr>
<tr>
<td>The Eternal Family</td>
<td>1</td>
</tr>
<tr>
<td><strong>American Heritage</strong></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>3-6.0</td>
</tr>
<tr>
<td><strong>Skills</strong></td>
<td></td>
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<tr>
<td>First Year Writing</td>
<td>1</td>
</tr>
<tr>
<td>Advanced Written and Oral Communications</td>
<td>1</td>
</tr>
<tr>
<td>Languages of Learning (Math or Language)</td>
<td>0-1</td>
</tr>
<tr>
<td><strong>Arts, Letters, and Sciences</strong></td>
<td></td>
</tr>
<tr>
<td>Civilization 1</td>
<td>1</td>
</tr>
<tr>
<td>Civilization 2</td>
<td>1</td>
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<tr>
<td>Arts</td>
<td>1</td>
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<tr>
<td>Letters</td>
<td>1</td>
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<tr>
<td>Biological Science</td>
<td>1</td>
</tr>
<tr>
<td>Physical Science</td>
<td>2</td>
</tr>
<tr>
<td>Social Science</td>
<td>1</td>
</tr>
<tr>
<td><strong>Core Enrichment: Electives</strong></td>
<td></td>
</tr>
<tr>
<td>Religion Electives</td>
<td>3-4</td>
</tr>
<tr>
<td>Open Electives</td>
<td>Variable</td>
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<tr>
<td>Variable</td>
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<tr>
<td>Note: <strong>NEURO 316</strong> fulfills GE Advanced Written and Oral Communication requirement. English 315 will substitute for this course.</td>
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**Graduation Requirements:**
- Minimum residence hours required: 30.0
- Minimum hours needed to graduate: 120.0

*NEURO 455R should be taken twice; once in semester 3 or 4, and once in semester 5 or 6

Note: Students are encouraged to complete an average of 16 credit hours each semester or 32 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate. Note: Requirement 9. The Exit Interview, must be completed during the last semester. You will be contacted during the graduation clearance process.
**BS in Neuroscience (285620)**

**2022-2023 Program Requirements (66 - 69 Credit Hours)**

<table>
<thead>
<tr>
<th>REQUIREMENT</th>
<th>Complete 4 courses</th>
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</thead>
<tbody>
<tr>
<td><strong>MAJOR CORE COURSES:</strong></td>
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<tr>
<td>NEURO 205 - Neurobiology</td>
<td>3.0</td>
</tr>
<tr>
<td>NEURO 360 - Neuropsychiatry</td>
<td>2.0</td>
</tr>
<tr>
<td>NEURO 461 - Behavioral Neuroscience</td>
<td>3.0</td>
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<tr>
<td>NEURO 489 - Cellular Neuroscience</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**REQUIREMENT 2 Complete 4 courses**

**LIFE SCIENCES COURSES:**

- NEURO 449R - Undergraduate Research Experience
- NEURO 399R - Neuroscience Academic Internship
- Instructor Permission is sought early in your BYU education. An approved internship or campus internships and on-campus research experiences should complete at least 1.0 hour from the following courses.

<table>
<thead>
<tr>
<th>CHEMISTRY COURSES:</th>
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</thead>
<tbody>
<tr>
<td>CHEM 352</td>
<td>Organic Chemistry 1</td>
<td>3.0</td>
</tr>
<tr>
<td>CHEM 351</td>
<td>Organic Chemistry 2</td>
<td>3.0</td>
</tr>
<tr>
<td>CHEM 106</td>
<td>General College Chemistry 2</td>
<td>3.0</td>
</tr>
<tr>
<td>CHEM 105</td>
<td>General College Chemistry 1 with Lab (Integrated)</td>
<td>4.0</td>
</tr>
</tbody>
</table>

**REQUIREMENT 3 Complete 2 courses**

**PSYCHOLOGY COURSES:**

- *PSYCH 111 - Introduction to Psychological Science* | 3.0 |
- PSYCH 375 - Cognition | 3.0 |

**REQUIREMENT 4 Complete 5 courses**

**CHEMISTRY COURSES:**

- *CHEM 105 - General College Chemistry 1 with Lab (Integrated)* | 4.0 |
- CHEM 106 | General College Chemistry 2 | 3.0 |
- CHEM 126 | General College Chemistry Laboratory | 1.0 |
- CHEM 351 | Organic Chemistry 1 | 3.0 |
- CHEM 352 | Organic Chemistry 2 | 3.0 |

**REQUIREMENT 5 Complete 1 option**

**COMPLETE ONE OF THE FOLLOWING PHYSICS COURSE OPTIONS:**

**OPTION 5.1 Complete 2 courses**

- PHSCS 105 - General Physics 1 | 3.0 |
- PHSCS 106 - General Physics 2 | 3.0 |

**OPTION 5.2 Complete 3 courses**

- PHCS 121 - Introduction to Newtonian Mechanics | 3.0 |
- PHCS 123 - Introduction to Waves, Optics, and Thermodynamics | 3.0 |
- PHCS 220 - Introduction to Electricity and Magnetism | 3.0 |

**REQUIREMENT 6 Complete 2 courses**

**MATH 112 - Calculus 1** | 4.0 |
**STAT 121 - Principles of Statistics** | 3.0 |

**REQUIREMENT 7 Complete 1 hour from the following course(s)**

**COMPLETE AT LEAST 1.0 HOUR FROM THE FOLLOWING COURSES. OFF-CAMPUS INTERNSHIPS AND ON-CAMPUS RESEARCH EXPERIENCES SHOULD BE SOUGHT EARLY IN YOUR BYU EDUCATION. AN APPROVED INTERNSHIP APPLICATION IS REQUIRED FOR NEURO 399R. INSTRUCTOR PERMISSION IS REQUIRED FOR NEURO 449R.**

- NEURO 399R - Neuroscience Academic Internship | 12.0v |
- NEURO 449R - Undergraduate Research Experience | 3.0v |

**REQUIREMENT 8 Complete 1 hour from the following course(s)**

**ENROLL IN THIS COURSE FOR TWO SEPARATE SEMESTERS TO EARN THE REQUIRED 1.0 CREDIT.**

- NEURO 455R - Neuroscience Seminar | 0.5 |

You may take this course up to 2 times.

**REQUIREMENT 9 Complete 8.0 hours from the following course(s)**

**ELECTIVES: COMPLETE 8.0 HOURS FROM THE FOLLOWING ELECTIVE LIST. COURSES TAKEN TO FULFILL THE REQUIREMENTS ABOVE CANNOT DOUBLE COUNT IN THIS REQUIREMENT.**

- CELL 561 - Physiology of Drug Mechanisms | 3.0 |
- CELL 565 - Endocrinology | 3.0 |
- CELL 568 - Cellular Electrophysiology and Biophysics | 3.0 |
- CHEM 481 - Biochemistry | 3.0 |
- CHEM 482 - Mechanisms of Molecular Biology | 3.0 |
- COMD 334 - Hearing Science and Acoustics | 3.0 |
- ME EN 552 - Neuromechanics of Movement | 3.0 |
- NEURO 398R - Special Topics in Neuroscience | 0.5v |
- NEURO 420R - Senior Practicum: Community Projects | 2.0v |
- NEURO 455R - Neuroscience Seminar | 0.5 |
- NEURO 481 | Neuroscience Laboratory | 1.0 |
- PSYCH 342 - Psychopathology | 3.0 |
- PSYCH 370 - Sensation and Perception | 3.0 |
- PSYCH 377 - The Cognitive Neuroscience of Memory | 3.0 |
- PSYCH 382 - Stress Psychology | 3.0 |
- PSYCH 388 - Drugs, Reward and Addiction | 3.0 |
- PWS 340 - Genetics | 3.0 |

**REQUIREMENT 10 Complete an exit interview. Students will be contacted by the Neuroscience Center office during their last semester to complete this requirement.**

- Note 1: Neuro 399R, Neuro 449R, Me En 552, and Cell 568 require the instructor’s permission before enrolling.

- Note 2: Professional schools and graduate programs may require additional courses not required for this major, such as physiology lab, physics labs, chemistry, calculus, or statistics. Contact the programs to which you may apply to determine the specific courses required. Students should work closely with the Life Science Advisement Center and BYU’s Pre-Professional Advisement Center.

- Note 3: The Neuroscience Center requires a minimum of 21 hours of neuroscience major credit to be taken in residence at BYU for this degree program. These hours may also go toward BYU’s 30-hour residency requirement for graduation.

**THE DISCIPLINE:**

Neuroscience is the field of study that encompasses the development, structure, and function of the central nervous system and its connection to influencing/regulating behavior. The study of neuroscience examines topics such as neuroanatomy, physiology of nervous system, cells and circuits, molecular neuroscience, biochemistry, genetics, neuropharmacology, neuroimaging, systems and behavioral neuroscience, developmental neuroscience, social neuroscience, cognition, bioengineering, computational neuroscience, and neural dysfunction and disease. The interdisciplinary nature of neuroscience requires the tools provided by experience and training in biology, genetics, physiology, molecular biology, chemistry (general, organic, and biochemistry), physics, engineering, psychology (behavior, memory, cognition, sensation, and perception), statistics, calculus, and research design and analysis.

**RESEARCH OPPORTUNITIES:**

Neuroscience Center faculty members conduct research in a variety of neuroscience areas (for example, molecular neuroscience, developmental neuroscience, behavioral and cognitive neuroscience, cell and circuit electrophysiology, movement neuromechanics, neuropharmacology, neuroimaging). Please contact the neuroscience office or individual faculty members for more information.

**CAREERS:**

A major in neuroscience prepares students to pursue advanced degrees in neuroscience or biological or non-biological fields related to neuroscience or to enter into the pharmaceutical and biotechnology workforce. Neuroscience provides outstanding preparation for students seeking admittance into professional programs in medicine, dentistry, optometry, podiatry, or the chiropractic or pharmaceutical field. Neuroscience is an excellent preprofessional field of study for those interested in graduate school or health professions, law, or business. Graduates of the program also have the academic skills for careers in business, consulting, global health, government and policy, non-profit programs, research, writing, and publishing.

**FINANCING:**

Various private, federal, and university sources of scholarships,
fellowships, and grants are available. Some faculty have funds to hire undergraduates to help in their laboratories or with research.

**MAP DISCLAIMER**

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

**DEPARTMENT INFORMATION**

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email: neuroscience@byu.edu

**ADVISEMENT CENTER INFORMATION**

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2060 Life Sciences Building
Provo, UT 84602
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FAX: 801-422-0048
web site: http://lifesciences.byu.edu/studentservices/
email: Lifesciences@Byu.Edn
Toll-free: 1-877-651-0293

**Pre-Professional Advisement Center**
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