

# BS in Neuroscience (285620) MAP Sheet

Life Sciences, Neuroscience Center

For students entering the degree program during the 2021-2022 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				Suggested Sequence of Courses			
<b>University Core Requirements:</b>				<b>FRESHMAN YEAR</b>			
<b>Requirements</b>	<b>#Classes</b>	<b>Hours</b>	<b>Classes</b>	<b>1st Semester</b>		<b>JUNIOR YEAR</b>	
<b>Religion Cornerstones</b>				CELL 120	3.0	<b>5th Semester</b>	
Teachings and Doctrine of The Book of Mormon	1	2.0	REL A 275	CHEM 105	4.0	Neuroscience elective	2-3.0
Jesus Christ and the Everlasting Gospel	1	2.0	REL A 250	First-year Writing	3.0	STAT 121	3.0
Foundations of the Restoration	1	2.0	REL C 225	PSYCH 111	3.0	General elective	3.0
The Eternal Family	1	2.0	REL C 200	Religion Cornerstone course	2.0	NEURO 360	2.0
<b>The Individual and Society</b>				<b>Total Hours</b>	<b>15.0</b>	Civilization 1	3.0
American Heritage	1-2	3-6.0	from approved list	<b>6th Semester</b>			
Global and Cultural Awareness	1	3.0	from approved list	CHEM 106	3.0	CELL 362	3.0
<b>Skills</b>				CHEM 107	1.0	Neuroscience elective	3.0
First Year Writing	1	3.0	from approved list	MMBIO 240	3.0	Civilization 2	3.0
Advanced Written and Oral Communications	1	3.0	NEURO 316, WRTG 315 or 316	A HTG 100	3.0	Arts or Letters elective	3.0
Quantitative Reasoning	0-1	0-3.0	from approved list	Religion Cornerstone course	2.0	NEURO 380	3.0
Languages of Learning (Math or Language)	1	3-4.0	MATH 112* or STAT 121*	General electives	3.0	<b>Total Hours</b>	<b>15.0</b>
<b>Arts, Letters, and Sciences</b>				<b>SOPHOMORE YEAR</b>		<b>SENIOR YEAR</b>	
Civilization 1	1	3.0	from approved list	<b>3rd Semester</b>		<b>7th Semester</b>	
Civilization 2	1	3.0	from approved list	CHEM 351	3.0	PSYCH 375	3.0
Arts	1	3.0	from approved list	PHSCS 105	3.0	General elective	3.0
Letters	1	3.0	from approved list	NEURO 205	3.0	CELL 360	3.0
Biological Science	1	3-4.0	from approved list	Religion Cornerstone course	2.0	MATH 112	4.0
Physical Science	2	7.0	CHEM 105*, PHSCS 105* or 121*	General electives	4.0	Religion elective	2.0
Social Science	1	3.0	PSYCH 111	<b>Total Hours</b>	<b>15.0</b>	Applied Neuroscience (NEURO 449R, 481, 496R)	1.0
<b>Core Enrichment: Electives</b>				<b>4th Semester</b>		<b>Total Hours</b>	
Religion Electives	3-4	6.0	from approved list	CHEM 352	3.0	<b>8th Semester</b>	
Open Electives	Variable	Variable	personal choice	PHSCS 106	3.0	NEURO 480	3.0
Note: NEURO 316 fulfills GE Advanced Written and Oral Communication requirement. English 315 will substitute for this course.				NEURO 316, WRTG 315 or 316	3.0	Religion elective	2.0
<b>Graduation Requirements:</b>				Religion Cornerstone course	2.0	General elective	3.0
Minimum residence hours required		30.0		General electives	3.0	Global & Cultural Awareness elective	3.0
Minimum hours needed to graduate		120.0		<b>Total Hours</b>	<b>14.0</b>	Arts or Letters elective	3.0
						Neuroscience elective	2-3.0
						<b>Total Hours</b>	<b>16-17.0</b>
				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.			

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### 2021-2022 Program Requirements (66 - 69 Credit Hours)

<p><b>REQUIREMENT 1</b> 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. Only 8 hours of Independent Study can be counted towards the neuroscience major credit.</p> <p><b>REQUIREMENT 2</b> Complete 4 courses</p> <p><b>MAJOR CORE COURSES:</b></p> <p>NEURO 205 - Neurobiology 3.0 NEURO 360 - Neuroanatomy 2.0 NEURO 380 - Behavioral Neuroscience 3.0 NEURO 480 - Advanced Neuroscience 3.0</p> <p><b>REQUIREMENT 3</b> Complete 4 courses</p> <p><b>LIFE SCIENCES COURSES:</b></p> <p>CELL 120 - Science of Biology 3.0 CELL 360 - Cell Biology 3.0 CELL 362 - Advanced Physiology 3.0 MMBIO 240 - Molecular Biology 3.0</p> <p><b>REQUIREMENT 4</b> Complete 2 courses</p> <p>*PSYCH 111 - Introduction to Psychological Science 3.0 PSYCH 375 - Cognition 3.0</p> <p><b>REQUIREMENT 5</b> Complete 5 courses</p> <p><b>CHEMISTRY COURSES:</b></p> <p>*CHEM 105 - General College Chemistry 1 with Lab (Integrated) 4.0 CHEM 106 - General College Chemistry 2 3.0 CHEM 107 - General College Chemistry Laboratory 1.0 CHEM 351 - Organic Chemistry 1 3.0 CHEM 352 - Organic Chemistry 2 3.0</p> <p><b>REQUIREMENT 6</b> Complete 1 option</p> <p><b>COMPLETE ONE OF THE FOLLOWING PHYSICS COURSE OPTIONS:</b></p> <p><b>OPTION 6.1</b> Complete 2 courses</p> <p>PHSCS 105 - General Physics 1 3.0 PHSCS 106 - General Physics 2 3.0</p> <p><b>OPTION 6.2</b> Complete 3 courses</p> <p>PHSCS 121 - Introduction to Newtonian Mechanics 3.0 PHSCS 123 - Introduction to Waves, Optics, and Thermodynamics 3.0 PHSCS 220 - Introduction to Electricity and Magnetism 3.0</p> <p><b>REQUIREMENT 7</b> Complete 2 courses</p> <p><b>NOTE: STUDENTS MAY SUBSTITUTE MATH 113 FOR MATH 112.</b></p> <p>MATH 112 - Calculus 1 4.0 STAT 121 - Principles of Statistics 3.0</p> <p><b>REQUIREMENT 8</b> Complete 1 hour from the following course(s)</p> <p><b>COMPLETE AT LEAST 1.0 HOUR OF THE FOLLOWING:</b></p>	<p>NEURO 449R - Undergraduate Research Experience 3.0v NEURO 481 - Neuroscience Laboratory 1.0 NEURO 496R - Neuroscience Academic Internship 12.0v</p> <p><b>REQUIREMENT 9</b> Complete 1 option</p> <p><b>ELECTIVES: COMPLETE 9.0 HOURS FROM THE FOLLOWING ELECTIVE LIST:</b></p> <p><b>OPTION 9.1</b> Complete 9.0 hours from the following course(s)</p> <p>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 390R - Special Topics in Neuroscience 3.0v NEURO 420R - Senior Practicum: Community Projects 3.0v PSYCH 342 - Abnormal Psychology 3.0 PSYCH 370 - Sensation and Perception 3.0 PSYCH 377 - The Cognitive Neuroscience of Memory 3.0 PSYCH 382 - Stress Psychobiology 3.0 PSYCH 388 - Drugs, Reward and Addiction 3.0 PSYCH 513R - (Not currently offered) PWS 340 - Genetics 3.0</p> <p><i>Note 1: Students should carefully consult with faculty regarding which electives they should take to best support their postgraduate plans.</i></p> <p><i>Note 2: Me En 552, Neuro 449R, CELL 565, and 568 require the instructor's signature before enrolling.</i></p> <p><i>Note 3: PDBio 363, Phscs 105 lab, and Phscs 106 lab are required for most students applying for graduate training in medicine, dentistry, ophthalmology, physician assistant school, or similar programs.</i></p> <p><i>Note 4: Double counting: No more than 6 credits (or two courses) may be double counted between the Neuroscience major and another major or minor.</i></p> <p><i>Note 5: It is strongly recommended that students take Neuro 316 to meet their GE Advanced Writing requirement rather than Engl 315 or 316.</i></p> <p><b>REQUIREMENT 10</b> Complete an exit interview.</p> <p><b>RECOMMENDED</b> Complete 2 options</p> <p><b>RECOMMENDED</b> Complete 9 courses</p> <p>NEURO 455R - Neuroscience Seminar 0.5</p> <p><i>In addition to the above courses, students may find the following courses helpful if applying for graduate training in medicine, dentistry, physician assistant school or similar programs (see Pre-professional Advisement Center, 3328 WSC):</i></p>	<p><b>THE DISCIPLINE:</b></p> <p>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.</p> <p><b>RESEARCH OPPORTUNITIES:</b></p> <p>Neuroscience Center faculty members conduct research in a variety of neuroscience areas (for example, molecular neurobiology, developmental neuroscience, behavioral and cognitive neuroscience, cell and circuit electrophysiology, movement neuromechanics, neurochemistry and neuroimaging). Please contact the neuroscience office or individual faculty members for more information.</p> <p><b>CAREERS:</b></p> <p>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.</p> <p><b>FINANCING:</b></p> <p>Various private, federal, and university sources of scholarships,</p>
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2021-2022

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

#### Neuroscience Center

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### ADVISEMENT CENTER INFORMATION

#### Life Sciences Advisement

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FAX: 801-422-0048

web site: <http://lifesciences.byu.edu/student-services/>

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Toll-free: 1-877-651-0293

### Pre-Professional Advisement Center

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3328 WSC

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