

BS in NEUROSCIENCE (285620) Map Sheet

Neuroscience Center

For students entering the degree program during the 2009–2010 curricular year.



The neuroscience undergraduate program is an interdisciplinary program that allows students to seek advisement at the College of Family, Home, and Social Sciences Advisement Center or the College of Life Sciences Advisement Center.

This is a limited enrollment program requiring departmental admissions approval. Please see the Family, Home, and Social Science College Advisement Center for information regarding admission to this program.

UNIVERSITY CORE AND GRADUATION REQUIREMENTS				PROGRAM REQUIREMENTS (63–67.0 total hours)	
UNIVERSITY CORE REQUIREMENTS (48.5 hours minimum)				Complete the following prerequisite courses: Chem 105* General College Chemistry 4.0 PDBio 120 Science of Biology 2.0	
<u>Requirements</u>	<u>#Classes</u>	<u>Hours</u>	<u>Classes</u>	Students must have a minimum grade of C+ for each of the above courses before being accepted to the major. Grades will be accepted from transfer students for chemistry and introductory biology. Information regarding the average grades earned in prerequisite courses by students accepted into the major can be obtained from the College of Family, Home, and Social Science Advisement Center.	
Doctrinal Foundation Book of Mormon 2 4.0 Rel A 121 and 122 New Testament 1 2.0 Rel A 211 or 212 Doctrine and Covenants 1 2.0 Rel C 324 or 325				Complete the following: MMBio 240* Molecular Biology 3.0 Neuro 205 Neurobiology 3.0 Neuro 360 Neuroanatomy 2.0 Neuro 380 Behavioral Neuroscience 3.0 Neuro 480 Advanced Neuroscience 3.0 Neuro 481 Neuroscience Laboratory\ 1.0 PDBio 360 Cell Biology 3.0 PDBio 362 Advanced Physiology 3.0 PWS 340* Genetics 2.0	
The Individual and Society Citizenship American Heritage 1–2 3–6.0 from approved list Global & Cultural Awareness 1 3.0 from approved list				Complete the following: Chem 106 General College Chemistry 3.0 Chem 107 General College Chem Lab 1.0 Chem 351 Organic Chemistry 3.0 Chem 352 Organic Chemistry 3.0 Chem 481 Biochemistry 1 3.0	
Skills Effective Communication First-Year Writing 1 3.0 from approved list Adv Written & Oral Communic 1 3.0 Neuro 316 or Engl 316 Quantitative Reasoning 0–1 0–3.0 from approved list Languages of Learning (Math or Language) 1 3–4.0 Math 119* or Stat 221*				Complete one of the following options: Either Phscs 105* Introductory Applied Physics 3.0 Phscs 106 Introductory Applied Physics 3.0 Phscs 107 Introductory Applied Physics Lab 1.0 Phscs 108 Introductory Applied Physics Lab 1.0 Or Phscs 121* Principles of Physics 1 3.0 Phscs 123 Principles of Physics 2 3.0 Phscs 220 Principles of Physics 3 3.0	
Arts, Letters, and Sciences Civilization 1 and 2 2 6.0 from approved list Arts 1 3.0 from approved list Letters 1 3.0 from approved list Scientific Principles & Reasoning Biological Science 2 5.0 MMBio 240* & PWS 340* Physical Science 2 7.0 Chem 105*, Phscs 105* or 121* Social Science 1 3.0 from approved list				Complete the following: Math 119* Introduction to Calculus 4.0 Stat 221* Principles of Statistics 3.0	
Core Enrichment: Electives Religion Electives 3–4 6.0 from approved list Open Electives Variable Variable personal choice				Note: Students may substitute Math 112 or 113 for Math 119.	
GRADUATION REQUIREMENTS: Minimum residence hours required 30.0 Minimum hours needed to graduate 120.0				Complete three courses from three different departments from the following electives: Bio 370 Bioethics 2.0 Chem 482 Biochemistry 2 3.0 ComD 334 Hearing Science and Acoustics 3.0 Neuro 449R** Undergrad Research Experience 3.0V PDBio 363 Advanced Physiology Lab 1.0 PDBio 561 Physiology of Drug Mechanisms 3.0 PDBio 565** Endocrinology 3.0 PDBio 568** Cellular Electrophys & Biophysics 3.0 Psych 370*** Sensation and Perception 3.0 Psych 375 Cognition 3.0 Psych 382 Stress Psychobiology 3.0 Psych 584** Cognitive Neuroscience 3.0	
				Note: Students should carefully consult with the Neuroscience Center and faculty regarding which electives they should take to best support their post-graduate plans. ** These courses require instructor signature before enrolling. *** This course is strongly recommended.	
				Recommended Courses: In addition to the above courses, students may find the following courses helpful (see Health Professions Advisement Center): Chem 353 Organic Chemistry Lab–Nonmajors 2.0V PDBio 220 Human Anatomy (with lab) 3.0 StDev 139 Introduction to Health Professions 1.0 StDev 227 Preview of Optometry 1.0 StDev 229 Preview of Dentistry 1.0 StDev 239 Preview of Medicine 1.0 StDev 329 Dental School Prep Lab Experience 2.0 StDev 399R Health Professions Internship 3.0V StDev 439 Medical and Dental School Application 2.0	

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (15–16.0 hours overlap)

**BS in NEUROSCIENCE (285620)
2009–2010**

Suggested Sequence of Courses:

FRESHMAN YEAR

1st Semester

PDBio 120	2.0
Chem 105	4.0
Math 119	4.0
First-year Writing	3.0
or A Htg 100	(3.0)
Rel A 121 (FWSpSu)	2.0
Total Hours	14–15.0

2nd Semester

Major elective	2-3.0
A Htg 100	3.0
or First-year Writing	(3.0)
Chem 106	3.0
Chem 107	1.0
Neuro 205	3.0
Rel A 122 (FWSpSu)	2.0
Total Hours	14–15.0

SOPHOMORE YEAR

3rd Semester

MMBio 240	3.0
Chem 351	3.0
HEPE 129	2.0
Neuro 360	2.0
Phscs 105	3.0
Phscs 107	1.0
Rel A 211 or 212 (FWSpSu)	2.0
Total Hours	16.0

4th Semester

PWS 340	2.0
Chem 352	3.0
Phscs 106	3.0
Phscs 108	1.0
Psych 370 (or other major elective)	3.0
Rel C 324 or 325 (FWSpSu)	2.0
Civilization 1	3.0
Total Hours	17.0

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.

JUNIOR YEAR

5th Semester

PDBio 360	3.0
Neuro 316 or Engl 316	3.0
Neuro 380	3.0
Global & Cultural Awareness	3.0
Civilization 2	3.0
Religion elective (FWSpSu)	2.0
Total Hours	17.0

6th Semester

Chem 481	3.0
PDBio 362, 363	4.0
Stat 221	3.0
Arts or Letters elective	3.0
Religion elective (FWSpSu)	2.0
Total Hours	15.0

SENIOR YEAR

7th Semester

Neuro 480 (or 8 th semester)	3.0
Neuro 481 (or 8 th semester)	1.0
Social Science elective	3.0
Arts or Letters elective	3.0
Religion elective (FWSpSu)	2.0
Open electives	4.0
Total Hours	16.0

8th Semester

Arts or Letters elective	3.0
Open electives, major electives, or major courses	12.0
Total Hours	15.0

THE DISCIPLINE:

Neuroscience is the field of study covering the development and function of the central nervous system and its connection to influencing/regulating behavior. The study of neuroscience examines topics such as, neuroanatomy, neuropsychopharmacology, neurophysiology, molecular neurobiology, and neuroendocrinology. The interdisciplinary nature of neuroscience requires the tools provided by experience and training in statistics, calculus, general biology, genetics, physiology, molecular biology, chemistry (general, organic, and biochemistry), physics, psychology (hormones and behavior, memory, cognition, sensation, and perception), and research design and analysis.

The objectives for students pursuing a major in neuroscience are to: 1) establish and promote an interdisciplinary education in neuroscience, 2) produce scientifically literate individuals having the ability to design, conduct, and analyze research activities, and 3) have students think critically in an integrative fashion based upon research-rich and inquiry-based academic curricula.

RESEARCH OPPORTUNITIES:

Neuroscience Center faculty conduct research in a variety of neuroscience areas (for example, molecular neurobiology, neuroendocrinology, neuroimmunology, neuroimaging, hormones and behavior, membrane neurophysiology, and neural control of cardiovascular mechanisms). Please contact the neuroscience office or individual faculty members for more information.

CAREERS:

Neuroscience prepares students to pursue advanced degrees in graduate school, or to enter into the pharmaceutical and biotechnology workforce. Neuroscience is an excellent preprofessional field of study for those interested in health professions, law, or business.

For more information on careers in your major, please refer to *From Major to Career*, a publication located in all college advisement centers, or online at: <http://ccc.byu.edu/majortocareer/Book.pdf#page:emode=bookmarks>.

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.

Neuroscience Center
1055 SWKT
Brigham Young University, Provo, UT 84602
Telephone: (801) 422-1218
FAX: (801) 422-0601
email: neuroscience@byu.edu

Family, Home, and Social Science
College Advisement Center
151 SWKT
Brigham Young University, Provo, UT 84602-5538
Telephone: (801) 422-3541
FAX: (801) 422-0226
email: fhssadvisement@byu.edu
Toll-free: 1-877-890-5295

Health Professions Advisement Center
3328 WSC
Brigham Young University, Provo, UT 84602
Telephone: (801) 422-3044
email: bioag-advisement@byu.edu
Toll-free: 1-877-651-0293

Life Sciences Academic Advisement Office
380 WIDB
Brigham Young University, Provo, UT 84602
Telephone: (801) 422-3042
FAX: (801) 422-0048
email: bioag-advisement@byu.edu
Toll-free: 1-877-651-0293