

Neuroscience, Neuroscience (BSNeurosci)

Bachelor of Science in Neuroscience

The Bachelor of Science degree in Neuroscience provides a strong foundation in the core sciences and related mathematical disciplines, along with the opportunity for training in biology, chemistry, computer science, mathematics, physics, or psychology. Distinctive features of the program include an emphasis on developing the quantitative, statistical, mathematical, and computational skills required in neuroscience, and meaningful hands-on laboratory experience.

Total Hours Required: 120

Plan of Study

The Plan of Study is a suggested four-year course sequence to support academic planning and serves as a helpful guide. Currently enrolled students should meet with their academic advisor to tailor their course selections and timelines to their individual goals and circumstances.

Course	Title	Hours
Year 1		
Semester 1		
M 408C	Differential and Integral Calculus	4
CH 301	Principles of Chemistry I	3
BIO 311C	Introductory Biology I	3
<u>First-Year Signature Course (090)</u>		3
Hours		13
Semester 2		
M 408S	Integral Calculus for Science	4
CH 302	Principles of Chemistry II	3
BIO 311D	Introductory Biology II	3
BIO 206L	Introductory Laboratory Experiments in Biology	2
RHE 306	Rhetoric and Writing	3
Hours		15
Semester 3		
<u>American and Texas Government (070)</u>		3
Hours		3
Year 2		
Semester 1		
BIO 325	Genetics	3
CH 320M	Organic Chemistry I	3
CH 204	Introduction to Chemical Practice	2
SDS 320E	Elements of Statistics	3
<u>Social and Behavioral Sciences (080)</u>		3
Hours		14
Semester 2		
CH 320N	Organic Chemistry II	3
CH 220C	Organic Chemistry Laboratory	2
NEU 330	Neural Systems I	3
<u>Visual and Performing Arts (050)</u>		3
Free Elective		3
Hours		14
Semester 3		
<u>American and Texas Government (070)</u>		3
Hours		3
Year 3		
Semester 1		
PHY 317K	General Physics I	3

PHY 105M	Laboratory For Physics 302K, 303K, and 317K	1
NEU 335	Neural Systems II	3
BCH 369	Fundamentals of Biochemistry	3
<u>Humanities (040)</u>		3
Free Elective		2
Hours		15
Semester 2		
PHY 317L	General Physics II	3
PHY 105N	Laboratory For Physics 302L, 303L, and 317L	1
NEU 340	Neural Systems III: Quantitative Tools	3
NEU 367C	Cellular and Molecular Bases of Neural Development	3
Free Elective		3
Hours		13
Year 4		
Semester 1		
NEU 367F	Foundations of Human Neuroimaging	3
NEU 365E	Epigenetics of Neuroscience	3
NEU 377	Undergraduate Research	3
NEU 365L	Neurobiology Laboratory	3
<u>U.S. History (060)</u>		3
Hours		15
Semester 2		
NEU 366D	Synaptic Physiology and Plasticity	3
NEU 366S	Neuromolecular Genetics and Disease Laboratory	3
<u>U.S. History (060)</u>		3
Free Elective		6
Hours		15
Total Hours		120

Requirements

All requirements are listed below, starting with the most specialized moving to the most general. Additional requirements may follow the table, so be sure to read the entire page. Some required courses listed below may also satisfy [General Education](#) requirements, including [Core Curriculum](#).

Code	Title	Hours
Concentration		
Hours chosen from:		4
M 408C	Differential and Integral Calculus	
M X08N & M X08S	Differential Calculus for Science and Integral Calculus for Science	
M X08R & M X08S	Differential and Integral Calculus for the Sciences and Integral Calculus for Science	
SDS 320E	Elements of Statistics	3
CH 301	Principles of Chemistry I	3
or CH 301C	Foundations of Chemistry I	
CH 302	Principles of Chemistry II	3
or CH 302C	Foundations of Chemistry II	
CH 204	Introduction to Chemical Practice	2
BIO 311C	Introductory Biology I	3
BIO 311D	Introductory Biology II	3
BIO 206L	Introductory Laboratory Experiments in Biology	2
BIO 325	Genetics	3
Hours chosen from upper-division neuroscience chosen from the following:		15
INB 353S	Sleep Science	
INB 359K	Principles of Animal Behavior	
NEU 170C	Topics in Neuroscience	
NEU 270C	Topics in Neuroscience	

NEU 337	Selected Topics in Neuroscience	
NEU 361T	Comparative Animal Physiology	
NEU 365D	Principles of Drug Action	
NEU 365E	Epigenetics of Neuroscience	
NEU 365L	Neurobiology Laboratory	
NEU 365M	Advanced Experimental Neurobiology	
NEU 365N	Nerve Regeneration in Invertebrates and Vertebrates	
NEU 365P	Programming and Data Analysis for Modern Neuroscience	
NEU 365T	Neurobiology of Disease	
NEU 365W	Neurobiology of Addiction	
NEU 366C	Ion Channels and the Molecular Physiology of Neuronal Signaling	
NEU 366D	Synaptic Physiology and Plasticity	
NEU 366L	Neuroimaging Laboratory	
NEU 366R	Rhythms in the Nervous System	
NEU 366S	Neuromolecular Genetics and Disease Laboratory	
NEU 367C	Cellular and Molecular Bases of Neural Development	
NEU 367F	Foundations of Human Neuroimaging	
NEU 367S	Analytical Skepticism	
NEU 367V	Evolutionary Neurobiology	
NEU 377	Undergraduate Research (may be repeated once for credit)	
NEU 379H	Honors Tutorial Course (The research topic in Neuroscience 379H must relate to neuroscience and be approved in advance by the faculty advisor)	
NEU 466G	Functional and Synaptic Neuroanatomy	
Hours chosen from upper-division laboratory course work chosen from the following:		6
NEU 365L	Neurobiology Laboratory	
NEU 366L	Neuroimaging Laboratory	
NEU 366S	Neuromolecular Genetics and Disease Laboratory	
NEU 377	Undergraduate Research	
NEU 466G	Functional and Synaptic Neuroanatomy	
NEU 365L	Neurobiology Laboratory	
NEU 366L	Neuroimaging Laboratory	
NEU 366S	Neuromolecular Genetics and Disease Laboratory	
NEU 377	Undergraduate Research	
NEU 466G	Functional and Synaptic Neuroanatomy (may count toward requirement 10 or requirement 11)	
Subtotal		47
Degree (see details below)		17
Free electives: Additional coursework to reach total hours required.		14
Subtotal		31
General Education		
<u>Core Curriculum</u>		42
<u>Foreign Language other than English, Beginning Proficiency</u>		
Subtotal		42
<u>College Requirements - Natural Sciences</u>		
<u>General University Requirements</u>		
Total Hours		120

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Code	Title	Hours
NEU 330	Neural Systems I	3
NEU 335	Neural Systems II	3
NEU 340	Neural Systems III: Quantitative Tools	3
Hours chosen from one of the following sequences:		8
Sequence 1:		
PHY 317K	General Physics I	
PHY 105M	Laboratory For Physics 302K, 303K, and 317K	
PHY 317L	General Physics II	
PHY 317L	General Physics II	
PHY 105N	Laboratory For Physics 302L, 303L, and 317L	
Sequence 2:		
PHY 303K	Engineering Physics I	
PHY 105M	Laboratory For Physics 302K, 303K, and 317K	
PHY 317L	General Physics II	
PHY 105N	Laboratory For Physics 302L, 303L, and 317L	
Sequence 3:		
PHY 301	Mechanics	
PHY 101L	Laboratory for Physics 301	
PHY 316	Electricity and Magnetism	
PHY 116L	Laboratory for Physics 316	
Total Hours		17

At least 36 semester hours of upper-division coursework must be completed.

At least 21 semester hours of upper-division coursework must be completed in residence at the University.

At least 18 semester hours of Biology and Neuroscience coursework must be completed in residence at the University.

Additional Requirements and Policy

Students must fulfill both the University's [General Requirements](#) for graduation and the [college requirements](#). They must also earn a grade of at least C- in each mathematics and science course required for the degree, and a grade point average in these courses of at least 2.00. More information about grades and the grade point average is given in the [General Information Catalog](#).