

NEUROSCIENCE (BS)

Program Description

The Bachelor of Science in Neuroscience is an interdisciplinary program that provides students with a comprehensive understanding of the structure and function of the nervous system. Students in this program develop a robust theoretical foundation through coursework in biology, chemistry, psychology, and statistics. Research is integrated into the curriculum, where students will collaborate with faculty members in novel scientific projects and develop practical skills in experimental design, advanced neuroscience techniques, and statistical analyses. As part of SPU's liberal arts tradition, the Neuroscience program emphasizes knowledge across multiple disciplines, critical inquiry, and problem-solving in service of both individual and societal health.

Graduates of the BS Neuroscience program will be well equipped to pursue careers in diverse sectors, including academic research, pharmaceuticals, healthcare, theology, data analytics, and education.

In order to earn a degree, you must complete at least one academic major. SPU encourages students to explore various academic paths, so if you change your mind about a major, or want to include an additional program, you are able to do so, as outlined below.

Note that the University encourages you to enter your chosen major(s) as soon as you have determined it and are eligible to join it, especially by the start of your junior year. Students who transfer as juniors and seniors should enter a major within their first two quarters at SPU.

- If this is your first quarter at SPU and you identified a major in this department as your first choice on your application for admission to the University, you have gained entry to the major. To change or add a major, follow these instructions (<https://spu.atlassian.net/l/cp/a3th1keb>).
- If you are an SPU student with an SPU cumulative GPA of 2.0 or better, follow these instructions (<https://spu.atlassian.net/l/cp/a3th1keb>) to enter a major in this department.
- The University requires a grade of C- or better in all classes that apply to a major; however, programs may require higher minimum grades in specific courses. You may repeat an SPU course only once for a higher grade.
- To advance in this program, meet with your faculty advisor regularly to discuss your grades, course progression, and other indicators of satisfactory academic progress. If your grades or other factors indicate that you may not be able to successfully complete the major or minor, your faculty advisor can work with you to explore options, which may include choosing a different major.
- You must complete the major requirements that are in effect in the SPU Undergraduate Catalog for the year you enter the major.

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86 Credits Minimum, Including 33 Upper Division (UD)

Code	Title	Credits
Foundations in Neuroscience		
PSY 1180	General Psychology: Individual in Growth	5
PSY 2360	Introduction to Statistics in Social and Behavioral Sciences	5
BIO 2201	General Biology I	5

BIO 2202	General Biology II	5
BIO 2202L	General Biology II Lab	0
BIO 2203	General Biology III	5
BIO 2203L	General Biology III Lab	0
CHM 1211	General Chemistry I	5
CHM 1211L	General Chemistry I Lab	0
CHM 1212	General Chemistry II	5
CHM 1212L	General Chemistry II Lab	0
Section Credits Required		35
Neuroscience Core		
PSY 4488	Behavioral Neuroscience	5
PSY 3388	Comparative Neuroanatomy of Behavior	5
BIO 4418	Neurobiology	5
BIO 4418L	Neurobiology Lab	0
Section Credits Required		15
Methods in Neuroscience		
PSY 3588	Psychological Research Methods	5
or CHM 3225	Quantitative Analysis and Equilibrium	
PSY 4950	Special Topics (Scientific Literature)	1-2
Section Credits Required		7
Statistics Module		
PSY 4428	Advanced Statistical Analysis	5
or BIO 4360	Biostatistics	
PSY 4430	Data Analytics and Storytelling for Consumer and Social Sciences	5
or DAT 3380	Introduction to Data Science	
Section Credits Required		10
Research Experience and Capstone		
PSY 2361	Research Experience in Psychology	1-3
or BIO 4978	Biological Research Proposal	
PSY 4970	Independent Research	1-3
or BIO 4979	Biological Research	
Section Credits Required		4
Electives (15 required credits with no more than 10 recommended in a single module)		
Philosophy Module		
PHI 1001	Logic and Critical Thinking	
PHI 2500	Science, Technology and Society	
PHI 3999	Minds and Machines	
PHI 4652	Contemporary Metaphysics	
PHI 4653	Contemporary Epistemology	
Human Health/Physiology Module		
BIO 3350	Immunology	
BIO 4410	Human Physiology	
BIO 4410L	Human Physiology Lab	
BIO 4413	Animal Physiology	
BIO 4413L	Animal Physiology Lab	
Psychology Module		
PSY 2470	Lifespan Developmental Psychology	
PSY 3360	Psychological Disorders	
PSY 3410	Cross-Cultural Psychology	
PSY 3438	Social Psychology	

PSY 3445	Psychology of Gender
Behavior Module	
PSY 3700	Learning and Behavior
PSY 3800	Cognitive Psychology
PSY 4110	Psychopharmacology
BIO 3434	Animal Behavior
BIO 3434L	Animal Behavior Lab
Cellular/Molecular Module	
BIO 3325	Genetics
BIO 3325L	Genetics Lab
BIO 4330	Evolutionary Mechanisms
BIO 4330L	Evolutionary Mechanisms Lab
BIO 4352	Cell Biology
BIO 4352L	Cell Biology Lab
CHM 3229	Analytical Spectroscopy
Total Credits	86

Suggested Course Sequence

This suggested course sequence is a potential plan for how to complete the major within four years. Please consult with your faculty advisor for guidance and regularly review your degree status check in Banner to make sure you are on track with all of your degree requirements.

First Year

- If you are interested in pursuing a health sciences graduate degree, you should talk to your academic advisors at the earliest convenience and take PPHS 1200 in the Winter Quarter.

Second Year

- Begin taking electives in fulfillment of the requirements for the major.

Third Year

- Continue taking electives in fulfillment of the requirements for the major.

Fourth Year

- Create a final-year plan and meet with your faculty advisor for review.

Course	Title	Credits
First Year		
Autumn		
FYS 1000	First Year Seminar	3
CHM 1211	General Chemistry I	5
CHM 1211L	General Chemistry I Lab	0
PSY 1180	General Psychology: Individual in Growth	5
Credits		13
Winter		
CHM 1212	General Chemistry II	5
CHM 1212L	General Chemistry II Lab	0
Credits		5
Any Quarter		
PSY 2360	Introduction to Statistics in Social and Behavioral Sciences	5
TCOR 1000	The Christian Faith	5
Credits		10
Second Year		
Autumn		
BIO 2201	General Biology I	5

BIO 2201F	General Biology I Field Experience	0
Credits		5
Winter		
BIO 2202	General Biology II	5
BIO 2202L	General Biology II Lab	0
Credits		5
Spring		
BIO 2203	General Biology III	5
BIO 2203L	General Biology III Lab	0
Credits		5
Any Quarter		
TCOR 2000	Christian Scripture	5
Credits		5
Third Year		
Winter		
PSY 3388	Comparative Neuroanatomy of Behavior	5
Credits		5
Spring		
PSY 4488	Behavioral Neuroscience	5
Credits		5
Any Quarter		
TCOR 3100	Christian Theology	5
PSY 4428 or BIO 4360	Advanced Statistical Analysis or Biostatistics	5
PSY 3588 or CHM 3225	Psychological Research Methods or Quantitative Analysis and Equilibrium	5
PSY 2361 or BIO 4978	Research Experience in Psychology or Biological Research Proposal	1-3
Credits		16-18
Fourth Year		
Winter		
PSY 4950	Special Topics (Scientific Literature)	2
Credits		2
Spring		
BIO 4418	Neurobiology	5
BIO 4418L	Neurobiology Lab	0
Credits		5
Any Quarter		
PSY 4430 or DAT 3380	Data Analytics and Storytelling for Consumer and Social Sciences or Introduction to Data Science	5
PSY 4970 or BIO 4979	Independent Research or Biological Research	1-3
Credits		6-8
Total Credits		87-91