NEUROSCIENCE, B.S.

The Bachelor of Science in Neuroscience from Saint Louis University is an interdisciplinary program that employs the tools and perspectives of biology, psychology, chemistry, physics, mathematics, philosophy and medicine to achieve a better understanding of brain structure, function and behavior.

A degree in neuroscience places students in an excellent position to address the basic science of brain function. It offers many possibilities for applications within medicine, science and industry. Saint Louis University's neuroscience major offers courses that further the understanding of psychiatric, neurological and developmental disorders with the goal of developing of innovative treatment options through basic and applied research.

Neuroscience is an appropriate major for students planning to continue their postgraduate education in neuroscience or related professional fields.

Program Highlights

- SLU provides a genuinely interdisciplinary degree in neuroscience.
- Neuroscience is a growing field, with new initiatives to develop innovative technologies to foster a better understanding of brain function.
- SLU's neuroscience program offers a rigorous and interdisciplinary curriculum emphasizing pre-professional training.

Leadership

Tony W. Buchanan, Ph.D.
Co-Director
Judith M. Ogilvie, Ph.D.
Co-Director

Curriculum Overview

Courses in SLU's neuroscience major include lectures, seminars and laboratory experiences. The curriculum includes four core neuroscience courses: Introduction to Neuroscience: Molecular, Cellular and Systemic; Introduction to Neuroscience: Behavioral and Cognitive; a neuroscience lab course; and a neuroscience seminar in the senior year.

Additionally, students are required to take related courses from the biology department and from the psychology department and courses in chemistry, physics, mathematics and philosophy. Students must also complete SLU's undergraduate University Core requirements.

Neuroscience students are required to complete a capstone learning experience consisting of several options, including research, practica or advanced coursework, all of which are designed to provide the opportunity to integrate coursework with an active learning experience and to give students exposure to the breadth of the field of neuroscience and the potential for understanding its applications in the real world.

Fieldwork and Research Opportunities

SLU's neuroscience program features opportunities for research through existing collaborations with the biology and psychology departments and the Institute for Translational Neuroscience (https://www.slu.edu/research/institute-for-translational-neuroscience/).

Careers

Graduates with a B.S. in neuroscience have a strong outlook for future employment. They will be able to find work in industries such as medicine, veterinary medicine, pharmaceuticals, biotechnology, education, computer science and artificial intelligence.

An undergraduate degree in neuroscience from Saint Louis University provides a solid base for students interested in attending graduate school, medical school or working in psychology, biology, chemistry, physics, biomedical engineering, law, medicine or philosophy.

Admission Requirements

Begin Your Application (http://www.slu.edu/apply.php)

Saint Louis University also accepts the Common Application.

Freshman

All applications are thoroughly reviewed with the highest degree of individual care and consideration to all credentials that are submitted. Solid academic performance in college preparatory coursework is a primary concern in reviewing a freshman applicant's file.

To be considered for admission to any Saint Louis University undergraduate program, applicants must be graduating from an accredited high school, have an acceptable HiSET exam score or take the General Education Development (GED) test.

Transfer

Applicants must be a graduate of an accredited high school or have an acceptable score on the GED.

Students who have attempted fewer than 24 semester credits (or 30 quarter credits) of college credit must follow the above freshmen admission requirements. Students who have completed 24 or more semester credits (or 30 quarter credits) of college credit must submit transcripts from all previously attended college(s).

In reviewing a transfer applicant's file, the Office of Admission holistically examines the student's academic performance in college-level coursework as an indicator of the student's ability to meet the academic rigors of Saint Louis University. Where applicable, transfer students will be evaluated on any courses outlined in the continuation standards of their preferred major.

International Applicants

All admission policies and requirements for domestic students apply to international students along with the following:

- Demonstrate English Language Proficiency (https://catalog.slu.edu/academic-policies/office-admission/undergraduate/english-language-proficiency/)
- Proof of financial support must include:
  - A letter of financial support from the person(s) or sponsoring agency funding the time at Saint Louis University
  - A letter from the sponsor's bank verifying that the funds are available and will be so for the duration of study at the University
- Academic records, in English translation, of students who have undertaken postsecondary studies outside the United States must include the courses taken and/or lectures attended, practical laboratory work, the maximum and minimum grades attainable, the

grades earned or the results of all end-of-term examinations, and any honors or degrees received. WES and ECE transcripts are accepted.

Tuition

Tuition	Cost Per Year
Undergraduate Tuition	$52,260

Additional charges may apply. Other resources are listed below:

Net Price Calculator (https://www.slu.edu/financial-aid/tuition-and-costs/calculator.php)

Information on Tuition and Fees (https://catalog.slu.edu/academic-policies/student-financial-services/tuition/)

Miscellaneous Fees (https://catalog.slu.edu/academic-policies/student-financial-services/fees/)

Information on Summer Tuition (https://catalog.slu.edu/academic-policies/student-financial-services/tuition-summer/)

Scholarships and Financial Aid

There are two principal ways to help finance a Saint Louis University education:

- **Scholarships:** Scholarships are awarded based on academic achievement, service, leadership and financial need.
- **Financial Aid:** Financial aid is provided through grants and loans, some of which require repayment.

Saint Louis University makes every effort to keep our education affordable. In fiscal year 2022, 99% of first-time freshmen and 90% of all students received financial aid (https://www.slu.edu/financial-aid/) and students received more than $445 million in aid University-wide.

For priority consideration for merit-based scholarships, apply for admission by December 1 and complete a Free Application for Federal Student Aid (FAFSA) by March 1.

For information on other scholarships and financial aid, visit www.slu.edu/financial-aid (https://www.slu.edu/financial-aid/).

Learning Outcomes

1. Graduates will be able to identify core concepts of neuroscience.
2. Graduates will be able to synthesize information to formulate hypotheses, design experiments and engage in scientific research.
3. Graduates will be able to communicate neuroscientific information in a clear, reasoned manner, both verbally and in writing.
4. Graduates will have the foundation to successfully pursue post baccalaureate education and/or professional career.

Requirements

Neuroscience students must complete a minimum total of **70 credits** for the major.

Code	Title	Credits
University Undergraduate Core (https://catalog.slu.edu/academic-policies/academic-policies-procedures/university-core/)		**32-35**
Major Requirements		
Required Courses in Neuroscience		
NEUR 3400	Introduction to Neuroscience 1: Cellular, Molecular and Systemic	3
NEUR 3500	Introduction to Neuroscience 2: Cognitive and Behavioral	3
NEUR 3550	Neuroscience Laboratory	1
NEUR 4900	Neuroscience Seminar	1
Required Courses in Biology		
BIOL 1240 & BIOL 1245	General Biology: Information Flow and Evolution and Principles of Biology I Laboratory	4
BIOL 1260 & BIOL 1265	General Biology: Transformations of Energy and Matter and Principles of Biology II Laboratory	4
BIOL 3020	Biochemistry and Molecular Biology	3
BIOL 3040	Cell Structure & Function	3
Required Courses in Psychology		
PSY 1010	General Psychology	3
PSY 3100	Brain, Mind, & Society	3
Neuroscience Electives Courses		*19*
19 credits of Neuroscience elective courses are required. Six credits must be selected from courses with the "Neuroscience - Biology" attribute, one credit must be selected from courses with the "Neuroscience - Biology Lab" attribute, and six credits from the "Neuroscience - Psychology" attribute. The final six credits may come from your choice of "Neuroscience - Biology", "Neuroscience - Psychology", or the "Neuroscience - Anthropology" attributes.		
Required Courses in Chemistry		
CHEM 1110 & CHEM 1115	General Chemistry 1 and General Chemistry 1 Laboratory	4
CHEM 1120 & CHEM 1125	General Chemistry 2 and General Chemistry 2 Laboratory	4
Required Courses in Mathematics		
MATH 1510	Calculus I	4
Required Course in Humanities		
Select from one of the following:		3
PHIL 4280	Biology and Mind	
HCE 4280	Controversies in Neuroethics	
ENGL 4530	Medicine, Mind, and Victorian Fiction	
Required Course in Physics		
PHYS 1310 & PHYS 1320	Physics I and Physics I Laboratory	4
Required Statistics Course		
Select one of the following:		3-4
PSY 2050	Foundations of Research Methods and Statistics	
MATH 1300	Elementary Statistics with Computers	
Capstone/Inquiry/Honors Project		
Students must select one course with the "Neuroscience Capstone" attribute, such as:		1-4
BIOL 4970	Library Project	
BIOL 4980	Advanced Independent Study	
NEUR 4865	Capstone Neurophysiology Laboratory	
NEUR 4869	Critical Thinking about Neuroscience	
PSY 4965	Capstone Practicum Project	
PSY 4967	Capstone Research Project	

General Electives	*11-18*
Total Credits	**120**

Biology Elective Courses

Students must take a one-credit biology lab to be selected from courses with the "Neuroscience - Biology Lab" attribute.

Code	Title	Credits
BIOL 3010	Evolutionary Biology	
BIOL 3030	Principles of Genetics	
BIOL 3060	Cell Structure & Function Laboratory [1]	
BIOL 3100	Experiments in Genetics Lab [1]	
BIOL 3420	Comparative Anatomy of the Vertebrates [1]	
BIOL 3470	General Physiology Laboratory [1]	
BIOL 4010	Sex, Evolution, and Behavior	
BIOL 4030	Introduction to Genomics	
BIOL 4050	Molecular Technique Lab [1]	
BIOL 4070	Advanced Biological Chemistry	
BIOL 4250	Neurobiology of Disease	
BIOL 4360 & BIOL 4370	Animal Behavior and Animal Behavior Lab [1]	
BIOL 4410	Comparative Animal Physiology	
BIOL 4440	Vertebrate Histology: Structure and Function of Tissues [1]	
BIOL 4510	Behavioral Endocrinology	
BIOL 4520	Biochemical Pharmacology	
BIOL 4540	Human Systemic Physiology	
BIOL 4600	Developmental Biology	
BIOL 4630	Foundations of Immunobiology	
BIOL 4700	Molecular Biology	
BIOL 4720	Cancer Biology	

[1] Biology Lab Course

Psychology Elective Courses

Code	Title	Credits
PSY 3120	Cognitive Psychology	
PSY 3160	Learning & Memory	
PSY 3210	Developmental Psych: Child	
PSY 3230	Developmental Psychology: Adolescence	
PSY 3300	Social Psychology	
PSY 3310	Personality Theory	
PSY 3460	Abnormal Psychology	
PSY 4140	Psychopharmacology	
PSY 4150	Science of Sleep	
PSY 4350	Health Psychology	

Anthropology Elective Courses

Code	Title	Credits
ANTH 2210	Biological Anthropology	
ANTH 2400	Linguistic Anthropology	
ANTH 4240	Primate Social Behavior	

Pre-Professional Health

Students taking a pre-professional health curriculum will be required to complete additional course requirements for medical or other professional schools as outlined by the pre-professional health studies program.

Non-Course Requirements

All majors are required to participate in first-year mentoring.

Continuation Standards

Students must have a minimum of a 3.0 GPA in the following required major courses by the conclusion of two semesters at Saint Louis University:

Code	Title	Credits
PSY 1010	General Psychology	
BIOL 1240 & BIOL 1245	General Biology: Information Flow and Evolution and Principles of Biology I Laboratory	
BIOL 1260 & BIOL 1265	General Biology: Transformations of Energy and Matter and Principles of Biology II Laboratory	
CHEM 1110 & CHEM 1115	General Chemistry 1 and General Chemistry 1 Laboratory	
CHEM 1120 & CHEM 1125	General Chemistry 2 and General Chemistry 2 Laboratory	

Students who fall below a 3.00 GPA will be placed on program probation. In order to continue as a neuroscience major after four semesters at Saint Louis University, students must obtain at least a 3.00 GPA in the following required major courses:

Code	Title	Credits
PSY 1010	General Psychology	
PSY 2050 or STAT 1300	Foundations of Research Methods and Statistics or Elementary Statistics with Computers	
BIOL 1240 & BIOL 1245	General Biology: Information Flow and Evolution and Principles of Biology I Laboratory	
BIOL 1260 & BIOL 1265	General Biology: Transformations of Energy and Matter and Principles of Biology II Laboratory	
BIOL 3020	Biochemistry and Molecular Biology	
BIOL 3040	Cell Structure & Function	
CHEM 1110 & CHEM 1115	General Chemistry 1 and General Chemistry 1 Laboratory	
CHEM 1120 & CHEM 1125	General Chemistry 2 and General Chemistry 2 Laboratory	
NEUR 3400	Introduction to Neuroscience 1: Cellular, Molecular and Systemic	

Transfer students will be assessed on a case-by-case basis.

Graduation Requirements

- Complete a minimum of 120 credits (excluding pre-college level courses numbered below 1000).
- Complete the University Undergraduate Core curriculum requirements.
- Complete major requirements: minimum of 30 credits required.
- Complete remaining credits with a second major, minor, certificate and/or electives to reach the minimum of 120 credits required for graduation.
- Achieve at least a 2.00 cumulative grade point average, a 2.00 grade point average in the major(s), and a 2.00 grade point average in the minor/certificate, or related elective credits.
- Complete department-/program-specific academic and performance requirements.
- Complete at least 50% of the coursework for the major and 75% for the minor/certificate through Saint Louis University or an approved study abroad program.
- Complete 30 of the final 36 credits through Saint Louis University or an approved study abroad program.
- Complete an online degree application by the required University deadline.

Roadmap

Roadmaps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Courses and milestones designated as critical (marked with !) must be completed in the semester listed to ensure a timely graduation. Transfer credit may change the roadmap.

This roadmap should not be used in the place of regular academic advising appointments. All students are encouraged to meet with their advisor/mentor each semester. Requirements, course availability and sequencing are subject to change.

Traditional Track

Course	Title	Credits
Year One		
Fall		
PSY 1010	General Psychology (! satisfies CORE 3600)	3
! BIOL 1240 & BIOL 1245	General Biology: Information Flow and Evolution and Principles of Biology I Laboratory (! satisfies CORE 3800)	4
! CHEM 1110 & CHEM 1115	General Chemistry 1 and General Chemistry 1 Laboratory (! satisfies CORE 3800)	4
CORE 1000	Ignite First Year Seminar	2-3
CORE 1500	Cura Personalis 1: Self in Community	1
General Electives		3
	Credits	**17-18**
Spring		
Participation in First-Year Mentoring Events		
! BIOL 1260 & BIOL 1265	General Biology: Transformations of Energy and Matter and Principles of Biology II Laboratory	4
! CHEM 1120 & CHEM 1125	General Chemistry 2 and General Chemistry 2 Laboratory	4
MATH 1510	Calculus I (satisfies CORE 3200)	4
CORE 1900	Eloquentia Perfecta 1: Written and Visual Communication	3
General Electives		1
	Credits	**16**
Year Two		
Fall		
BIOL 3020	Biochemistry and Molecular Biology	3
PSY 2050 or STAT 1300	Foundations of Research Methods and Statistics (! satisfies CORE 3200) or Elementary Statistics with Computers	3-4
PSY 3100	Brain, Mind, & Society (satisfies CORE 3600)	3
CORE 1200	Eloquentia Perfecta 2: Oral and Visual Communication	3
CORE 1700	Ultimate Questions: Philosophy	3
General Electives		3-6
	Credits	**18-22**
Spring		
BIOL 3040	Cell Structure & Function	3
NEUR 3400	Introduction to Neuroscience 1: Cellular, Molecular and Systemic	3
CORE 1600	Ultimate Questions: Theology	3
General Electives		6
	Credits	**15**
Year Three		
Fall		
NEUR 3500	Introduction to Neuroscience 2: Cognitive and Behavioral	3
NEUR 3550	Neuroscience Laboratory	1
PHYS 1310 & PHYS 1320	College Physics I and College Physics I Laboratory	4
Neuroscience Elective (p. 3)		3
CORE 2800	Eloquentia Perfecta: Creative Expression	2-3
CORE 3500	Cura Personalis 3: Self in the World	1
	Credits	**14-15**
Spring		
Neuroscience Elective (p. 3)		1-4
Neuroscience Elective (p. 3)		3
CORE 3400	Ways of Thinking: Aesthetics, History, and Culture	3
General Electives		6-8
	Credits	**13-18**
Year Four		
Fall		
PHIL 4280 or HCE 4280 or ENGL 4530	Biology and Mind or Controversies in Neuroethics or Medicine, Mind, and Victorian Fiction	3
Neuroscience Elective (p. 3)		1-4

Neuroscience Elective (p. 3)		3
General Electives		6
NEUR 4900	Neuroscience Seminar	1
	Credits	**14-17**
Spring		
Capstone/Inquiry/Honors Project		1-3
Neuroscience Elective (p. 3)		1-4
Neuroscience Elective (p. 3)		3
CORE 4000	Collaborative Inquiry	2-3
General Electives		6
	Credits	**13-19**
	Total Credits	**120-140**

Pre-Professional Health Track

Course	Title	Credits
Year One		
Fall		
PSY 1010	General Psychology (! satisfies CORE 3600)	3
! BIOL 1240 & BIOL 1245	General Biology: Information Flow and Evolution and Principles of Biology I Laboratory (! satisfies CORE 3800)	4
! CHEM 1110 & CHEM 1115	General Chemistry 1 and General Chemistry 1 Laboratory (! satisfies CORE 3800)	4
CORE 1000	Ignite First Year Seminar	2-3
CORE 1500	Cura Personalis 1: Self in Community	1
General Electives		3
	Credits	**17-18**
Spring		
Participation in First-Year Mentoring Events		
! BIOL 1260 & BIOL 1265	General Biology: Transformations of Energy and Matter and Principles of Biology II Laboratory	4
! CHEM 1120 & CHEM 1125	General Chemistry 2 and General Chemistry 2 Laboratory	4
MATH 1510	Calculus I (satisfies CORE 3200)	4
CORE 1900	Eloquentia Perfecta 1: Written and Visual Communication	3
General Electives		3
	Credits	**18**
Year Two		
Fall		
BIOL 3020	Biochemistry and Molecular Biology	3
CHEM 2410 & CHEM 2415	Organic Chemistry 1 and Organic Chemistry 1 Laboratory	4
PSY 3100	Brain, Mind, & Society (satisfies CORE 3600)	3
PSY 2050 or STAT 1300	Foundations of Research Methods and Statistics (satisfies CORE 3200) or Elementary Statistics with Computers	3-4
CORE 1200	Eloquentia Perfecta 2: Oral and Visual Communication	3
	Credits	**16-17**
Spring		
BIOL 3040	Cell Structure & Function	3
CHEM 2420 & CHEM 2425	Organic Chemistry 2 and Organic Chemistry 2 Laboratory	4
NEUR 3400	Introduction to Neuroscience 1: Cellular, Molecular and Systemic	3
CORE 1600	Ultimate Questions: Theology	3
CORE 1700	Ultimate Questions: Philosophy	3
	Credits	**16**
Year Three		
Fall		
NEUR 3500	Introduction to Neuroscience 2: Cognitive and Behavioral	3
NEUR 3550	Neuroscience Laboratory	1
PHYS 1310 & PHYS 1320	College Physics I and College Physics I Laboratory	4
Neuroscience Elective (p. 3)		3
CORE 2800	Eloquentia Perfecta 3: Creative Expression	2-3
CORE 3500	Cura Personalis 3: Self in the World	1
	Credits	**14-15**
Spring		
PHYS 1330 & PHYS 1340	College Physics II and College Physics II Laboratory	4
Neuroscience Elective (p. 3)		1-4
Neuroscience Elective (p. 3)		3
CORE 3400	Ways of Thinking: Aesthetics, History, and Culture	3
General Electives		6
	Credits	**17-20**
Year Four		
Fall		
PHIL 4280 or HCE 4280 or ENGL 4530	Biology and Mind or Controversies in Neuroethics or Medicine, Mind, and Victorian Fiction	3
Neuroscience Elective (p. 3)		1-4
Neuroscience Elective (p. 3)		3
General Electives		3-9
NEUR 4900	Neuroscience Seminar	1
	Credits	**11-20**
Spring		
Capstone/Inquiry/Honors Project		1-3
Neuroscience Elective (p. 3)		1-4
Neuroscience Elective (p. 3)		3
CORE 4000	Collaborative Inquiry	2-3
General Electives		4-10
	Credits	**11-23**
	Total Credits	**120-147**