# 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 SLU 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 innovative treatment options through basic and applied research.

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

## Program Highlights

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

## 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 and psychology departments, and courses in chemistry, physics, mathematics and philosophy. Students must also complete SLU's University Undergraduate 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 (https://www.slu.edu/apply.php)

Saint Louis University also accepts the Common Application and the Coalition 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 or HiSET.

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/)
- All academic records must include an English translation. An official course-by-course transcript evaluation may be required and accepted.

## Tuition

| Tuition/Fee | Cost Per Year |
|---|---|
| Undergraduate Tuition | $58,960 |
| University Fees | $1,000 |

Additional charges may apply. Other resources are listed below:

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

Cost of Attendance (https://www.slu.edu/financial-aid/tuition-and-costs/cost-of-attendance.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-current/tuition-summer-current.pdf)

# 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 2025, 99.6% of first-time freshmen and 92% of all students received financial aid (https://www.slu.edu/financial-aid/) and students received more than $517 million in aid University-wide.

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

For more information on scholarships and financial aid, visit the Office of Student Financial Services (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 careers.

# Requirements

Neuroscience students must complete a minimum 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** | | **70-75** |
| 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 | 1-2 |
| or NEUR 3555 | Neuroscience Laboratory and Scientific Writing | |
| NEUR 4900 | Neuroscience Seminar | 1 |
| 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 3040 | Cell Structure & Function | 3 |
| PSY 1010 | General Psychology | 3 |
| PSY 2050 | Foundations of Research Methods and Statistics | 3-4 |
| or STAT 1300 | Elementary Statistics with Computers | |
| PSY 3100 | Brain, Mind, & Society | 3 |
| CHEM 1110 | General Chemistry 1 | 3 |
| or CHEM 1130 | General Chemistry 1 for Majors | |
| CHEM 1115 | General Chemistry 1 Laboratory | 1 |
| CHEM 1120 | General Chemistry 2 | 3 |
| or CHEM 1140 | General Chemistry 2 for Majors | |
| CHEM 1125 | General Chemistry 2 Laboratory | 1 |
| MATH 1510 | Calculus I | 4 |
| PHYS 1310 | College Physics I | 3 |
| or PHYS 1610 | University Physics I | |
| PHYS 1320 | College Physics I Laboratory | 1 |
| or PHYS 1620 | University Physics I Laboratory | |
| *Capstone/Inquiry/Honors Project* | | |
| Students must select one course with the **Neuroscience Capstone** attribute | | 1-4 |
| *Neuroscience Electives Courses* | | |
| Students must select 6 credits with the **Neuroscience - Biology** attribute | | 6 |
| Students must select 1 credit with the **Neuroscience - Biology Lab** attribute | | 1 |
| Students must select 6 credits with the **Neuroscience - Psychology** attribute | | 6 |
| Students must select 9 credits with either the **Neuroscience - Biology**, **Neuroscience - Psychology**, or **Neuroscience - Interdisciplinary** attribute | | 9 |
| Students must select 3 credits with either the **Neuroscience - Biology**, **Neuroscience - Psychology**, **Neuroscience – Interdisciplinary**, or **Neuroscience - Humanities** attribute | | 3 |
| **University Electives** | | **10-18** |
| **Total Credits** | | **120** |

# Continuation Standard

Students must maintain a 2.70 major grade point average (GPA). Students who fall below a 2.70 average major GPA will be placed on program probation. If the student fails to obtain at least a 2.70 average major GPA after two consecutive semesters on program probation (excluding leave of absence semesters) the student will be dismissed from the program.

# 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 Techniques 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 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 | |

## Interdisciplinary Elective Courses

| Code | Title | Credits |
|---|---|---|
| ANTH 2210 | Biological Anthropology | |
| ANTH 2400 | Linguistic Anthropology | |
| ANTH 3460 | Global Mental Health | |
| ANTH 4240 | Primate Social Behavior | |
| LING 3010 | Language Acquisition | |
| LING 3040 | Language Contact and Bilingualism | |

## Capstone Courses

| Code | Title | Credits |
|---|---|---|
| BIOL 4890 | Senior Inquiry: Comprehensive Examination | 1 |
| BIOL 4970 | Advanced Independent Research | 1-4 |
| BIOL 4980 | Advanced Independent Study | 1-3 |
| NEUR 4865 | Capstone Neurophysiology Laboratory | 1 |
| NEUR 4869 | Critical Thinking about Neuroscience | 3 |
| PSY 4840 | Advanced Research Methodology and Statistics | 0,4 |
| PSY 4965 | Capstone Practicum Project | 3 |
| PSY 4967 | Capstone Research Project | 3 |

## Humanities Courses

| Code | Title | Credits |
|---|---|---|
| ENGL 4530 | Medicine, Mind, and Victorian Fiction | 3 |
| HCE 4280 | Controversies in Neuroethics | 3 |
| PHIL 4280 | Biology and Mind | 3 |

## 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.

## Roadmap

This roadmap is just one example of a semester-by-semester plan of study for this program. There are other plans students can and do take. The plan of study for each particular student is established in consultation with each student's academic advisor; *this roadmap does not replace academic advising appointments.*

*Roadmap notes:*

- This Roadmap assumes full-time enrollment unless otherwise noted.
- Courses/Milestones marked with an "!" are critical and must be completed in the semester listed in the Roadmap to ensure a timely graduation.
- 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 |
| NEUR 1500 | Self, Community and Neuroscience (or CORE 1500) | 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** | | |
| 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 |
| | **Credits** | **15-16** |
| **Spring** | | |
| BIOL 3040 | Cell Structure & Function | 3 |
| NEUR 3400 | Introduction to Neuroscience 1: Cellular, Molecular and Systemic | 3 |
| CORE 1600 | Ultimate Questions: Theology | 3 |
| Neuroscience Elective (p. 2) | | 3 |
| General Electives | | 6 |
| | **Credits** | **18** |
| **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. 2) | | 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. 2) | | 1-4 |
| Neuroscience Elective (p. 2) | | 3 |
| CORE 3400 | Ways of Thinking: Aesthetics, History, and Culture | 3 |
| General Electives | | 6-8 |
| | **Credits** | **13-18** |
| **Year Four** | | |
| **Fall** | | |
| Neuroscience Humanities Elective | | 3 |
| Neuroscience Elective (p. 2) | | 1-4 |
| Neuroscience Elective (p. 2) | | 3 |
| General Electives | | 6 |
| NEUR 4900 | Neuroscience Seminar | 1 |
| | **Credits** | **14-17** |
| **Spring** | | |
| Capstone/Inquiry/Honors Project | | 1-3 |
| Neuroscience Elective (p. 2) | | 1-4 |
| Neuroscience Elective (p. 2) | | 3 |
| CORE 4000 | Collaborative Inquiry | 2-3 |
| General Electives | | 6 |
| | **Credits** | **13-19** |
| | **Total Credits** | **120-137** |

# Preprofessional 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 |
| NEUR 1500 | Self, Community, & Neuroscience (or CORE 1500) | 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. 2) | | 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. 2) | | 1-4 |
| Neuroscience Elective (p. 2) | | 3 |
| CORE 3400 | Ways of Thinking: Aesthetics, History, and Culture | 3 |
| General Electives | | 6 |
| | **Credits** | **17-20** |
| **Year Four** | | |
| **Fall** | | |
| Neuroscience Humanities Elective | | 3 |
| Neuroscience Elective (p. 2) | | 1-4 |
| Neuroscience Elective (p. 2) | | 3 |
| General Electives | | 3-9 |
| NEUR 4900 | Neuroscience Seminar | 1 |
| | **Credits** | **11-20** |
| **Spring** | | |
| Capstone/Inquiry/Honors Project | | 1-3 |
| Neuroscience Elective (p. 2) | | 1-4 |
| Neuroscience Elective (p. 2) | | 3 |
| CORE 4000 | Collaborative Inquiry | 2-3 |
| General Electives | | 4-10 |
| | **Credits** | **11-23** |
| | **Total Credits** | **120-147** |

# Contact Us

For additional information about this program, please contact neuroscience@slu.edu or call 314-977-9705.