NEUROSCIENCE (BS)

Neuroscience is an interdisciplinary major that incorporates existing courses from the natural, computational, and social sciences, as well as specific courses unique to the field of Neuroscience. Neuroscience has quickly become one of the fastest growing areas of study in both the natural and behavioral sciences. Its multidisciplinary nature attracts individuals not just from biology and psychology disciplines, but also from fields such as philosophy, anthropology, economics, mathematics and computer science.

Neuroscience majors are interested in studying the brain and nervous system in multiple ways. They consider fundamental concepts that underlie the function of the nervous system on a cellular and molecular level, how the nervous system produces behavior and cognition, and the role of computer science and mathematics in new technologies and therapies in neuroscience. Additionally, Neuroscience majors can apply their knowledge of the nervous system to human health and disease, as well as public health, philosophy, law, business, computer science, and related fields.

Program Requirements	Quarter Hours
Liberal Studies Requirements	60-68
Major Core Requirements	48-76
Concentration Requirements	8-48
Open Electives	0-28
Total hours required	**192-196**

Learning Outcomes

Students will be able to:

- Describe how the cellular and systems level structure of the nervous system is responsible for neurological function, behavior, and cognition.
- Critically evaluate scientific literature in order to communicate core concepts in a clear and organized manner both verbally and in writing.
- Design and analyze scientific experiments.
- Explain challenges surrounding ethical thinking posed by advancements in neuroscience.
- Relate neuroscience content to other scientific and non-scientific disciplines.

College Core Requirements

Modern Language Requirements

Students who intend to graduate with the Bachelor of Arts (BA) degree will be required to demonstrate competence in a modern language equivalent to the proficiency attained from one year of college-level language study. Such competence may be demonstrated in one of several ways:

- completing the last course in the fourth-year high school sequence of any language
- completing the last course in the first-year college sequence of any language
- completing a college course beyond the first-year level in any language
- achieving a satisfactory score on any of the Modern Language placement examinations administered at DePaul
- achieving a satisfactory rating in a proficiency examination accepted by DePaul
- achieving a score of 3 or higher on the Advance Placement (AP) test for any language
- achieving a score of 5 or higher in the Language B assessment from a Standard or Higher Level International Baccalaureate (IB) program
- achieving a satisfactory score on the CLEP examination

Please note: Modern Languages courses with an E-designation are taught in English and may not be applied to the Modern Language Requirement.

For further information regarding satisfactory scores and possible credit from the DePaul placement, AP, CLEP, or IB examinations, please contact Student Records.

Students who complete an Inter-College Transfer (ICT) to the College of Science and Health will abide by the College of Science and Health Modern Language Requirement in place on the effective date of the ICT.

BA students who meet College requirements and wish to pursue further work in the language may elect the Language for Liberal Studies Option (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-program-guidelines/language-for-liberal-studies-option/) of the Liberal Studies Program. While Bachelor of Science (BS) students are not required to demonstrate competency in a modern language, the Language for Liberal Studies Option is available to them for language study at any level. Modern Languages courses with an E-designation are taught in English and may not be applied to the Language for Liberal Studies Option.

Major Declaration Requirements

All students in the College are required to declare a major field prior to beginning their junior year. After researching College programs, the student should declare a major field by visiting Campus Connection and using the Declarations and Inter-College Transfer tool. The student will then be assigned a faculty advisor or staff advisor in the department or program and should make an appointment to see that advisor at his or her earliest convenience.

To change major fields, or to declare a minor or concentration, the student must use the Declarations and Inter-College Transfer tool described above. However, for the purpose of exploring the possibility of changing a major field, the student should consult an academic advisor in the College or an academic advisor in the Office for Academic Advising Support.

Liberal Studies Requirements

Honors program requirements can be found in the individual Colleges & Schools section of the University Catalog. Select the appropriate college or school, followed by Undergraduate Academics and scroll down.

First Year Program		Hours
Chicago Quarter		
LSP 110 or LSP 111	DISCOVER CHICAGO or EXPLORE CHICAGO	4
Focal Point		
LSP 112	FOCAL POINT SEMINAR	4
Writing		

WRD 103	COMPOSITION AND RHETORIC I [1]	4
WRD 104	COMPOSITION AND RHETORIC II [1]	4
Quantitative Reasoning		
Not Required		
Sophomore Year		
Race, Power, and Resistance		
LSP 200	SEMINAR ON RACE, POWER, AND RESISTANCE	4
Junior Year		
Experiential Learning		
Required [2]		4
Senior Year		
Capstone		
NEU 390	NEUROSCIENCE CAPSTONE [1]	4

1 Students must earn a C- or better.

2 Students in the Accelerated 3+ Pre-Health/Occupational Therapy Concentration must complete this requirement by taking OT 412 and OT 422.

Learning Domains

Arts and Literature (AL) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/arts-and-literature/)

- 3 Courses Required

Historical Inquiry (HI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/historical-inquiry/)

- 2 Courses Required

Math and Computing (MC) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/math-and-computing/)

- Not Required

Philosophical Inquiry (PI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/philosophical-inquiry/)

- 2 Courses Required; 1 course required for Accelerated 3+ Pre-Health/Occupational Therapy Concentration
  (See note below regarding ethics requirement)

Religious Dimensions (RD) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/religious-dimensions/)

- 2 Courses Required
  (See note below regarding ethics requirement)

Scientific Inquiry (SI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/scientific-inquiry/)

- Not Required

Social, Cultural, and Behavioral Inquiry (SCBI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/social-cultural-and-behavioral-inquiry/)

- 1 Course Required; ANT 102 or SOC 101 are highly recommended for students in the Accelerated 3+ Pre-Health/Occupational Therapy Concentration as they are prerequisites for the Occupational Therapy (MS) program.

Notes

Students who are not in the Accelerated 3+ Pre-Health/Occupational Therapy Concentration must complete one approved ethics course from the following:

Course	Title	Quarter Hours
CSC 208	ETHICS IN TECHNOLOGY	4
HLTH 229	ETHICS FOR HEALTH SCIENCES	4
PHL 200	ETHICAL THEORIES	4
PHL 230	CONTEMPORARY TOPICS IN ETHICS	4
PHL 228	NEUROETHICS	4
or NEU 228	NEUROETHICS	
PHL 229	BIOMEDICAL ETHICS	4
REL 229	MEDICINE, ETHICS AND SOCIETY	4

Specified required courses within Liberal Studies may have grade minimums (e.g. C- or better). Please consult your advisor or your college and major requirements.

Courses offered in the student's primary major cannot be taken to fulfill LSP Domain requirements. If students double major, LSP Domain courses may double count for both LSP credit and the second major. Students who choose to take an experiential learning course offered by the major may count it either as a general elective or the Experiential Learning requirement.

In meeting learning domain requirements, no more than one course that is outside the student's major and is cross-listed with a course within the student's major, can be applied to count for LSP domain credit. This policy does not apply to those who are pursuing a double major or earning BFA or BM degrees.

Major Requirements

For students in Accelerated 3+programs with RFUMS or the combined program in Occupational Therapy, please refer to the curriculum in these concentrations for changes in the core and elective requirements.

Core Requirements

Course	Title	Quarter Hours
BIO 191	GENERAL BIOLOGY I FOR SCIENCE MAJORS	4
BIO 192	GENERAL BIOLOGY II FOR SCIENCE MAJORS	4
BIO 193	GENERAL BIOLOGY III FOR SCIENCE MAJORS	4
CHE 130 & CHE 131	GENERAL CHEMISTRY I and GENERAL CHEMISTRY I LABORATORY	4
CHE 132 & CHE 133	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LABORATORY II	4
CHE 134 & CHE 135	GENERAL CHEMISTRY III and GENERAL CHEMISTRY LABORATORY III	4
PSY 105	INTRODUCTORY PSYCHOLOGY I	4

PSY 106	INTRODUCTORY PSYCHOLOGY II	4
NEU 201	INTRODUCTION TO NEUROSCIENCE	4
NEU 202	ADVANCED NEUROSCIENCE FUNDAMENTALS	4
NEU 280	RESEARCH METHODS IN NEUROSCIENCE	4
NEU 390	NEUROSCIENCE CAPSTONE [1]	4
Select one of the following:		4
BIO 206	BIOSTATISTICS	
PSY 240	STATISTICS I	
IT 223	DATA ANALYSIS	
MAT 242	ELEMENTS OF STATISTICS	

[1]This course fulfills the Liberal Studies Capstone Requirement. Students in the Honors Program are not required to take it but may take it as a Major Elective

Major Electives (does not apply to Pre-Health Concentration students)

Choose between 6 to 9 major electives (24 to 36 quarter hours) depending on the selected concentration. Please refer to concentration page for required number of major electives. If a course is listed as a concentration requirement, it cannot double count as a major elective as well.

Course	Title	Quarter Hours
NEU 228	NEUROETHICS	4
NEU 256	INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE	4
NEU 310	SEMINAR IN NEUROPSYCHOPHARMACOLOGY	4
NEU 330	CELLULAR BASIS OF LEARNING AND MEMORY	
NEU 339	CELLULAR NEUROBIOLOGY	4
or BIO 339	CELLULAR NEUROBIOLOGY	
NEU 350	SENSORY NEUROSCIENCE	4
NEU 351	NEUROSCIENCE OF MOVEMENT	4
NEU 360	CONVERSATIONS WITH NEUROSCIENTISTS	4
NEU 380	SPECIAL TOPIC IN NEUROSCIENCE	4
NEU 399	INDEPENDENT STUDY IN NEUROSCIENCE	2-4
BIO 201	HUMAN ANATOMY	4
BIO 210	MICROBIOLOGY	4
BIO 220	BIOTECHNOLOGY	4
BIO 250	CELL BIOLOGY	4
BIO 260	GENETICS	4
BIO 301	ANIMAL BEHAVIOR	4
BIO 307	ANIMAL PHYSIOLOGY	4
or BIO 308	HUMAN PHYSIOLOGY	
or HLTH 301	INTEGRATED HUMAN ANATOMY AND PHYSIOLOGY-A	
BIO 330	DEVELOPMENTAL BIOLOGY	4
BIO 340	BEHAVIORAL NEUROSCIENCE	4
BIO 341	TOPICS IN NEUROBIOLOGY	4
BIO 342	COGNITIVE NEUROSCIENCE	4
or PSY 379	COGNITIVE NEUROSCIENCE	
BIO 360	MOLECULAR BIOLOGY	4
BIO 375	INTRODUCTION TO PHARMACOLOGY	4
or HLTH 375	INTRODUCTION TO PHARMACOLOGY	
BIO 386	ENDOCRINOLOGY	4
CHE 230 & CHE 231	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LABORATORY I	4
CHE 232 & CHE 233	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LABORATORY II	4
CHE 234 & CHE 235	ORGANIC CHEMISTRY III and ORGANIC CHEMISTRY LABORATORY III	4
CHE 340 & CHE 341	BIOCHEMISTRY I and EXPERIMENTAL BIOCHEMISTRY I	4
CSC 241	INTRODUCTION TO COMPUTER SCIENCE I	4
CSC 250	COMPUTERS AND HUMAN INTELLIGENCE	4
CSC 381	INTRODUCTION TO DIGITAL IMAGE PROCESSING	4
DSC 341	FOUNDATIONS OF DATA SCIENCE	4
HLTH 302	INTEGRATED HUMAN ANATOMY AND PHYSIOLOGY-B	4
PHY 150	GENERAL PHYSICS I	4
or PHY 170	UNIVERSITY PHYSICS I	
PHY 151	GENERAL PHYSICS II	4
or PHY 171	UNIVERSITY PHYSICS II	
PHY 152	GENERAL PHYSICS III	4
or PHY 172	UNIVERSITY PHYSICS III	
PSY 303	HUMAN DEVELOPMENT	4
PSY 348	SOCIAL COGNITION	4
PSY 353	INTRODUCTION TO PSYCHOPATHOLOGY AND CLINICAL SCIENCE	
PSY 364	HEALTH PSYCHOLOGY	4
PSY 366	BEHAVIOR PROBLEMS OF CHILDREN	4
PSY 370	SOCIAL AND EMOTIONAL DEVELOPMENT	4

For students interested in applying to professional health programs that require Anatomy and Physiology, we recommend choosing from the combination of BIO 201 and BIO 308 or HLTH 301 and HLTH 302.

Concentration Requirements

Students must also complete the requirements from one concentration: Behavioral/Cognitive Neuroscience; Cellular/Molecular Neuroscience; Computational Neuroscience; Integrative Neuroscience; Pre-Health. Students are limited to only declaring one concentration.

Students are advised to talk with their advisor before double majoring because ~~some major combinations are prohibited. No~~ more than 50% of the credits that apply to one major may be drawn from another major.

Concentrations, tracks and specializations provide focus to the major. In addition to any college core requirements, liberal studies requirements and major requirements, students are required to choose one of the following concentrations:

- Behavioral/Cognitive Neuroscience Concentration, Neuroscience (BS) (https://catalog.depaul.edu/programs/neuroscience-bs/behavioralcognitive-neuroscience-concentration-neuroscience-bs/)

- Cellular/Molecular Neuroscience Concentration, Neuroscience (BS) (https://catalog.depaul.edu/programs/neuroscience-bs/cellularmolecular-neuroscience-concentration-neuroscience-bs/)
- Computational Neuroscience Concentration, Neuroscience (BS) (https://catalog.depaul.edu/programs/neuroscience-bs/computational-neuroscience-concentration-neuroscience-bs/)
- Integrative Neuroscience Concentration, Neuroscience (BS) (https://catalog.depaul.edu/programs/neuroscience-bs/general-neuroscience-concentration-neuroscience-bs/)
- Pre-Health Concentration, Neuroscience (BS) (https://catalog.depaul.edu/programs/neuroscience-bs/pre-health-concentration-neuroscience-bs/)

The concentrations listed below may only be taken by students who have been conditionally admitted into a corresponding pre-professional program. Details regarding application and admission are provided within each of the concentration descriptions.

Accelerated Programs

- Accelerated 3+ Pre-Health/Occupational Therapy Concentration, Neuroscience (BS) (https://catalog.depaul.edu/programs/neuroscience-bs/pre-health-concentration-occupational-therapy-combined-neuroscience-bs/)
- Accelerated 3+ Pre-Physical Therapy Concentration, Neuroscience (BS) (https://catalog.depaul.edu/programs/neuroscience-bs/accelerated-pre-doctor-of-physical-therapy-concentration-neuroscience-bs/)
- Accelerated 3+ Pre-Physician Assistant Concentration, Neuroscience (BS) (https://catalog.depaul.edu/programs/neuroscience-bs/accelerated-pre-physician-assistant-concentration-neuroscience-bs/)