

Bachelor of Science in Neuroscience: Systems, Behavior & Plasticity

Learn more about the Bachelor of Science in Neuroscience: Systems, Behavior & Plasticity.

Neuroscience is a rapidly growing field that is making great advances in understanding behavior and cognitive functions, as well as advancing treatments for psychiatric, neurodegenerative, and neurological disorders. The Bachelor of Science degree in Neuroscience is designed to teach students to explore neural and brain function at multiple levels. The curriculum is customizable and flexible to ensure students get a well-rounded academic experience to prepare for: graduate school, professional school (e.g., medical school, occupational therapy school, etc.), and entering the workforce.

The degree includes 52-54 required credits: 25 credits in Neuroscience, 6-8 credits in electives on neuroscience topics from a variety of participating departments, and 21 credits of co-requisite courses in Biology, Chemistry, and Psychology. Students majoring in Neuroscience will be strongly encouraged to participate in hand-on research by taking courses in Independent Study as part of their elective credits for the major. Independent Study opportunities are offered in many of the laboratories of the more than 130 neuroscientist faculty members in the various colleges and schools participating in Temple University's Neuroscience Program.

For more information on features of the program use the following links:

- Independent Study and hands-on Research Opportunities
- Graduating with Distinction in Neuroscience
- Career Opportunities
- Student Life and Neuroscience Societies at Temple

Because of overlap in coursework, students pursuing this degree cannot complete the Cognitive Neuroscience minor offered by the Psychology Department.

Summary of Degree Requirements

University Requirements:

- MATH 0701 (4 s.h.) and/or ENG 0701 (4 s.h.), if required by placement testing.
- All Temple students must take a minimum of two writing-intensive courses as part of the major. The specific courses required for this major are NSCI 3096 and NSCI 4197.
- Students must complete requirements of the General Education (GenEd) Program. See the General Education section of the *Undergraduate Bulletin* for more details.

College of Liberal Arts Requirements:

- Completion of a minimum of 123 credits, including:
 - 90 credits in CLA/CST courses;
 - 45 credits of which must be at the upper level (numbered 2000-4999).
 - For **Social Science majors**, 6 upper level credits (numbered 2000-4999) must be taken in Humanities Subject Areas: Arabic, Chinese, English, French, German, Greek (Ancient), Greek and Roman Classics, Hebrew, Hindi, Italian, Japanese, Latin, Philosophy, Religion, Russian, and Spanish in the College of Liberal Arts, Art History in the Tyler School of Art and Architecture, or any department in the College of Science and Technology.
- A minimum GPA of 2.0, cumulatively, in CLA/CST coursework, and in the major.
- **Professional Development Requirement**
 - All students in the College of Liberal Arts are required to take a 1 credit seminar in professional development. NSCI 1002 Careers in Neuroscience, PSY 1002 Careers in Psychology or CLA 1002 Professional Development for Liberal Arts Majors would be an appropriate course option for this major. Other courses that fulfill this requirement may be found on the CLA College Requirements page. Only one course in this category may count towards graduation.
- Only courses in which a student receives a grade of at least C- can satisfy GenEd, major, or minor requirements.
- Note: For Neuroscience majors, there is no CLA Foreign Language/Global Studies Requirement because it is a Bachelor of Science program. However, students are strongly encouraged to take the third level of a foreign language as it is the minimum required for election to the prestigious honor society *Phi Beta Kappa*. (Taking the course does not guarantee admission but not taking it guarantees exclusion.)

General Electives are typically one-third of a student's program of study and can be focused on a second major, a minor, or towards some other personal enrichment or professional goals. See an academic advisor for assistance in developing an academic plan for these courses.

Major Requirements (52-54 credits):

Code	Title	Credit Hours
Required Courses		
BIOL 1012	General Biology II	4
CHEM 1031 & CHEM 1033	General Chemistry I and General Chemistry Laboratory I	4
CHEM 1032 & CHEM 1034	General Chemistry II and General Chemistry Laboratory II	4
PSY 1001	Introduction to Psychology	3
PSY 1003	Statistics for Psychology	3
NSCI 1051	Fundamentals of Neuroscience	3
NSCI 2001	Functional Neuroanatomy	3
NSCI 2121	Development/Plasticity/Repair	3
NSCI 2122	Cellular Neuroscience	3
NSCI 2222	The Neurobiology of Disease	3
NSCI 3087	Techniques in Neuroscience	3
NSCI 3096	Conducting Neuroscience Research	3
NSCI 4197	Capstone in Neuroscience	4
Foundations Courses:		
Select one of the following:		3
PSY 2501	Foundations of Behavioral Neuroscience	
PSY 2502	Foundations of Cognitive Neuroscience	
Electives		
Select two of the following:		6-8
Any course(s) in NSCI numbered 3000-4999 not used for another requirement		
CSCD 3235	Human Neuroscience	
CSCD 3382	Independent Study in Communication Sciences	
PHIL 2144	Introduction to the Philosophy of Mind	
PSY 2102	Foundations of Evolutionary and Comparative Psychology	
PSY 3306	Neuroscience of Development and Aging	
PSY 3561	Psychopharmacology	
PSY 3566	Neurobiology of Learning and Memory	
PSY 4182	Independent Study in Cognitive Neuroscience I	
PSY 4282	Independent Study in Cognitive Neuroscience II	
BIOL 3082	Independent Research II	
BIOL 3096	Cell Structure and Function	
BIOL 3352	Systems Neuroscience	
BIOL 3354	Neural Basis of Animal Behavior	
BIOL 3356	Organization and Development of the Nervous System	
CHEM 3881	Cooperative Research	
CHEM 4107	Drug Analysis	
PHYS 3301	Electricity and Magnetism	
Total Credit Hours		52-54

Students should check prerequisites for all courses.

Combining the Major in Neuroscience with Major or Minor Programs in Psychology

Students who choose to double-major in Neuroscience and Psychology may count the following courses towards both majors without taking replacement coursework:

- PSY 1001 Introduction to Psychology
- PSY 1003 Statistics for Psychology

- NSCI 3096 Conducting Neuroscience Research
- BIOL 1012 General Biology II
- CHEM 1031 General Chemistry I & CHEM 1033 General Chemistry Laboratory I
- CHEM 1032 General Chemistry II & CHEM 1034 General Chemistry Laboratory II

For students who major in Neuroscience and minor in Psychology, the following courses may count towards both programs without taking replacement coursework:

- PSY 1001 Introduction to Psychology
- PSY 1003 Statistics for Psychology
- NSCI 3096 Conducting Neuroscience Research

Distinction in Major

Majors in Neuroscience: Systems, Behavior and Plasticity have the opportunity to be awarded departmental distinction upon graduation. Graduation with Distinction can be achieved by maintaining a Grade Point Average of 3.0 or better in all Neuroscience Courses, completing two semesters of *Independent Study in Neuroscience* (NSCI 4182 & NSCI 4282) with an A- or better, and successfully completing a neuroscience research project based on the independent study work and described in a research paper and poster presented to Neuroscience Program faculty and students.

Suggested Academic Plan

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Requirements for New Students starting in the 2021-2022 Academic Year

Year 1		Credit Hours
Fall		
ENG 0802, 0812, or 0902	Analytical Reading and Writing [GW]	4
	GenEd Quantitative Literacy Course [GQ]	4
	GenEd Breadth Course	3
	GenEd Breadth Course	3
Term Credit Hours		14
Spring		
IH 0851 or 0951	Intellectual Heritage I: The Good Life [GY]	3
	GenEd Breadth Course	3
NSCI 1051	Fundamentals of Neuroscience	3
PSY 1001	Introduction to Psychology	3
BIOL 1012	General Biology II	4
Term Credit Hours		16
Year 2		
Fall		
NSCI 2001	Functional Neuroanatomy	3
IH 0852 or 0952	Intellectual Heritage II: The Common Good [GZ]	3
	GenEd Breadth Course	3
	CLA/CST 0800-4999 Elective	3
	One 0800-4999 Elective in Any School or College	3
Term Credit Hours		15
Spring		
CLA 1002	Professional Development for Liberal Arts Majors ¹	1
	GenEd Breadth Course	3
	CLA/CST 2000+ Elective	3
PSY 1003	Statistics for Psychology	3
	One 0800-4999 Elective in Any School or College	3
	CLA/CST 0800-4999 Elective	2
Term Credit Hours		15
Year 3		
Fall		

CLA/CST 2000+ Humanities/CST Course		3
NSCI 3096	Conducting Neuroscience Research [WI]	3
CHEM 1031 & CHEM 1033	General Chemistry I ²	4
NSCI 2121	Development/Plasticity/Repair	3
One 0800-4999 Elective in Any School or College		3
Term Credit Hours		16
Spring		
CLA/CST 2000+ Humanities/CST Course		3
CHEM 1032 & CHEM 1034	General Chemistry II ²	4
NSCI 2122	Cellular Neuroscience	3
NSCI 2222	The Neurobiology of Disease	3
Select one of the following:		3
PSY 2501	Foundations of Behavioral Neuroscience	
PSY 2502	Foundations of Cognitive Neuroscience	
Term Credit Hours		16
Year 4		
Fall		
NSCI 3087	Techniques in Neuroscience	3
One 2000+ Elective From the Approved List		3
CLA/CST 0800-4999 Elective		3
CLA/CST 0800-4999 Elective		3
One 0800-4999 Elective in Any School or College		3
Term Credit Hours		15
Spring		
NSCI 4197	Capstone in Neuroscience [WI]	4
One 2000+ Elective From the Approved List		4
CLA/CST 2000+ Elective		3
CLA/CST 2000+ Elective		3
One 0800-4999 Elective in Any School or College		2
Term Credit Hours		16
Total Credit Hours:		123

¹ Students may substitute NSCI 1002 or PSY 1002 for this requirement.

² CHEM 1031/CHEM 1033 and CHEM 1032/CHEM 1034 fulfill the GenEd Science & Technology requirement. Prerequisite for CHEM 1031 is MATH 1021 with a C or better or placement into MATH 1022.