BACHELOR OF SCIENCE IN NEUROSCIENCE

Students majoring in neuroscience will complete a 120 credit-hour curriculum (plus a required 2-credit class in health). They will learn fundamental principles and up-to-date advances in the field of neuroscience.The program will build on a strong foundation of required courses in the physical sciences and mathematics (chemistry, computer science, calculus, statistics and physics) in order to prepare students with the analytical skills needed to address the complexity of problems in neuroscience.The program will emphasize technological methods and innovations that have been critical, as well as ones needed to continue progress in neuroscience.

Code	Title	Credit Hours
Wellness Requirement		
APPH 1040	Scientific Foundations of Health	2
or APPH 10	The Science of Physical Activity and Health	
or APPH 10	Flourishing: Strategies for Well-being and Resilience	
Core IMPACTS		
Institutional Priority		
CS 1301	Introduction to Computing	3
or CS 1315	Introduction to Media Computation	
or CS 1371	Computing for Engineers	
Mathematics and Quantitative Skills		
MATH 1552	Integral Calculus	4
or MATH 1565	Calculus for Life Sciences	
Communicating in Writing		
ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
Political Science and U.S. History		
HIST 2111	The United States to 1877	3
or HIST 211	The United States since 1877	
or INTA 120	American Government in Comparative Perspective	
or POL 1101	Government of the United States	
or PUBP 30	American Constitutional Issues	
Arts, Humanities, and Ethics		
Any HUM		6
Technology, Mathematics, and Sciences		
Any Lab Science [1]		8
MATH 1551	Differential Calculus	2
or MATH 155	Introduction to Differential Calculus	
MATH 1553	Introduction to Linear Algebra [2]	2
or MATH 15	Linear Algebra	
or MATH 15	Linear Algebra with Abstract Vector Spaces	
Social Sciences		
Any SS [3]		9
Field of Study		
CHEM 1310	Principles of General Chemistry for Engineers	4
or CHEM 12	Chemical Principles I	
CHEM 1315	Survey of Organic Chemistry for Engineers [4]	3
or CHEM 230	Organic Chemistry I	
BIOS 1107	Biological Principles	3
or BIOS 120	Biological Principles for Majors	
BIOS 1107L	Biological Principles Laboratory	1
or BIOS 120L	Biological Principles Project Laboratory	
NEUR 2001	Principles in Neuroscience	4
or NEUR 20 & 2010L	Principles of Neuroscience for Majors and Principles of Neuroscience Lab	
BIOS 4401	Experimental Design and Statistical Methods in Biological Sciences	3
Major Requirements		
NEUR 3001	Cell and Molecular Neuroscience	3
NEUR 3002	Neural Systems, Networks, and Behavior	3
NEUR 3003	Neuroscience of Behavior	3
NEUR 3010	Methods in Neuroscience	3
CHEM 3511	Survey of Biochemistry	3
or CHEM 352	Biochemistry I	
Neuroscience Depth Electives		**15**
Select one research based elective:		
NEUR 4001	Neuroscience Research Project [4]	
or NEUR	Neuroscience Thesis Research	
NEUR Thesis Option		
11 credits of additional Neuroscience Electives [5]		
BIOS 2600	Genetics	
BIOS 2610	Integrative Genetics	
BIOS 3450	Cell and Molecular Biology	
BIOS 3451	Cell and Molecular Biology Lab	
BIOS 3753	Fundamentals of Human Anatomy	
BIOS 3754	Laboratory in Human Anatomy	
BIOS 3755	Human Physiology	
BIOS 3756	Physiology Laboratory	
BIOS 4200	Kinesiological Basis of Human Movement	
BIOS 4238	Ion Channels	
BIOS 4400	Human Neuroanatomy	
BIOS 4464	Developmental Biology	
BIOS 4471	Behavioral Biology	
BIOS 4480	Evolutionary Developmental Biology – How to Build an Organism	
BIOS 4651	Bioethics	
BIOS 4746	Signaling Molecules	
CHEM 3522	Biochemistry II	
CHEM 4803	Special Topics	
MATH 4803	Special Topics	
NEUR 2699	Undergraduate Research	
NEUR 2803	Special Topics in Neuroscience	
NEUR 3803	Special Topics in Neuroscience	
NEUR 3231	Intro to Neuroengineering	
NEUR 4100	Neurodevelopment	
NEUR 4200	Functional Neuroanatomy	
NEUR 4238	Ion Channels in Health and Disease	
NEUR 4300	Neuroscience of Memory	
NEUR 4400	Neuroendocrinology	
NEUR 4699	Undergraduate Research	

	NEUR 4696 Undergraduate Teaching Assistantship	
	NEUR 4697 Undergraduate Teaching Experience	
	NEUR 4740 Neuroethics	
	NEUR 4803 Special Topics	
	PHYS 3250 Principles of the Physics of Living Systems	
	PHYS 4251 Biophysics	
	PSYC 2015 Research Methods	
	PSYC 2103 Human Development Over the Life Span	
	PSYC 2230 Abnormal Psychology	
	PSYC 3012 Introduction to Cognitive Psychology	
	PSYC 3040 Sensation and Perception	
	PSYC 4011 Cognitive Psychology	
	PSYC 4041 Human Sensation and Perception	
	PSYC 4100 Behavioral Pharmacology	
	PSYC 4090 Cognitive Neuroscience	
	PSYC 4745 Physics of Cognition	
	PSYC 4803 Special Topics	
Breadth Electives		**15**
Free Electives		**14**
Total Credit Hours		**122**

[1] It is highly recommended that Neuroscience students complete PHYS I and PHYS II for their lab science options. This lab sequence may be a prerequisite for neuroscience electives or neuroscience-related electives within the major requirements.

[2] Note: MATH 1553 or 1554 or 1564 is a prerequisite for NEUR 3002. MATH 1553 (2 cr.) is preferred but MATH 1554 (Linear Algebra, 4 cr.) or MATH 1564 (Linear Algebra with Vector Spaces, 4 cr.) can satisfy this requirement with the excess 2 cr. to be applied to free electives

[3] PSYC 1101 is a prerequisite for NEUR 2001/NEUR 2010, a major required course. It is recommended that students take PSYC as one of their social science courses.

[4]

[5] The Research Option requires at least 5 additional hours of research (NEUR 2698, NEUR 2699, NEUR 4698, or NEUR 4699) and LMC 47011 credit) and LMC 4702 (1 credit; applied to Free Electives). A research proposal and thesis/report is also required to complete the Research Option

Research Option

BS in Neuroscience students are able to complete the Georgia Tech Research Option.

To complete the research option for Neuroscience, the student must:

- Complete ten units of supervised research, over a period of preferably three but at least two terms.
- Research may be for either pay or credit [typically 4698 or 4699]* - for BS in Neuroscience, this will be NEUR 4699.
- At least six credit hours must be on the same research project, broadly defined.
- Write an undergraduate thesis or other substantial, written report showing results of the research.
- A research proposal must be approved by a faculty advisor and one other faculty member. The proposal will normally be completed at the end of the student's first semester of research, but must be approved at latest before the start of their final term of research. An approved proposal is required for admission to the class "Writing an Undergraduate Thesis" (see below).
- The thesis/report must be approved and graded by two faculty members.
- Theses will be published in the Georgia Tech Library.
- Take the two-credit class "Writing an Undergraduate Thesis." [LMC 4701 and LMC 4702]

http://www.undergradresearch.gatech.edu/research-option/

BSMS Option

The BSMS Option allows eligible students to double count a maximum of 6 credit hours toward undergraduate and graduate requirements while still completing all other program requirements to earn both degrees. The credit must be approved coursework (4000-level or higher; not seminar or research credit) completed with a grade of 'B' or higher.

To apply for the option, undergraduate Neuroscience students must have at least 30 credit hours earned at Georgia Tech with an undergraduate GPA of 3.3 or higher, and fewer than 90 credits overall (including transfer credit).

The minimum GPA to graduate with an undergraduate degree in Neuroscience to continue to the MS in Psychology program is 3.0. The minimum GPA for graduation with the MS in 2.7.

Students will need to consult with an advisor to indicate which courses are sharing with the graduate degree in DegreeWorks.