NEUROSCIENCE B.S. - COGNITIVE NEUROSCIENCE

The University of Montana Neuroscience Program also offers a combined Bachelor of Science and Master of Science degree in Neuroscience with an emphasis on Cellular & Molecular Neuroscience. This five-year ("4 + 1") accelerated program is specifically designed for students who have demonstrated academic excellence and are deeply interested in pursuing intensive research training in preparation for graduate/professional schools, or who wish to enter the biomedical/biotech sector with advanced standing. The first 3 years of study are aligned with the existing Cellular & Molecular track of the B.S. in Neuroscience. Some students in the Cognitive & Behavioral track may also be eligible, depending upon their course selections. In the 4th year, students will take graduate neuroscience courses and complete their B.S. degree. This will allow students to enter the Neuroscience Graduate Program with advanced standing and, pending completion and defense of an M.S. thesis project, earn an M.S. in 5 years. See the Neuroscience website (https://www.umt.edu/neuroscience/default.php) for details on the curriculum and regulations in the Neuroscience B.S./M.S. Program.

General Degree Requirements

To earn a baccalaureate degree, all students must complete successfully, in addition to any other requirements, the University of Montana General Education Requirements. Please refer to the General Education Requirements page (https://catalog.umt.edu/academics/general-education-requirements/) for more information.

Additional requirements for graduation can be found on the Degree/Certificate Requirements for Graduation page (https://catalog.umt.edu/academics/graduation-requirements/).

Unless otherwise noted in individual program requirements, a minimum grade point average of 2.00 in all work attempted at the University of Montana-Missoula is required for graduation. Please see the Academic Policies and Procedures page (https://catalog.umt.edu/academics/policies-procedures/) for information on how your GPA is calculated.

Courses taken to satisfy the requirements of a major, minor, or certificate program must be completed with a grade of C- or better unless a higher grade is noted in the program requirements.

Bachelor of Science - Neuroscience; Cognitive Neuroscience Concentration

Course Requirements

Code	Title	Hours
Neuroscience Core Courses		
Complete all of the following courses:		
BIOB 160 & BIOB 161N	Principles of Living Systems and Principles of Living Systems Lab	4
BIOB 260	Cellular and Molecular Biology	4
BIOB 272	Genetics and Evolution	4
NEUR 280	Fundamental Neuroscience	3
NEUR 281	Fundamentals of Neuroscience II: Cognition	3
NEUR 380	Molecular Neuroscience	3
NEUR 458	Neuroscience Research Techniques Lab	4
Mathematics and Physics		
Complete all of the following courses:		
M 162	Applied Calculus	4
PHSX 205N	College Physics I	4
PHSX 206N	College Physics I Laboratory	1
PHSX 207N	College Physics II	4
PHSX 208N	College Physics II Laboratory	1
STAT 216	Introduction to Statistics	4
or PSYX 222	Psychological Statistics	
Chemistry		
Complete one of the following Chemistry sequences:		9-15
Introductory Chemistry (9 Credits)		
CHMY 121N	Introduction to General Chemistry	
CHMY 123	Introduction to Organic and Biochemistry	
CHMY 124	Introduction to Organic and Biochemistry Lab	
College Chemistry (15 Credits)		
CHMY 141N	College Chemistry I	
CHMY 142N	College Chemistry I Lab	
CHMY 143N	College Chemistry II	
CHMY 144N	College Chemistry II Lab	
CHMY 221	Organic Chemistry I	
CHMY 222	Organic Chemistry I Lab	
Additional Major Courses		
Complete all of the following courses:		
BCH 380	Biochemistry	4
PSYX 270	Fundamentals of Psychology of Learning	3
PSYX 280	Fundamentals of Memory and Cognition	3
PSYX 356	Human Neuropsychology	3
Complete two of the following courses:		6-7
BIOB 301	Developmental Biology	
BIOH 365	Human Anatomy and Physiology for Health Professions I	
KIN 330	Motor Learning and Control	
NEUR 441	CNS Diseases	
NEUR 475	Neuropharmacology	
NEUR 481	Systems Neuroscience of Behavior and Cognition	
PSYX 352	Comparative Psychology	
Intersection Courses		
Complete one of the following courses		1-9
BIOE 406	Behavior & Evolution	
DANC 345	New Visions Dance	
HTH 430	Health and Mind/Body/Spirit	
PSYX 233	Fundamentals of Psychology of Aging	
Writing in the Disciplines Requirement		
To complete the General Education Requirement for Writing in the Disciplines, Neuroscience students can either take a complete writing course (in or outside of DBS) or partial writing courses (2-3) within the DBS Distributed Model.		
Total Hours		**72-87**

Writing in the Disciplines Distributed Model Courses for Biological Sciences

Code	Title	Hours
1/3 Writing in the Disciplines Courses		
BCH 482	Advanced Biochemistry II	3
BIOB 410	Immunology	3
BIOB 425	Advanced Cellular & Molecular Biology	3
BIOB 483	Phylogenics and Evolution	3
BIOE 371	General Ecology Lab (equivalent to 271)	2
BIOE 403	Comparative Vertebrate Anatomy	4
BIOE 428	Freshwater Ecology	5
BIOH 447	Genes and Development Lab	3
BIOM 327	Vector-Borne Diseases: Public Health Perspectives	3
BIOM 435	Virology	3
BIOO 470	Ornithology	4
BIOO 475	Mammalogy	4
WILD 470	Conservation of Wildlife Populations	4
2/3 Writing in the Disciplines Courses		
BCH 486	Biochemistry Research Lab	3
BCH 499	Senior Thesis/Capstone	3-6
BIOB 411	Immunology Laboratory	2
BIOB 499	Undergraduate Thesis	3-6
BIOE 448	Terrestrial Plant Ecology	4
BIOE 485	Plant Evolution	3
BIOM 499	Undergraduate Thesis	3-6
Full Writing in the Disciplines Courses		
BIOH 462	Principles of Medical Physiology	3
BIOM 420	Host-Microbe Interactions	3

Four Year Plan

Course	Title	Hours
Freshman		
Autumn		
CHMY 121N	Introduction to General Chemistry	4
BIOB 160 & BIOB 161N	Principles of Living Systems and Principles of Living Systems Lab	4
M 162	Applied Calculus (or prereq math course)	4
WRIT 101	College Writing I (or General Education Requirement)	4
HUSC 194	Seminar/Workshop	1
	Hours	**17**
Spring		
CHMY 123 & CHMY 124	Introduction to Organic and Biochemistry and Introduction to Organic and Biochemistry Lab	6
STAT 216	Introduction to Statistics	4
PSYX 100S	Intro to Psychology	3
WRIT 101	College Writing I (or General Education Requirement)	4
	Hours	**17**
Sophomore		
Autumn		
NEUR 280	Fundamental Neuroscience	3
BIOB 260	Cellular and Molecular Biology	4
PSYX 270	Fundamentals of Psychology of Learning	3
General Education Requirement		6
	Hours	**16**
Spring		
NEUR 281	Fundamentals of Neuroscience II: Cognition	3
BIOB 272	Genetics and Evolution	4
PSYX 280	Fundamentals of Memory and Cognition	3
General Education Requirement		6
	Hours	**16**
Junior		
Autumn		
NEUR 380	Molecular Neuroscience	3
PHSX 205N & PHSX 206N	College Physics I and College Physics I Laboratory	5
BCH 380	Biochemistry	4
Upper Division Elective [2]		3
	Hours	**15**
Spring		
PHSX 207N & PHSX 208N	College Physics II and College Physics II Laboratory	5
PSYX 356	Human Neuropsychology	3
Additional Major Course Elective [1]		3
BIOE 406 or DANC 345 or HTH 430 or PSYX 233	Behavior & Evolution (Intersection course) or New Visions Dance or Health and Mind/Body/Spirit or Fundamentals of Psychology of Aging	1-4
General Education Requirement		3
	Hours	**15-18**
Senior		
Autumn		
NEUR 458	Neuroscience Research Techniques Lab	4
BIOE 406 or DANC 345 or HTH 430 or PSYX 233	Behavior & Evolution (Intersection Course) or New Visions Dance or Health and Mind/Body/Spirit or Fundamentals of Psychology of Aging	1-4
Upper Division Elective [2]		6
General Education Requirement		3
	Hours	**14-17**
Spring		
Additional Major Course Elective [1]		3
Upper Division Elective [2]		6
General Education Requirement		3
	Hours	**12**
	Total Hours	**122-128**

Last updated Autumn 2024

1 The following neuroscience courses fulfill the Additional Major Course elective categories as well as upper division electives: NEUR 441, NEUR 491 (Neuropharmacology), NEUR 491 (Neuroanatomy)

2 Students can earn credit in Undergraduate Research in Neuroscience (NEUR 390 or NEUR 490) which will count as upper division elective credit.