NEUROSCIENCE, BACHELOR OF SCIENCE

To obtain a BS with a major in Neuroscience, a student must fulfill university, college, and departmental requirements. As an interdisciplinary major, Neuroscience major requirements meet the college breadth requirement. Other hour requirements follow:

- 46 hours of University General Education courses *(Testing out of academic skills requirements and enrolling in major courses that satisfy distribution requirements are likely to reduce the total number of General Education hours and allow for additional elective hours.)*
- 54-56 hours of major courses
- 15 hours of Cognate Courses or a Minor
- 3-5 hours of electives

TOTAL HOURS: 120

Requirements

Code	Title	Credits
Required Neuroscience Fundamentals Courses (Core)		
NEUR 1520	INTRODUCTION TO NEUROSCIENCE I	3
NEUR 1540	INTRODUCTION TO NEUROSCIENCE II	3
PSYC 3130	STATISTICS FOR THE BEHAVIORAL SCIENCES	3
NEUR 3600	RESEARCH METHODS IN NEUROSCIENCE	3-4
or PSYC 3140	RESEARCH METHODS IN PSYCHOLOGY	
BIOL 1450	BIOLOGY I	5
BIOL 1750	BIOLOGY II	5
BIOL 2140	GENETICS [1]	4
Select ONE of the following sequences of natural sciences courses with labs (or their equivalents at higher levels) for a minimum of 10 credit hours in chemistry OR physics:		10
Choice 1:		
CHEM 1140 & CHEM 1144	FUNDAMENTALS OF COLLEGE CHEMISTRY and FUNDAMENTALS OF COLLEGE CHEMISTRY LABORATORY	
AND		
CHEM 2210 & CHEM 2214	FUNDAMENTALS OF ORGANIC CHEMISTRY and FUNDAMENTALS OF ORGANIC CHEMISTRY LABORATORY	
OR		
CHEM 1180	GENERAL CHEMISTRY I	
CHEM 1184	GENERAL CHEMISTRY I LABORATORY	
CHEM 1190	GENERAL CHEMISTRY II	
CHEM 1194	GENERAL CHEMISTRY II LABORATORY	
AND		
CHEM 2250	ORGANIC CHEMISTRY I [2]	
CHEM 2260	ORGANIC CHEMISTRY II [2]	
CHEM 2274	ORGANIC CHEMISTRY LABORATORY [2]	
Choice 2:		
PHYS 1110 & PHYS 1154	GENERAL PHYSICS I and GENERAL PHYSICS LABORATORY I	
PHYS 1120 & PHYS 1164	GENERAL PHYSICS II and GENERAL PHYSICS LABORATORY II	

1 Pre-requisite to BIOL 2140 is CHEM 1140-CHEM 1144 or CHEM 1180-CHEM 1184, and BIOL 1450 & BIOL 1750.

2 Students can substitute CHEM 2210 and CHEM 2214 for the CHEM 2250, CHEM 2260, and CHEM 2274 sequence.

Advanced Neuroscience Courses

In addition to the required fundamentals courses, 18 credit hours as a combination from the Cornerstone Neuroscience Lecture (3 credits), Laboratory (3 – 4 credits), and Block I, Block II, and Block III Courses (12 credits) from the lists below must be selected. Within the 12 hour credit selection, at least 3 credits must come from Block I and at least 3 credits must come from Block II. To complete the 18 credits required, a minimum of 6 credits can be taken from a combination of Block I, Block II, and Block III. No more than three hours of Experiential Study in Neuroscience (NEUR 4960) may be applied to the Additional Advanced Neuroscience Courses category. NEUR 4910, NEUR 4920, and NEUR 4930 may be taken more than once as long as they are different topics. No courses can double-count within this 18 credit hour group.

Cornerstone Lab and Lecture

Code	Title	Credits
Select one of the following lab courses:		3-4
NEUR 4200	ADVANCED NEUROSCIENCE LABORATORY	
NEUR/BIOL 4810	BEHAVIORAL GENETICS	
PSYC/BIOL 4280	ANIMAL BEHAVIOR LABORATORY	
Select one of the following lecture courses (that has not already been used to satisfy the Supporting Neuroscience Elective Courses requirement):		3
NEUR 4000	SYSTEMS NEUROSCIENCE	
NEUR 4160	NEUROPHARMACOLOGY	
NEUR 4330	SOCIAL NEUROSCIENCE	
NEUR 4480	NEUROIMMUNOLOGY	
NEUR/BIOL 4870	MOLECULAR AND CELLULAR NEUROBIOLOGY	
NEUR/BIOL 4890	GENES, BRAIN, AND BEHAVIOR	
PSYC/BIOL 4320	HORMONES & BEHAVIOR	
Total Credits		**6-7**

Block I Neuroscience Choices: Molecular and Cellular Neuroscience

Code	Title	Credits
NEUR 4000	SYSTEMS NEUROSCIENCE	3
NEUR 4160	NEUROPHARMACOLOGY	3
NEUR 4290	NEUROETHOLOGY	3
NEUR 4480	NEUROIMMUNOLOGY	3
NEUR 4640	NEURAL MECHANISMS OF SUBSTANCE USE DISORDERS	3
NEUR 4840	GLIA IN HEALTH AND DISEASE	3
NEUR 4850	NEUROBIOLOGY OF LEARNING AND MEMORY	3
NEUR 4870	MOLECULAR AND CELLULAR NEUROBIOLOGY	3
NEUR/BIOL 4890	GENES, BRAIN, AND BEHAVIOR	3
NEUR 4910	SPECIAL TOPICS IN NEUROSCIENCE - BLOCK 1	3

Block II Neuroscience Choices: Behavioral and Cognitive Neuroscience

Code	Title	Credits
NEUR/BIOL/GERO 3500	BIOLOGICAL PRINCIPLES OF AGING	3
NEUR/GERO 4050	ADVANCED BIOLOGY OF AGING	3
NEUR/PSYC 4230	BEHAVIORAL NEUROSCIENCE	3
NEUR 4330	SOCIAL NEUROSCIENCE	3
NEUR/BMCH 4650	NEUROMECHANICS OF HUMAN MOVEMENT	3
NEUR 4920	SPECIAL TOPICS IN NEUROSCIENCE - BLOCK 2	3
PSYC 4090	COGNITIVE NEUROSCIENCE	3
PSYC 4210	SENSATION AND PERCEPTION	3
PSYC 4250/PHIL 3250	LIMITS OF CONSCIOUSNESS	3
PSYC/BIOL 4270	ANIMAL BEHAVIOR	3
PSYC/BIOL 4320	HORMONES & BEHAVIOR	3

Block III Additional Advanced Neuroscience Choices:

Code	Title	Credits
NEUR 4930	SPECIAL TOPICS IN NEUROSCIENCE - NEURO ELECTIVE BLOCK (Block III)	3
NEUR 4960	EXPERIENTIAL STUDY IN NEUROSCIENCE	3

Students must complete 15 credits worth of a cognate set of courses (see below) OR may choose a minor of at least 15 hours or a double major. Courses taken within the major may not also be used toward the completion of cognate coursework. Six (6) hours of cognate coursework may double-count with your Gen Ed requirements. No more than 6 hours of cognate coursework may be at the 1000 level. At least 3 hours of cognate coursework must be at the 3000-4000 level. Note that some classes have prerequisites.

Code	Title	Credits
ANTH 1050	INTRODUCTION TO ANTHROPOLOGY	3
ANTH 3910	INTRODUCTION TO PHYSICAL ANTHROPOLOGY	3
ANTH 4230	ETHNOMEDICINES OF THE AMERICAS	3
ANTH 4240	MEDICAL ANTHROPOLOGY	3
BIOI 1000	INTRODUCTION TO BIOINFORMATICS	3
BIOI 2000	FOUNDATIONS OF BIOINFORMATICS	3
BIOL 2740	HUMAN ANATOMY AND PHYSIOLOGY I	4
BIOL 2840	HUMAN ANATOMY AND PHYSIOLOGY II	4
BIOL 3020	MOLECULAR BIOLOGY OF THE CELL	3
BIOL 3240	INTRODUCTION TO IMMUNOLOGY	3
BIOL 4110	STATISTICS FOR BIOLOGICAL SCIENCES	4
BIOL 4130	MOLECULAR GENETICS	4
BIOL 4140	CELLULAR BIOLOGY	4
BIOL 4230	EVOLUTION	3
BIOL 4260	BEHAVIORAL ECOLOGY	3
BIOL 4650 & BIOL 4654	BIOCHEMISTRY I and BIOCHEMISTRY I LABORATORY	4
BIOL 4730	VERTEBRATE ENDOCRINOLOGY	4
BIOL 4740	ANIMAL PHYSIOLOGY	3
BIOL 4850	DEVELOPMENTAL BIOLOGY	3
BIOL 4860	COMPARATIVE GENOMICS	3
BIOL 4960	ADVANCED GENETICS	3
BMCH 2400	HUMAN PHYSIOLOGY & ANATOMY I	4
BMCH 2500	HUMAN PHYSIOLOGY AND ANATOMY II	4
BMCH 4100	BIOINSPIRED ROBOTICS	3
CHEM 3650 & CHEM 3654	FUNDAMENTALS OF BIOCHEMISTRY and FUNDAMENTALS OF BIOCHEMISTRY LABORATORY	4
CHEM 4610	BIOCHEMISTRY OF METABOLISM	4
CHEM 4650 & CHEM 4654	BIOCHEMISTRY I and BIOCHEMISTRY I LABORATORY	4
CSCI 1200 & CSCI 1204	COMPUTER SCIENCE PRINCIPLES and COMPUTER SCIENCE PRINCIPLES LABORATORY	4
ENVN 4320	ECOLOGICAL SUSTAINABILITY AND HUMAN HEALTH	3
MATH 1940	CALCULUS FOR BIOMEDICINE	5
PHIL 1210	CRITICAL REASONING	3
PHIL 2020	INTRODUCTION TO PHILOSOPHY OF MIND	3
PHIL 3650	PHILOSOPHY OF MIND	3
PHIL 4220	NEUROETHICS	3
PHYS 3300	INTRODUCTION TO BIOMEDICAL PHYSICS	3
PHYS 3500	ELEMENTS OF ELECTRONICS	3
PHYS 4500	BIOLOGICAL PHYSICS	3
PSYC 1010	INTRODUCTION TO PSYCHOLOGY I	3
PSYC 1020	INTRODUCTION TO PSYCHOLOGY II	3
PSYC 2024	EXPLORATIONS IN THE SCIENCE OF PSYCHOLOGY	2
PSYC 3520	CHILD PSYCHOLOGY	3
PSYC 4020	LEARNING	3
PSYC 4024	LABORATORY IN PSYCHOLOGY: LEARNING	3
PSYC 4234	LABORATORY IN PSYCHOLOGY: BEHAVIORAL NEUROSCIENCE	3
PSYC 4440	ABNORMAL PSYCHOLOGY	3
PSYC 4460	PSYCHOLOGY OF ADULT DEVELOPMENT AND AGING	3
PSYC 4470	MENTAL HEALTH AND AGING	3
PSYC 4990	SENIOR THESIS	3-6

Freshman

Fall		Credits
BIOL 1450	BIOLOGY I	5
ENGL 1150	ENGLISH COMPOSITION I (*)	3
NEUR 1520	INTRODUCTION TO NEUROSCIENCE I	3
MATH 1300	COLLEGE ALGEBRA WITH SUPPORT	4
	*ENGL 1150: requires placement via AP, ACT, or EPPE.	
	**MATH 1300 or higher, or placement via ACT/SAT/Math Placement Exam is required prior to CHEM 1140/1144, CHEM 1180/1184, or PHYS 1110/1154. Please confer with your advisor for options.	
	Credits	**15**

Spring		
BIOL 1750	BIOLOGY II (*)	5
ENGL 1160	ENGLISH COMPOSITION II (**)	3
NEUR 1540	INTRODUCTION TO NEUROSCIENCE II (***)	3
Elective		3
	*BIOL 1750: requires BIOL 1450	
	**ENGL 1160: requires ENGL 1150 or placement via AP or EPPE.	

***NEUR 1540: requires NEUR 1520

Credits **14**

Sophomore

Fall

CHEM 1140 & CHEM 1144	FUNDAMENTALS OF COLLEGE CHEMISTRY and FUNDAMENTALS OF COLLEGE CHEMISTRY LABORATORY (*)	5
PSYC 3130	STATISTICS FOR THE BEHAVIORAL SCIENCES (**)	3
Humanities/Fine Arts course + U.S. Diversity		3
Neuroscience Block 1 Course		3

*CHEM 1140: requires MATH 1220 or 1300 or highe or placement via ACT/SAT/Math Placement Exam. Neuroscience majors may take CHEM 1180/1184 and 1190/1194 in lieu of CHEM 1140/1144. MATH 1300 or 1320 or higher is a prereq for CHEM 1180-1184. May also take PHYS 1110/1154 and PHYS 1120/1164 in lieu of Chemistry coursework.

**PSYC 3130: requires MATH 1220, 1120, 1300, or STAT 1530. Appropriate scores on the ACT/SAT/Math Placement Exam may also serve as an acceptable prereq.

Credits **14**

Spring

CHEM 2210 & CHEM 2214	FUNDAMENTALS OF ORGANIC CHEMISTRY and FUNDAMENTALS OF ORGANIC CHEMISTRY LABORATORY	5
CMST 1110 or CMST 2120	PUBLIC SPEAKING FUNDS or ARGUMENTATION AND DEBATE	3
NEUR 3600 or PSYC 3140	RESEARCH METHODS IN NEUROSCIENCE (**) or RESEARCH METHODS IN PSYCHOLOGY	3-4
Social Science course + Global Diversity		3

*CHEM 2210: requires CHEM 1140/1144 or CHEM 1190/1194 with grade of C- or higher. Neuroscience majors may take CHEM 1180/1184 and 1190/1194 in lieu of CHEM 1140/1144, and CHEM 2250, CHEM 2260-2274 in lieu of CHEM 2210-2214. May also take PHYS 1110/1154 and PHYS 1120/1164 in lieu of Chemistry coursework.

**NEUR 3600 and PSYC 3140: require PSYC 3130 and ENGL 1160.

Credits **14-15**

Junior

Fall

BIOL 2140	GENETICS	4
Neuroscience Block 2 Course		3
Humanities/Fine Arts Course		3
Cognant Course**		3
Cognate Course**		3

*BIOL 2140: requires BIOL 1450, 170, and CHEM 1140/1144 (or CHEM 1180/1184)

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Credits **16**

Spring

Advanced Neuroscience Lecture Course*	3
Supporting Neuroscience coursework (Block 1, 2, or 3)	3
Humanities/Fine Arts Course**,***	3
Social Science***	3
Cognate Course^	3

*Advanced Neuroscience Lecture options include: NEUR 4000; NEUR/PSYC 4160; NEUR 4480; NEUR 4330; NEUR/BIOL 4870; NEUR/BIOL 4890; PSYC/BIOL 4320

**HFA course must come from 2nd discipline.

***Consider taking J-Session course for this or the HFA course.

^Students must complete 15 credits worth of a cognate set of courses OR may choose a minor of at least 15 hours or a double major. Six (6) hours of cognate coursework may double-count with your Gen Ed requirements. No more than 6 hours of cognate coursework may be at the 1000 level. At least 3 hours of cognate coursework must be at the 3000-4000 level. Note that some classes have prerequisites. Courses are listed in the catalog.

Credits **15**

Senior

Fall

NEUR 4200 or PSYC 4280 or BIOL 4280 or NEUR 4810 or BIOL 4810	ADVANCED NEUROSCIENCE LABORATORY (*) or ANIMAL BEHAVIOR LABORATORY or ANIMAL BEHAVIOR LABORATORY or BEHAVIORAL GENETICS or BEHAVIORAL GENETICS	3-4
Supporting Neuroscience coursework (Block 1 or 2)		3
Social Science Course**		3
Cognate Course***		3
Elective		3
Elective		3

*NEUR 4200: requires NEUR 1520, 1540, PSYC 3130, 3140, and BIOL 1450. PSYC/BIOL 4280 requires PSYC 3130, PSYC 3140 and either PSYC/BIOL 4270 or PSYC/BIOL 4320. NEUR/BIOL: requires BIOL 2140.

**SS course must come from 2nd discipline.

***Students must complete 15 credits worth of a cognate set of courses OR may choose a minor of at least 15 hours or a double major. Six (6) hours of cognate coursework may double-count with your Gen Ed requirements. No more than 6 hours of cognate coursework may be at the 1000 level. At least 3 hours of cognate coursework must be at the 3000-4000 level. Note that some classes have prerequisites. Courses are listed in the catalog.

Credits **18-19**

Spring

Supporting Neuroscience coursework (Block 1, 2, or 3)	3
Cognate Course*	3
Elective**	3
Elective**	3
Elective**	3

*Students must complete 15 credits worth of a cognate set of courses OR may choose a minor of at least 15 hours or a double major. Six (6) hours of cognate coursework may double-count with your Gen Ed requirements. No more than 6 hours of cognate coursework may be at the 1000 level. At least 3 hours of cognate coursework must be at the 3000-4000 level. Note that some classes have prerequisites. Courses are listed in the catalog.

**120 credits minimally needed for a degree. Take as many electives as is needed to reach this minimum. Students need 27 upper level credits throughout the degree. Electives may need to be selected at the 3000- 4000 level to reach this minimums.	
Credits	**15**
Total Credits	**121-123**

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

This plan is not a contract and curriculum is subject to change

Additional Information About this Plan:
University Degree Requirements: The minimum number of hours for a UNO undergraduate degree is 120 credit hours. Please review the requirements for your specific program to determine all requirements for the program. In order to graduate on-time (four years for an undergraduate degree), you need to take 30 hours each year.

Placement Exams: For Math, English, Foreign Language, a placement exam may be required. More information on these exams can be found at https://www.unomaha.edu/enrollment-management/testing-center/placement-exams/information.php

**Transfer credit or placement exam scores may change suggested plan of study