18-19

MEDICAL, HEALTH SCIENCES, AND RESEARCH CONCENTRATION IN NEUROSCIENCE

Neuroscience, Bachelor of Science - Medical, Health Sciences and Research Concentration in Neuroscience

Concentration in Neuroscience		
Code	Title	Credits
GENERAL EDUCATION	ON REQUIREMENTS - 34 Hours	
Required		
Minimum of "C-"requi		
Fundamental Skills		15
Writing – 6 hrs.		
ENGL 1150	ENGLISH COMPOSITION I	
ENGL 1160	COLLEGE RESEARCH AND INFORMATION LITERACY	
Oral Communica	tion – 3 hrs.	
CMST 1110	PUBLIC SPEAKING FUNDS	
or CMST 2120	ARGUMENTATION AND DEBATE	
Quantitative Lite	racy – 3 hrs.	
MATH 1120	INTRODUCTION TO MATHEMATICAL AND COMPUTATIONAL THINKING	
or MATH 1130	QUANTITATIVE LITERACY	
or MATH 1140	QUANTITATIVE REASONING FOR HEALTHCAI PROFESSIONALS	RE
or MATH 1300	COLLEGE ALGEBRA WITH SUPPORT	
Data Literacy – 3	hrs.	
Select one from the	e following:	
STAT 1100	DATA LITERACY AND VISUALIZATION	
STAT 1530	ELEMENTARY STATISTICS	
Until Fall 2028, students can satisfy this requirement wit approved data literacy course, or any approved natural social science general education course.		
Breadth of Knowled	dge	13
Social Science - 3	hrs.	
Humanities – 3 hrs		
Natural & Physical Science (must complete a lab) – 4 hrs.		
Arts – 3 hrs.		
Individual and Soci	al Responsibility	6
Cultural Knowledg	e – 3 hrs.	
Civic Knowledge and Engagement – 3 hrs.		
MAJOR REQUIREM	ENTS	
**Course will satisfy U	INO's General Education requirement	
^Course requires pre-	requisite(s)	
Note: BIOL 1450 may be used either in Core or in Path, not both		
Neuroscience Major - 50-56 Hours Required		
Required Neurosci	ence Fundamentals Courses (Core)	20-23

NEUR 1000	SUPERHEROES, ZOMBIES, CYBORGS AND DROIDS: COULD THEY LIVE AMONG US? (** ^)	
or BIOL 1450	BIOLOGYI	
NEUR 1520	INTRODUCTION TO NEUROSCIENCE I (^)	
NEUR 1540	INTRODUCTION TO NEUROSCIENCE II (^)	
PSYC 3130	STATISTICS FOR THE BEHAVIORAL SCIENCES (^)	
or STAT 3000	STATISTICAL METHODS I	
NEUR 3600	RESEARCH METHODS IN NEUROSCIENCE (^)	
or PSYC 3140	RESEARCH METHODS IN PSYCHOLOGY	
Select one of the fo		
PHYS 1110 & PHYS 1154	PHYSICS FOR LIFE SCIENCE I and GENERAL PHYSICS LABORATORY I (** ^)	
OR	, ,	
CHEM 1140 & CHEM 1144	FUNDAMENTALS OF COLLEGE CHEMISTRY and FUNDAMENTALS OF COLLEGE	
OR	CHEMISTRY LABORATORY (** ^)	
CHFM 1180	GENERAL CHEMISTRY I	
& CHEM 1184	and GENERAL CHEMISTRY I LABORATORY (** ^)	
and		
CHEM 1190 & CHEM 1194	GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LABORATORY (^)	
Refer to Neuroscier 12-17 hours of path	nce Bachelor of Science for required way courses	
12-17 hours of path MEDICAL, HEALTH S	•	
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Fo	way courses SCIENCES, AND RESEARCH	3-5
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Fo used either in Core both.	way courses GCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: Dllowing. Note: BIOL 1450 may be	3-5
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Fo used either in Core both. These courses can	way courses CIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: Dilowing. Note: BIOL 1450 may be requirement or concentration, not	3-5
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Fo used either in Core both. These courses can	SCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: billowing. Note: BIOL 1450 may be requirement or concentration, not count toward 3-5 hours in the pathways NEUROSCIENCE PATHWAYS TO	3-5
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560	SCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: Dillowing. Note: BIOL 1450 may be requirement or concentration, not Count toward 3-5 hours in the pathways NEUROSCIENCE PATHWAYS TO DISCOVERY	3-5
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560 BIOL 1450 BIOL 2140 Select 3 from the Fouse	SCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: bllowing. Note: BIOL 1450 may be requirement or concentration, not count toward 3-5 hours in the pathways NEUROSCIENCE PATHWAYS TO DISCOVERY BIOLOGY I (**) GENETICS (^) bllowing Courses:	3-5
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560 BIOL 1450 BIOL 2140 Select 3 from the Fourther Courses can Neuroscience Lecture	SCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: bllowing. Note: BIOL 1450 may be requirement or concentration, not count toward 3-5 hours in the pathways NEUROSCIENCE PATHWAYS TO DISCOVERY BIOLOGY I (**) GENETICS (^) bllowing Courses: count toward the 18-19 Advanced are Courses	
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560 BIOL 1450 BIOL 2140 Select 3 from the Fouse Courses can Neuroscience Lector NEUR 4000	SCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: billowing. Note: BIOL 1450 may be requirement or concentration, not count toward 3-5 hours in the pathways NEUROSCIENCE PATHWAYS TO DISCOVERY BIOLOGY I (**) GENETICS (^) billowing Courses: count toward the 18-19 Advanced are Courses SYSTEMS NEUROSCIENCE (^)	
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560 BIOL 1450 BIOL 2140 Select 3 from the Four Select 3 fr	GCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: Dillowing. Note: BIOL 1450 may be requirement or concentration, not COUNT TOWNS IN THE PATHWAYS TO DISCOVERY BIOLOGY I (**) GENETICS (^) DISCOVERS: COUNT TOWNS IN THE PATHWAYS TO DISCOVERY SIDLOGY I (**) GENETICS (^) DISCOVERS SYSTEMS NEUROSCIENCE (^) NEUROPHARMACOLOGY (^)	
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560 BIOL 1450 BIOL 2140 Select 3 from the Four These courses can Neuroscience Lecture NEUR 4000 NEUR 4160 NEUR 4330	COUNT toward 3-5 hours in the pathways NEUROSCIENCE PATHWAYS TO DISCOVERY BIOLOGY I (**) GENETICS (^) COUNT toward the 18-19 Advanced are Courses SYSTEMS NEUROSCIENCE (^) SOCIAL NEUROSCIENCE (^) SOCIAL NEUROSCIENCE (^) SCIENCE (^) SOCIAL NEUROSCIENCE (^) SOCIAL NEUROSCIENCE (^)	
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560 BIOL 1450 BIOL 2140 Select 3 from the Four These courses can Neuroscience Lecture NEUR 4000 NEUR 4000 NEUR 4330 NEUR 4340	GCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: Dillowing. Note: BIOL 1450 may be requirement or concentration, not Count toward 3-5 hours in the pathways NEUROSCIENCE PATHWAYS TO DISCOVERY BIOLOGY I (**) GENETICS (^) DIllowing Courses: Count toward the 18-19 Advanced are Courses SYSTEMS NEUROSCIENCE (^) NEUROPHARMACOLOGY (^) SOCIAL NEUROSCIENCE (^) ADVANCED BEHAVIORAL NEUROSCIENCE (^)	
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560 BIOL 1450 BIOL 2140 Select 3 from the Fourthead Fourth Select 3 from the Fourth Select 3	GCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: Dilowing. Note: BIOL 1450 may be requirement or concentration, not count toward 3-5 hours in the pathways NEUROSCIENCE PATHWAYS TO DISCOVERY BIOLOGY I (**) GENETICS (^) Dilowing Courses: count toward the 18-19 Advanced are Courses SYSTEMS NEUROSCIENCE (^) NEUROPHARMACOLOGY (^) SOCIAL NEUROSCIENCE (^) ADVANCED BEHAVIORAL NEUROSCIENCE (^) NEUROIMMUNOLOGY (^)	
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560 BIOL 1450 BIOL 2140 Select 3 from the Fourther Courses can Neuroscience Lector NEUR 4000 NEUR 4000 NEUR 4340 NEUR 4340 NEUR 4480 NEUR 4640	GCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: Dillowing. Note: BIOL 1450 may be requirement or concentration, not count toward 3-5 hours in the pathways NEUROSCIENCE PATHWAYS TO DISCOVERY BIOLOGY I (**) GENETICS (^) Dillowing Courses: count toward the 18-19 Advanced are Courses SYSTEMS NEUROSCIENCE (^) NEUROPHARMACOLOGY (^) SOCIAL NEUROSCIENCE (^) ADVANCED BEHAVIORAL NEUROSCIENCE (^) NEUROIMMUNOLOGY (^) NEURAL MECHANISMS OF SUBSTANCE USE DISORDERS (^)	
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560 BIOL 1450 BIOL 2140 Select 3 from the Fourther Courses can Neuroscience Lecture NEUR 4000 NEUR 4160 NEUR 4330 NEUR 4340 NEUR 4480 NEUR 4480 NEUR 4480 NEUR 4480 NEUR 4840	SCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: billowing. Note: BIOL 1450 may be requirement or concentration, not count toward 3-5 hours in the pathways NEUROSCIENCE PATHWAYS TO DISCOVERY BIOLOGY I (**) GENETICS (^) billowing Courses: count toward the 18-19 Advanced are Courses SYSTEMS NEUROSCIENCE (^) NEUROPHARMACOLOGY (^) SOCIAL NEUROSCIENCE (^) ADVANCED BEHAVIORAL NEUROSCIENCE (^) NEUROIMMUNOLOGY (^) NEUROIMMUNOLOGY (^) NEURAL MECHANISMS OF SUBSTANCE USE DISORDERS (^) GLIA IN HEALTH AND DISEASE (^)	
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560 BIOL 1450 BIOL 2140 Select 3 from the Four Select 3	GCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: Dillowing. Note: BIOL 1450 may be requirement or concentration, not COUNT TOWNS IN THE PATHWAYS TO DISCOVERY BIOLOGY I (**) GENETICS (^) DIIOWING COURSES: COUNT TOWNS NEUROSCIENCE (^) NEUROPHARMACOLOGY (^) SOCIAL NEUROSCIENCE (^) ADVANCED BEHAVIORAL NEUROSCIENCE (^) NEUROIMMUNOLOGY (^) NEURAL MECHANISMS OF SUBSTANCE USE DISORDERS (^) GLIA IN HEALTH AND DISEASE (^) MOLECULAR AND CELLULAR NEUROBIOLOGY (^)	
12-17 hours of path MEDICAL, HEALTH S CONCENTRATION II Select 1 from the Foused either in Core both. These courses can NEUR 1560 BIOL 1450 BIOL 2140 Select 3 from the Fourther Courses can Neuroscience Lecture NEUR 4000 NEUR 4160 NEUR 4330 NEUR 4340 NEUR 4480 NEUR 4480 NEUR 4480 NEUR 4480 NEUR 4840	GCIENCES, AND RESEARCH N NEUROSCIENCE REQUIREMENTS: billowing. Note: BIOL 1450 may be requirement or concentration, not count toward 3-5 hours in the pathways NEUROSCIENCE PATHWAYS TO DISCOVERY BIOLOGY I (**) GENETICS (^) billowing Courses: count toward the 18-19 Advanced are Courses SYSTEMS NEUROSCIENCE (^) NEUROPHARMACOLOGY (^) SOCIAL NEUROSCIENCE (^) ADVANCED BEHAVIORAL NEUROSCIENCE (^) NEUROIMMUNOLOGY (^) NEUROIMMUNOLOGY (^) NEURAL MECHANISMS OF SUBSTANCE USE DISORDERS (^) GLIA IN HEALTH AND DISEASE (^) MOLECULAR AND CELLULAR	

Other courses in NEUR approved by advisor.

Advanced Neuroscience Courses

In addition to the required fundamentals courses, 18-19 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 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.

Select one of the following Cornerstone lab courses -

	_	
NEUR 4200	ADVANCED NEUROSCIENCE	
	LABORATORY (^)	
NEUR/BIOL 4810	BEHAVIORAL GENETICS (^)	
PSYC/BIOL 4280	ANIMAL BEHAVIOR LABORATORY (^)	

Select one of the following Cornerstone lecture courses that has not already been used to satisfy the **Neuroscience Block Courses requirement below**

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 (^)

Block I, II, and III Courses

Select at least one of the following from Block I **Neuroscience Choices: Molecular and Cellular** Neuroscience

NEUR 4000	SYSTEMS NEUROSCIENCE (^)	
NEUR 4160	NEUROPHARMACOLOGY (^)	
NEUR 4290	NEUROETHOLOGY (^)	
NEUR 4340	ADVANCED BEHAVIORAL NEUROSCIENCE (^)	
NEUR 4480	NEUROIMMUNOLOGY (^)	
NEUR 4640	NEURAL MECHANISMS OF SUBSTANCE USE DISORDERS (^)	
NEUR 4840	GLIA IN HEALTH AND DISEASE (^)	
NEUR 4850	NEUROBIOLOGY OF LEARNING AND MEMORY (^)	
NEUR 4870	MOLECULAR AND CELLULAR NEUROBIOLOGY (^)	
NEUR 4890	GENES, BRAIN, AND BEHAVIOR (^)	
NEUR 4910	SPECIAL TOPICS IN NEUROSCIENCE - BLOCK 1 (^)	

Select at least one of the following from Block II **Neuroscience Choices: Behavioral and Cognitive** Neuroscience

	NEUR/BIOL/GERO 3500	BIOLOGICAL PRINCIPLES OF AGING (^)	
	NEUR/GERO 4050	ADVANCED BIOLOGY OF AGING	
	NEUR/PSYC 4230	BEHAVIORAL NEUROSCIENCE (^)	
	NEUR 4330	SOCIAL NEUROSCIENCE (^)	
	NEUR/BMCH 4650	NEUROMECHANICS OF HUMAN MOVEMENT (^)	

	NEUR 4920	SPECIAL TOPICS IN NEUROSCIENCE - BLOCK 2 (^)	
	PSYC 4090	COGNITIVE NEUROSCIENCE (^)	
	PSYC 4210	SENSATION AND PERCEPTION (^)	
	PSYC/PHIL 4250	LIMITS OF CONSCIOUSNESS	
	PSYC/BIOL 4270	ANIMAL BEHAVIOR (^)	
	PSYC/BIOL 4320	HORMONES & BEHAVIOR (^)	
В	lock III Additional	Advanced Neuroscience Choices:	
	NEUR 4930	SPECIAL TOPICS IN NEUROSCIENCE - NEURO ELECTIVE BLOCK (^)	
	NEUR 4960	EXPERIENTIAL STUDY IN NEUROSCIENCE (^)	
C	ollege Breadth		0

15

College Breadth

Neuroscience majors satisfy College of Arts and Sciences' Option 3 for college breadth, a CAS comprehensive major.

Bachelor Science Cognate Requirement

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.			
ANTH 1050	INTRODUCTION TO ANTHROPOLOGY (**)		
ANTH 3910	INTRODUCTION TO PHYSICAL ANTHROPOLOGY (** ^)		
ANTH 4230	ETHNOMEDICINES OF THE AMERICAS (^)		
ANTH 4240	MEDICAL ANTHROPOLOGY		
BIOI 1000	DIGITAL HEALTH AND BIOLOGICAL SYSTEMS (**)		
BIOL 2740	HUMAN ANATOMY AND PHYSIOLOGY I (^)		
BIOL 2840	HUMAN ANATOMY AND PHYSIOLOGY II (^)		
BIOL 3020	MOLECULAR BIOLOGY OF THE CELL (^)		
BIOL 3240	INTRODUCTION TO IMMUNOLOGY (^)		
BIOL 4110	STATISTICS FOR BIOLOGICAL SCIENCES (^)		
BIOL 4130	MOLECULAR GENETICS (^)		
BIOL 4140	CELLULAR BIOLOGY (^)		
BIOL 4230	EVOLUTION (^)		
BIOL 4260	BEHAVIORAL ECOLOGY (^)		
BIOL 4650 & BIOL 4654	BIOCHEMISTRY I and BIOCHEMISTRY I LABORATORY (^)		
BIOL 4730	VERTEBRATE ENDOCRINOLOGY (^)		
BIOL 4740	ANIMAL PHYSIOLOGY (^)		
BIOL 4850	DEVELOPMENTAL BIOLOGY (^)		
BIOL 4860	COMPARATIVE GENOMICS (^)		
BIOL 4960	ADVANCED GENETICS (^)		
BMCH 2400	HUMAN PHYSIOLOGY & ANATOMY I (**)		
BMCH 2500	HUMAN PHYSIOLOGY AND ANATOMY II (^)		
BMCH 4100	BIOINSPIRED ROBOTICS		

FUNDAMENTALS OF BIOCHEMISTRY

BIOCHEMISTRY LABORATORY (^)

and FUNDAMENTALS OF

CHFM 3650

& CHEM 3654

CHEM 4610	BIOCHEMISTRY OF METABOLISM (^)
CHEM 4650 & CHEM 4654	BIOCHEMISTRY I and BIOCHEMISTRY I LABORATORY (^)
CSCI 1200 & CSCI 1204	COMPUTER SCIENCE PRINCIPLES and COMPUTER SCIENCE PRINCIPLES LABORATORY (** ^)
ENVN 4320	ECOLOGICAL SUSTAINABILITY AND HUMAN HEALTH (^)
MATH 1940	CALCULUS FOR BIOMEDICINE (^)
PHIL 2020	INTRODUCTION TO PHILOSOPHY OF MIND
PHIL 3650	PHILOSOPHY OF MIND (^)
PHIL 4220	NEUROETHICS (^)
PHYS 3300	INTRODUCTION TO BIOMEDICAL PHYSICS (^)
PHYS 3500	ELEMENTS OF ELECTRONICS (^)
PHYS 4500	BIOLOGICAL PHYSICS (^)
PSYC 1010	INTRODUCTION TO PSYCHOLOGY I (**)
PSYC 1020	INTRODUCTION TO PSYCHOLOGY II (^)
PSYC 2024	EXPLORATIONS IN THE SCIENCE OF PSYCHOLOGY (^)
PSYC 3520	CHILD PSYCHOLOGY (^)
PSYC 4020	LEARNING (^)
PSYC 4024	LABORATORY IN PSYCHOLOGY: LEARNING (^)
PSYC 4234	LABORATORY IN PSYCHOLOGY: BEHAVIORAL NEUROSCIENCE (^)
PSYC 4440	ABNORMAL PSYCHOLOGY (^)
PSYC 4460	PSYCHOLOGY OF ADULT DEVELOPMENT AND AGING (^)
PSYC 4470	MENTAL HEALTH AND AGING (^)
PSYC 4990	SENIOR THESIS (^)
ELECTIVES	

Elective hours as required to reach a total of 120 hours