BACHELOR OF SCIENCE IN NEUROSCIENCE

CURRICULUM SHEET | CATALOG YEAR: 2024 - 2025

NAME_____ SID_____ EXPECTED GRADUATION DATE_____

GENERAL EDUCATION REQUIREMENTS (36-38 UNITS)

English Composition

ENGL 101 or 107 ……3__
ENGL 102 or 108 ……3__
Or
ENGL 109H ……3__

Foundation Mathematics

MATH 122A/B or MATH 125……4__ 1__
**Some students may need to take MATH 100 -> MATH 112 -> MATH 120R before taking 122A.*

Second Language

2nd semester proficiency by credit or exam required ……__

Intro to General Education

UNIV 101 ……1__

Exploring Perspectives

Artist: _____ ……3__
Humanist: _____ ……3__
Social Scientist: _____ ……3__
Natural Scientist *(Requirement satisfied by NS foundations)*

Building Connections

1: _____ ……3__
2: _____ ……3__
3: _____ ……3__

General Education Capstone

UNIV 301 ……1__

Neuroscience Required Supporting Coursework (30-33 Units)

Biology

MCB 181R & 181L ……3__ 1__

Chemistry

CHEM 151 ……4__
CHEM 152 ……4__
CHEM 241A & 243A ……3__ 1__

Mathematics

MATH 122A/B or MATH 125……4__ 1__
MATH 263 ……3__
or BIOS 376 ……3__
MATH 129 *(recommended)* ……*3*__

Physics

PHYS 102 & 181 ……3__ 1__
or PHYS 141 ……4__
PHYS 103 & 182 ……3__ 1__
or PHYS 241 ……4__

Neuroscience Major Requirements (20 -21 units)

Core Requirements

NROS 193A – Neuroscience Colloquium ……1__
NROS 210A – Contemporary Approaches to Neuroscience 1__
NROS 307/H – Cellular Neurophysiology ……3__
NROS 308 – Methods in Neuroscience *(optional)* ……1__
NROS 311 – Neuroinformatics and Scientific Coding ……3__
NROS 310/H – Molecular and Cellular Biology of Neurons 3__
NROS 317 – Genetics & Genomics in Neuroscience ……3__
NROS 318 – Systems Neuroscience ……3__
BIOC 384 – Foundations in Biochemistry ……3__

Emphasis Requirement (18 units)

Student must choose one emphasis from:

1. *Neuroscience and Human Health*
2. *Integrated Neuroscience: Molecular, Cellular, Systems Neuroscience*
3. *Neuroscience, Communication and Public Health*
4. *Thematic*

Emphases generally consist of:
3 courses from emphasis listing* (9 units)
1 Lab/Research/Internship/CURE* (3 units)
1 Upper division NROS elective* (3 units)
1 Writing emphasis Elective* (3 units)
**See next page for details on acceptable courses*

Emphasis: _____
Course 1: _____ ……3__
Course 2: _____ ……3__
Course 3: _____ ……3__
Lab/Research/Internship/CURE: _____……3__
Writing Emphasis Elective: _____……3__
Upper Division Elective: _____ ……3__

University Requirements

120 total units	☐	**42 upper division units**	☐
2.000 + cumulative GPA	☐	**2.000 + major GPA**	☐
MCWA complete	☐	Final 18/ 30 units complete	☐
30+ total units at UA	☐	18+ NS units at UA	☐

Lab/Research/Internship/CURE Courses

NROS 314 – Neuroscience Research Experience CURE
NROS 314 – Brain Communication Networks VIP-CURE
NROS 392/492 – Directed Research
NROS 392H/492H – Honors Directed Research
NROS 399/499 – Independent Study
NROS 399H/499H – Honors Independent Study
NROS 493 – Internship Experience
NROS 498 – Senior Capstone
NROS 498H – Honors Thesis

Writing Emphasis Courses

NROS 455 – Bioethics
NROS 460 – Science Writing Strategies, Skills & Ethics
NROS 498 – Senior Capstone
NROS 498H – Honors Thesis
ECOL 379 – Evidence Based Medicine

Emphasis Options

Neuroscience and Human Health

NROS 330 – Principles of Neuroanatomy: Cells to Systems
NROS 425 – Neural Circuits in Health and Disease
NROS 435 – Complex Behavioral, Cognitive and Emotional Disorders
NROS 445 – Neuropharmacology & Addiction
NROS 430 – Neurogenetics
NROS 440 – How to Build a Brain: Mechanisms of Neural Development
NROS 450 – Neurons and Glia in Health and Disease
ECOL 379 – Evidence Based Medicine

Neuroscience, Communication and Public Health

ENGR 495A – Science, Health & Engineering Policy and Diplomacy
GLO 465 – Science Misinformation, Disinformation, Media & the Public
JOUR 305 – Full STEM Ahead: Science and the News
JOUR 465/565 – Issues Covering Science and the Environment
LAW 415 – Healthcare Ethics
LAW 452 – Health Law
LAW 476A – Drug Discovery, Development, and Innovation to Reach the Marketplace
PHP 419 – Alzheimer's Disease, Other Dementias, and the role of Public Health
PHPM 448 – Addiction and Substance Use Policy
POL 206 – Public Policy and Administration

Integrated Neuroscience: Molecular, Cellular, Systems Neuroscience

NROS 330 – Principles of Neuroanatomy: Cells to Systems
NROS 381 – Animal Brains, Signals, Sex, and Social Behaviors
NROS 412 – Molecular Mechanisms of Learning and Memory
NROS 415 – Electrophysiology
NROS 420 – The Neuroscience of Survival
NROS 430 – Neurogenetics NROS 440 – How to Build a Brain: Mechanisms of Neural Development
NROS 450 – Neurons and Glia in Health and Disease
NROS 425 – Neural Circuits in Health and Disease
CGSC 344 – Modeling the Mind: Computational Models of Cognition
ISTA 457 – Neural Networks
PHYS 431 – Molecular Biophysics
PSY 435 – Computational Neuroscience: Neural Spike Data Analyses

Thematic

May choose from all emphasis courses.

The thematic emphasis is meant for students who have a *very clear and compelling interest in a particular topic area* in neuroscience. As is the case for the other emphases, the overall learning objective is to develop *real depth* in a particular area that students then can use in reaching their particular career goals. The possibility of adding a course that is not currently on the course lists for the existing emphasis can be considered if it would expand or modify the emphasis enough to make it a better fit for the student's interests.