Michigan State University

College of Natural Science Bachelor of Science in Neuroscience

Requirements for all students who begin the major in **Fall 2024 and onward**

UNIVERSITY REQUIREMENTS (20 credits)

Tier I Writing (4 credits)	WRA 101 or WRA 195H	Writing as Inquiry Writing as Inquiry Honors
Integrative Studies (16 credits)	IAH 201-210 (lower-level) IAH 211-241 (upper-level) ISS 2XX (200-level) ISS 3XX (300-level)	Integrative Studies Arts & Humanities (lower-level & upper-level) Integrative Studies Social Sciences (200 and 300-level)

Notes about University Requirements

- **University Diversity Distribution Requirement**: Each IAH and ISS course is labeled with (I), (N), or (D). Students must take 2 IAH and/or ISS courses that are in at least 2 of the categories.
- **About Integrated Studies in Biological and Physical Sciences Requirement (ISB/ISP):** ISB & ISP requirements are fulfilled by the required Biology and Chemistry courses as part of the Alternative Track to completion of the Integrated Science University Requirements.
- **For Honors College Students**: Honors College students take WRA 195H, 2 Arts & Humanities (AH) substitutions, and 2 Social Science (SS) Substitutions.
    - IAH and ISS courses must be Honors sections to count towards substitutions.
    - Further questions about your Honors College University Requirements can be directed to Honors College academic advising.

BASIC SCIENCE & SOCIAL SCIENCE REQUIREMENTS (43-46 credits)

Neuroscience Seminar (1 credit)	NEU 101	Frontiers in Neuroscience
Calculus & Statistics (7-8 credits)	MTH 124, STT 201/STT 231 or MTH 132, STT 201/STT 231 or MTH 152H, STT 201/STT 231	Survey of Calculus I & Statistics Calculus I & Statistics Honors Calculus I & Statistics
General & Inorganic Chemistry (9 credits)	CEM 141, CEM 161 CEM 142	General Chemistry I (Lecture & Lab) General/Inorganic Chemistry (Lecture)
Biological Science (8 credits)	BS 161, BS 171 BS 162	Cell & Molecular Bio (Lecture & Lab) Organismal & Population Bio (Lecture)
Organic Chemistry (8 credits)	CEM 251, CEM 252	Organic Chemistry I & II
Physics (6 or 8 credits) ***denotes recommended courses***	***PHY 221, *PHY 222** or PHY 231, PHY 232 or PHY 183, PHY 184 or PHY 193H, PHY 294H	Physics for Life Scientists I & II Introductory Physics I & II Physics for Scientists & Engineers I & II Honors Physics I & II
Psychology (4 credits)	PSY 101	Introductory Psychology

- **Note:** Honors Chemistry, Biology, and Physics courses are also accepted to complete basic science requirements

UPPER-LEVEL SCIENCE REQUIREMENTS (31-36 credits)

Neuroscience Core Courses (17 credits)	NEU 301, NEU 302 NEU 401 NEU 402 NEU 311L NEU 403	Introduction to Neuroscience I & II Cellular & Molecular Neuroscience Behavioral & Cognitive Neuroscience Neuroscience Laboratory Communication in Neuroscience (W)
Physiology (4 or 8 credits)	PSL 310 or PSL 431, PSL 432	Physiology for Pre-Health Professionals Human Physiology I & II
Biochemistry (4 credits)	BMB 401	Comprehensive Biochemistry
Fundamental Genetics or Eukaryotic Cell Biology (3 or 4 credits)	IBIO 341 or MGI 409	Fundamental Genetics Eukaryotic Cell Biology
Neuroscience Selective (3 credits) **There are multiple sections of different topics. An override is required to enroll: https://overrides.natsci.msu.edu/* **PHM 422 may require an override due to course restrictions. Pre-reqs must still be met.*	NEU 310 NEU 416 NEU 420 NEU 440 NEU 450 NEU 460 NEU 492* PHM 422* PHM 431	Psychology & Biology of Human Sexuality Nervous System Development Neurobiology of Disease Synaptic Transmission Autonomic Nervous System Cellular & Molecular Neurosci Techniques Special Topics in Neuroscience Fundamentals of Neuropharmacology Pharmacology of Drug Addiction

ADDITIONAL GRADUATION REQUIREMENTS

Complete a minimum of 120 credits	Complete 18-26 elective credits to reach the minimum 120 credits
Earn a minimum cumulative GPA of 2.00 or higher	The cumulative GPA is calculated using numerical grades earned in all coursework taken at MSU
Earn a minimum major GPA of 2.00 or higher	The major GPA is calculated using all MSU numerical grades earned in the upper-level science requirements, BS 162, CEM 251, CEM 252, and PSY 101
Complete a minimum of 30 credits at the 300-level or above	This is a College of Natural Science requirement.
Complete a minimum of 30 credits at MSU with a minimum of 27 credits on the East Lansing campus after reaching junior credit standing	Junior credit standing is defined by reaching a minimum of 56 cumulative credits
No more than 60 credits from a 2-year community college can be transferred back to MSU	
Courses used to satisfy degree requirements cannot be taken under the CR/NC grading system	Exceptions were made for this rule only during the Spring 2023 semester
No more than 10 of the last 30 total credits toward a degree may be transferred back from another institution without approval	Speak with your academic advisor(s) if you have further questions about this

Questions? Contact the Department of Physiology Academic Advising

- Department of Physiology Academic Advising Email: neupslugrad@msu.edu
- Office: Biomedical Physical Sciences Building (567 Wilson Road, Room 2240)
- Current Students: Schedule an advising appointment using https://student.msu.edu
- Prospective Students: Contact neupslugrad@msu.edu

Suggested Progression of Courses for the B.S. in Neuroscience

Years 1 and 2

Neuroscience Seminar: *(1 credit)*	NEU 101	Frontiers in Neuroscience
Biosciences: *(8 credits)*	BS 161, 171 BS 162	Cellular & Molecular Biology (Lectures & Lab) Organismal & Population Biology (Lecture only)
Chemistry: *(17 credits)*	CEM 141, 161 CEM 142 CEM 251, 252	General Chemistry I (Lecture & Lab) General & Inorganic Chemistry (Lecture only) Organic Chemistry I & II (Lectures only)
Psychology *(4 credits)*	PSY 101	Introductory Psychology
Physics *(8 credits)*	PHY 221, PHY 222 *Could wait to take in Year 3 or 4*	Physics for Life Scientists I & II
Calculus & Statistics: *(6-8 credits)*	MTH 124, STT 201/STT 231 or MTH 132, STT 201/STT 231 or MTH 152H, STT 201/STT 231	Survey of Calculus I & Statistics or Calculus I & Statistics or Honors Calculus I & Statistics

Years 3 and 4

Neuroscience Core Courses *(17 credits)*	NEU 301, NEU 302 NEU 401 NEU 402 NEU 311L NEU 403	Introduction to Neuroscience I & II Cellular & Molecular Neuroscience Behavioral & Cognitive Neuroscience Neuroscience Laboratory Communications in Neuroscience (W)
Physiology *(4-8 credits)*	PSL 310 or PSL 431, PSL 432	Physiology for Pre-Health Professionals Human Physiology I & II
Biochemistry *(4 credits)*	BMB 401	Comprehensive Biochemistry
Fund. Genetics or Eukaryotic Cell Biology *(3-4 credits)*	IBIO 341 or MMG/MGI 409	Fundamental Genetics Eukaryotic Cell Biology
Neuroscience Elective *(3 credits)*	NEU 310 NEU 416 NEU 420 NEU 440 NEU 450 NEU 460 NEU 492 (multiple sections) PHM 422 PHM 431	Psychology & Biology of Human Sexuality Nervous System Development Through the Lifespan Neurobiology of Disease Synaptic Transmission Autonomic Nervous System Cellular & Molecular Neuroscience Techniques Special Topics in Neuroscience Fundamentals of Neuropharmacology Pharmacology of Drug Addiction

University Requirements (20 credits)

Tier I Writing:	WRA 101 or WRA 195H
Integrative Studies Arts & Humanities (IAH):	IAH 201-210 IAH 211-241
Integrative Studies in Social Sciences (ISS):	ISS 200-level ISS 300-level

Each IAH and ISS course is labeled with (I), (N), or (D). Students must take 2 IAH and/or ISS courses that are in at least 2 of the categories.

- In addition to completing all major requirements, students must also complete a minimum of 120 credits. Thus, College of Natural Science B.S. in Neuroscience students need to take 18-26 elective credits