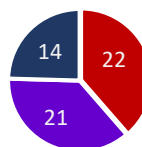


How will my coursework be distributed?

Program Planning Worksheet

BIOLOGY MAJOR - Degree: Bachelor of Science



- Foundation (SH)
- Breadth (SH)
- Depth (SH)

NEUROSCIENCE CONCENTRATION

Students pursuing the Biology degree with a Neuroscience concentration will use methods and theories spanning disciplines from biochemistry to psychology to investigate the function of the nervous system. This concentration prepares students for advanced study in neuroscience or careers in biotechnology, governmental, pharmaceutical, health care, and social service organizations.

Students majoring in biology must complete a minimum of 120 semester hours (**SH**) in order to graduate. This includes satisfying the General Education (**GE**) course requirements, completing outlined areas of foundation, breadth, and depth courses, and appropriate elective requirements. Several of these courses can also be taken as part of the GE requirements. A minimum grade of C- or better is required in each biology and chemistry course. Required major courses include 22 SH of Foundation courses, 21 SH of Breadth courses, and 14 SH of Depth courses. In addition, during the senior year, all students must complete and present a Senior Reflection Project.

FOUNDATION COURSES (22 SH)

| Course | SH | Grade |
|---|----|-------|
| BIO 1313 General Biology I (GE) | 3 | |
| BIO 1113 General Biology I Lab (GE) <i>Co-requisite: BIO 2301</i> | 1 | |
| BIO 1314 General Biology II (GE) | 3 | |
| BIO 1114 General Biology II Lab (GE) <i>Co-requisite: BIO 2302</i> | 1 | |
| BIO 1307 Scientific Writing (GE) <i>Pre-requisite: Level I GE writing course</i> | 3 | |
| CHE 1313 Chemistry I (GE) | 3 | |
| CHE 1113 General Chemistry I Lab (GE) <i>Co-requisite: CHE 1313</i> | 1 | |
| CHE 1314 General Chemistry II (GE) | 3 | |
| CHE 1114 General Chemistry II Lab (GE) <i>Co-requisite: CHE 1314</i> | 1 | |
| Select 1 of the following courses: MAT 2326 Elementary Statistics (GE) GER 2326 Statistics for Social and Behavioral Sciences (GE) PSY 2326 Statistics for Social and Behavioral Sciences (GE) SOC 2326 Statistics for Social and Behavioral Sciences (GE) MAT 3310 Probability and Statistics I EXS 2310 Demystifying the Statistics of the Health Sciences (GE) MAT 2317 Calculus I (GE) - possible prerequisite(s) required if student did not test into this course | 3 | |
| Total Foundation | | |

BREADTH COURSES (21 SH)

| Course | SH | Grade |
|---|----|-------|
| CHE 2326 Organic Chemistry - CHE 2126 lab optional (1 SH) | 3 | |
| PHY 1321 College Physics I | 3 | |
| PHY 1121 College Physics I Lab Co-requisite: PHY 1321 | 1 | |

Students must complete the remaining 14 hours by taking at least one course each from Areas I, II, III, and IV detailed below. To reach the remaining 14 hours, students may have to take an additional course from Area I or an optional laboratory course(s) from Areas II, III, or IV. Courses used to fulfill the breadth areas may not be used to fulfill depth concentration requirements.

Area I (2–4 SH): Bio-techniques and Lab Skills

| Course | SH | Grade |
|---|----|-------|
| Select 1 of the following course(s) BIO 1115 & 1315 Intro to Biotech w/ lab (3 SH & 1 SH) BIO 3201 Tissue Culture (2 SH) BIO 2277 Investigation & Research I (2 SH) BIO 3277 Investigation & Research II (2 SH) BIO 3333 Field Biology (3 SH) | | |
| Optional Course (if necessary): | | |

Area II (3–4 SH): Cells & Molecules

| Course | SH | Grade |
|---|----|-------|
| Select 1 of the following course(s) BIO 3337 Biomolecules (3 SH) - BIO 3137 lab optional (1 SH) BIO 3342 Introduction to Molecular Biology (3 SH) BIO 3364 Cell Biology (3 SH) - BIO 3164 lab optional (1 SH) | | |
| Optional Course (if necessary): | | |

Area III (3–4 SH): Structure & Function

| Course | SH | Grade |
|--|----|-------|
| Select 1 of the following course(s) BIO 3231/3232 Microbiology with lab (2 SH & 2 SH) *BIO 3311/3111 Fund. of Anatomy and Physiology with lab (3 SH & 1 SH) * Required for BIO 3315 Fundamentals of Neuroscience *Anatomy & Physiology I & II with labs combined (BIO 2311/BIO 2111 + BIO 2312/BIO2112) can also be taken to fulfill the Fundamentals of Neuroscience & Lab prerequisite requirement BIO 3336 Developmental Bio (3 SH) - BIO 3136 lab optional (1 SH) BIO 3343 Histology (3 SH) - BIO 3143 lab optional (1 SH) BIO 2311/2111 Anatomy & Physiology I with lab (3 SH & 1 SH) | | |
| Optional Course (if necessary): | | |

Area IV (3 SH): Heredity, Evolution, & Diversity

| Course | SH | Grade |
|---|----|-------|
| Select <u>1</u> of the following course(s) BIO 2310 Zoology (3 SH) - <i>BIO 2110 lab optional (1 SH)</i> BIO 2316 Botany (3 SH) - <i>BIO 2116 lab optional (1SH)</i> BIO 3366 Genetics (3 SH) - <i>BIO 3166 lab optional (1SH)</i> BIO 3371 Ecology & Evolution (3 SH) - <i>BIO 3171 lab optional (1 SH)</i> | | |
| Optional Course (if necessary): | | |

| | | |
|----------------------|--|--|
| Total Breadth | | |
|----------------------|--|--|

DEPTH COURSES (14 SH)

| Course | SH | Grade |
|---|----|-------|
| BIO 4276 Seminar | 2 | |
| BIO 4277 Investigation and Research III | 2 | |
| *BIO 3315/3115 Fundamentals of Neuroscience (3 SH) and Lab (1 SH) | 4 | |
| BIO 3225 Neuroscience Seminar | 2 | |

* Prerequisite courses: BIO 3311/BIO 3111 (Fundamentals of Anatomy & Physiology with lab), or BIO 2311/2111 & BIO 2312/2112 (Anatomy & Physiology I & II with lab)

To fulfill the neuroscience concentration students must complete ≥ 4 SH Psychology courses (3000 or above)

- BIO 3336 Developmental Biology (3 SH)
- PSY 3301 Biological Psychology (3 SH)
- PSY 3307 Social Psychology (3 SH)
- PSY 3308 Cognitive Psychology (3 SH)
- PSY 3336 Developmental Psychology (3 SH)
- PSY 3348 Sensation and Perception (3 SH)

Note: Consider pursuing Psychology Minor

| Course | SH | Grade |
|--------------------|----|-------|
| | | |
| | | |
| | | |
| Total Depth | | |

***Graduation Requirement: Department of Biological Sciences E-Portfolio Senior Project**

Refer to E-portfolio Guidelines and Checklist

Program Notes

General Education

The General Education curriculum is designed to foster the development of critical skills such as thinking, writing, and speaking, while offering students the opportunity to explore the vast fields that make up the academy. The General Education curriculum at Winston-Salem State University is designed to offer students a mix of the liberal arts as a foundation for the major. Students are required to take approximately one-half (a minimum of 60 semester hours) of their courses outside of their major field of study. Most of these courses are taken in the first two years at the university. Students have choice in the courses they take and are encouraged to sample widely across the curriculum. There are some minimum expectations about the courses taken in general education, dependent on the student's status upon entering the university. Students should work closely with their pre-major advisor in planning their course schedules prior to transitioning into the major.

The Biology Degree with Neuroscience Concentration

The student is responsible for the completeness and accuracy of registration and for determining the requirements of the selected program/concentration. It is strongly advised for students to read course descriptions before registering for a course to determine if they have necessary prerequisites. **Students who want to attend graduate, professional, or medical school may have additional requirements that are not required for the biology major, including a full year of organic chemistry with lab, a full year of physics with lab, and other courses. As requirements vary by school and program, students are strongly advised to investigate the requirements early, consult their advisor, and plan their schedules accordingly.**

Neuroscience is the study of the nervous system. It is a cross-disciplinary field that engages scientists, engineers and physicians in investigating how the nervous system develops and functions on a cellular level as well as the mechanisms that underlie behavior, cognition, mental disorders and neurological disease. **The overall goals of this concentration are to:**

- provide a course of study in the discipline of Neuroscience that integrates cellular/molecular and behavioral components of the field.
- offer abundant opportunities for undergraduate research on cutting edge issues.
- provide a course of study that prepares students for graduate training in the field of Neuroscience, for a career in biotechnology and pharmaceutical industries, or any of the health professions (human medicine, veterinary medicine, dentistry, and pharmacy) or for any other career where strong analytical skills are required, such as law or business.

What to Expect with a Career in Neuroscience:

<https://www.internships.com/career-advice/basics/neuroscience-degree-what-to-expect>

Graduate School Preparation Resources:

1. Application Timeline: <http://www.princetonreview.com/grad-school-advice/application-timeline>
2. Tips: <https://www.btaa.org/docs/default-source/diversity/gradschoolguide.pdf>

Medical School Preparation Resource

1. <https://students-residents.aamc.org/choosing-medical-career/medical-careers/aspiring-docs/>
2. <https://students-residents.aamc.org/>