Biology Major Checklist for the Biology B.A.

Name: _____ SB ID: _____ Today's Date: _____

Overall GPA: _____ Anticipated Graduation Date: _____ Future Plans: _____

Please refer to the Undergraduate Bulletin for the official policy, full course options, and requirements in detail.

Foundational Courses in Related Fields

At least one semester of the two–semester sequences of required courses in organic chemistry lecture and physics must be passed with a letter grade of C or higher. The organic chemistry lab must be passed with a C or higher.

General Chemistry

General Chemistry 1			Molecular Science 1	
General Chemistry 1 lab		*OR*	Molecular Science 1 lab	
General Chemistry 2				
General Chemistry 2 lab				

Organic Chemistry

Organic Chemistry 1			Molecular Science 2	
Organic Chemistry 2		*OR*	Molecular Science 3	
Organic Chemistry lab			Molecular Science 2 lab	

Calculus, Statistics, and Physics*

MAT 125, MAT 131 *or* AMS 151		PHY 121: Physics for the Life Sciences I	
Statistics: BIO 211, AMS 110 *or* AMS 310		PHY 122: Physics for the Life Sciences II	

*Classical Physics I and II with lab is also accepted; however, please note that PHY 132 requires a pre–/co–requisite of at least MAT 126 (beyond the calculus requirement for the BIO BA.)

Core Courses in Biology

Lecture Courses

BIO 201: Organisms to Ecosystems	
BIO 202: Molecular and Cellular Biology	
BIO 203: Cellular and Organ Physiology	

Lab Courses

BIO 204	
BIO 205 *or* BIO 207	

Stony Brook Curriculum Courses

BIO 458: Speak Effectively Before an Audience (SPK)	
BIO 459: Write Effectively in Biology (WRTD)	

Advanced Course Requirements for the Biology B.A.

The Advanced Course Requirements Biology BA requires three BIO courses at the 300–level taken at Stony Brook along with an 18–24 credit non–overlapping, approved minor.

1. One of the following courses with learning outcomes on topics in genetics and evolution:
   - BIO 320 General Genetics
   - BIO 321 Ecological Genetics
   - BIO 354 Evolution
   - EBH 302 Human Genetics
2. Two additional advanced biology courses

   The list of Advanced BIO courses accepted for the Biology BA can be found on the back of this page. Only the courses listed can be used to complete Biology BA requirements. Advanced lab courses are not required for the Biology BA, but may be selected as one of the three required BIO courses.

Genetics or Evolution Course: BIO 320, BIO 321, BIO 354, *or* EBH 302	
Advanced Biology Course: BIO _____	
Advanced Biology Course: BIO _____	

Approved Minor within the College of Arts and Science or School of Communication and Journalism

Completion of an approved minor with no more than a three credit overlap with the major requirements for the BIO B.A. View page three of this checklist for the list of approved minors.

Approved Minor: _____	

Upper–Division Writing Requirement

The advanced writing component of the major in Biology requires registration in the 0–credit BIO 459 and approval of either a term paper or a laboratory report written for an advanced course in the biological sciences at Stony Brook.

Upper–Division Writing Requirement	

Transfer courses are accepted for the Core Courses in Biology. All Advanced Courses for the Biology B.A. must be taken at Stony Brook.

Advanced BIO Courses and Accepted Electives for the Biology Major

The advanced BIO courses and Accepted Electives are listed below in groupings that correspond to four broad areas of biology. The advanced courses are listed below as: Course Indicator, Course Name, Course Type (lecture or lab), and semester usually offered. Please refer to the Undergraduate Bulletin for the most up–todate list including full course options, descriptions, policies, and pre–requisites in detail.

Area I: Biochemistry, Molecular and Cellular Biology

- BIO 310 Cell Biology (Lec) (SPRING)
- BIO 312 Bioinformatics and Computational Biology (Lec/Lab) (FALL) ♦
- BIO 314 Cancer Biology (Lec) (FALL)
- BIO 316 Molecular Immunology (Lec) (SUMMER) ♦
- BIO 320 General Genetics (Lec) (SPRING) ♦
- BIO 361 Biochemistry I (Lec) (FALL/SPRING)
- BIO 362 Biochemistry II (Lec) (SPRING)
- BIO 364 Laboratory Techniques in Cancer Biology (Lab) (FALL) ♦
- BIO 365 Biochemistry Laboratory (Lab) (FALL/SPRING) ♦
- BIO 368 Food Microbiology (Lec)
- EBH 302 Human Genetics (Lec) (FALL) ♦

Area II: Neurobiology and Physiology

- BIO 317 Principles of Cellular Signaling (Lec) (FALL)
- BIO 328 Mammalian Physiology (Lec) (SPRING)
- BIO 332 Computational Modeling of Physiological Systems (Lec) (SPRING)
- BIO 334 Principles of Neurobiology (Lec) (SPRING)
- BIO 335 Neurobiology Laboratory (Lab) (FALL) ♦
- BIO 337 Neurotransmission and Neuromodulation: Implications for Brain Function (Lec) (SPRING)
- BIO 338 From synapse to circuit: Selfǿrganization of the Brain (Lec) (FALL)
- BIO 339 Neurobiology of Disease (Lec) (FALL)
- BIO 347 Introduction to Neural Computation (Lec) (FALL)
- BIO 369 Animal Nutrition (Lec) (SPRING)

Area III: Organisms

- BIO 315 Microbiology (Lec) (SPRING)
- BIO 325 Animal Development (Lec) (FALL)
- BIO 327 Developmental Genetics Laboratory (Lab) (SPRING) ♦
- BIO 341 Plant Diversity (Lec/Lab) (SPRING) ♦
- BIO 342 Invertebrate Zoology (Lec) (FALL)
- BIO 343 Invertebrate Zoology Laboratory (Lab) (FALL)
- BIO 344 Chordate Zoology (Lec/Lab) (SPRING) ♦
- BIO 348 Diversity and Evolution of Reptiles and Amphibians (Lec)
- BIO 366 Molecular Microbiology Laboratory (Lec/Lab) (FALL) ♦

Area IV: Ecology and Evolution

- BIO 319 Landscape Ecology Laboratory (Lab) (FALL)
- BIO 321 Ecological Genetics (Lec) (SPRING) ♦
- BIO 336 Conservation Biology (Lec) (FALL) ♦
- BIO 350 Darwinian Medicine (Lec) (FALL) ♦
- BIO 351 Ecology (Lec) (FALL)
- BIO 352 Ecology Laboratory (Lab) (FALL) ♦
- BIO 353 Marine Ecology (Lec) (SPRING) ♦
- BIO 354 Evolution (Lec) (FALL) ♦
- BIO 356 Population and Community Ecology Computer Laboratory (Lab) (SPRING) ♦
- BIO 358 Biology and Human Social and Sexual Behavior (Lec) (SPRING)
- BIO 367 Molecular Diversity Laboratory (Lab) (SPRING) ♦
- BIO 383 Paleobiology (Lec/Lab) (SPRING)
- BIO 384 Intermediate Statistics (Lec) (FALL)
- BIO 385 Plant Ecology (Lec) (SPRING) ♦
- BIO 386 Ecosystem Ecology & the Global Environment (Lec) (SPRING)

♦ Indicates that the upper division writing requirement can be completed in the course

Biology B.A. Minor Plan

The Biology BA program involves fewer advanced courses in biology, but instead requires completion of a non–overlapping approved minor in the College of Arts and Sciences or the School of Communication and Journalism. The minor must have no more than a 3 credit overlap with the life science requirements for the BIO BA.

Approved minors for the BIO B.A.*

(**This list is subject to change*)

Africana Studies
Anthropology
Art History and Criticism
Asian and Asian American Studies
China Studies
Classical Civilization
Communication and Innovation
Creative Writing
Digital Arts
English
Ethnomusicology
Film and Screen Studies
French Language and Literature
Globalization Studies and International Relations
Health, Medicine, and Society (Department of Sociology)
Hellenic Studies
History
History of Health, Science, and the Environment (Department of History)
Italian American Studies
Italian Studies
Japanese Studies
Jazz Studies
Journalism
Judaic Studies
Korean Studies
Latin American and Caribbean Studies
Linguistics
Literature and Culture
Mass Communication
Medieval Studies
Middle Eastern Studies
Music
Music Theory
Music and Technology
Philosophy
Political Science
Professional Writing
Religious Studies
Russian Studies
South Asian Studies
Spanish Language and Literature
STEM in Theatre Arts
Studio Art
Women's and Gender Studies
Writing and Rhetoric