BIOCHEMISTRY MAJOR (BCH) GRADUATION CHECKLIST (2024-07-29 updated)

https://www.stonybrook.edu/commcms/biochem/education/undergrad/index.php

GENERAL CHEMISTRY OPTIONS:

Course	Grade	Credit		Course	Grade	Credit
CHE 131 General Chemistry I (F, Sp, Su)		4		CHE 152 Molecular Science I (F)		4
CHE 133 General Chemistry Lab I (F, Su)		1	OR	CHE 154 Molecular Science Lab I (F)		2
CHE 132 General Chemistry II (F, Sp, Su)		4		[AP 4-5 and Satisfactory score on OCPP]		
CHE 134 General Chemistry Lab II (Sp, Su)		1				

ORGANIC CHEMISTRY OPTIONS:

CHE 321 Organic Chemistry I (F, Su)		4		CHE 331 Molecular Science II (Sp)		4
CHE 327 Organic Chemistry Lab (F, W, Sp, Su)		2	OR	CHE 327 or CHE 383 Org Chem Lab (Sp)		2
CHE 322 Organic Chemistry II (Sp, Su)		4		CHE 332 Molecular Science III (F)		4

PHYSICAL CHEMISTRY OPTIONS:

CHE 312 Physical Chemistry (Short crs) (Sp, Su)		3	OR	CHE 301 Phys Chem I **(pre/co-req MAT 203 or MAT 211** & PHY 121) (F) limited availability		4

CALCULUS OPTIONS:

MAT 125 Calculus A [MPS 7 ~131] (F, Sp, Su)		3		MAT 131 Calculus I [MPS 7 ~ 131] (F, Sp, Su?)		4
MAT 126 Calculus B (B+C=132) (F, Sp, Su)		3	OR	MAT 132 Calculus II [MPS 9 ~ 131,132] (F, Sp, Su?)		4
MAT 127 Calculus C (B+C=132) (F, Sp, Su)		3		AMS 151 Calculus I		3
MPS 9 ~ 131,132				AMS 161 Calculus II		3

PHYSICS OPTIONS:

PHY 121 Physics for the Life Sciences I (F, Su)		4		PHY 131 Class Physics I (F, Sp)		3
PHY 122 Physics for the Life Sciences II (Sp, Su)		4		PHY 133 Classical Physics Lab I (F, Sp)		1
			OR	PHY 132 Class Physics II (F, Sp)		3
Other physics options: PHY 125,126,127,133 &134				PHY 134 Classical Physics Lab II (F, Sp)		1

BIOLOGY CORE COURSES:

BIOCHEMISTRY ADVANCED COURSES:

BIO 201 Organisms to Ecosystems (F, Sp, Su)		3		Genetics options: BIO 320 (Sp), BIO 321 (F?S?), or EBH 302 (F, may not be offered AY 24-25)		3
BIO 202 Molecular and Cellular Biology (F, Sp, Su)		3		BIO 310 Cell Biology (Sp, Su)		3
BIO 203 Cellular and Organ Physiology (F, Sp, Su)		3	AND	BIO 361 Biochemistry I (F, Sp)		3
BIO 204 Intro BIO lab I (F, Sp?, Su) **co-register with:** BIO 458 (SPK, co-register with BIO 204)		2 0		BIO 362 Biochemistry II (prereq BIO 361) (Sp)		3
BIO 205 or 207 (204 pre-req) Intro BIO lab II (F?, Sp, Su)		2		BIO 365 Biochemistry Lab (ESI) (pre-req BIO 205/7) (F) **co-register with:** BIO 459 Write effect in Biol (WRTD) (co-req BIO 365 or other approved options see Bulletin)		3 0
				BIO/CHE ___ Upper-Division Elective I		3 or 4
				BIO/CHE ___ Upper-Division Elective II		3 or 4

To earn your BS degree you must also complete SB University Requirements

All BCH major course MUST be passed with a grade of C or higher
Upper level transfer courses must be approved in ADVANCE and taken at four-year institutions

Transfer Credit

Transfer students who wish to complete the requirements for the Biochemistry major must take Biochemistry I and II (BIO 361 and 362) and must complete at least a minimum of nine (9) additional credits at Stony Brook in required upper-division Biology courses (BIO 310, 320, and 365) and/or approved upper-division Biology elective courses.

Write in the Discipline (WRTD) – BIO 459 Write Effectively in Biology (effective Fall 2022 see below for 2021-2022 directions)

The Upper-Division Writing Requirement for the Biochemistry major is consistent with the University Graduation Requirements for General Education, and successful completion will satisfy the Stony Brook Curriculum (SBC) learning outcomes for "Write Effectively within One's Discipline" (WRTD). In order to satisfy the Upper-Division Writing requirement for the major in Biochemistry, students must **co-register** for the 0-credit BIO 459 course with either BIO 365 (Biochemistry lab) or an approved advanced course in biological sciences or chemistry (see Undergraduate Bulletin). Students must enroll in BIO 459 at the same time they are registering for the respective advanced course. To receive a satisfactory grade in BIO 459 and WRTD credit, either a BIO 365 lab report or term paper from the advanced biology/chemistry course must be submitted prior to the end of the term.

How to submit writing sample: After submitting their lab report or term paper for BIO course credit, students should submit the exact document to the BIO 459 Blackboard course assignments for writing evaluation. We encourage submission of your writing sample early in the semester to allow time for review and revision if needed.

Review of writing sample: Program in Writing and Rhetoric will evaluate the BIO 459 submission and will contact the student directly if remedial efforts are needed. Satisfactory completion of BIO 459 will fulfill the Stony Brook Curriculum (SBC) "Writing in the Discipline" WRTD learning objectives. If the writing assignment is initially found to be unsatisfactory, the student will be instructed by the Program in Writing and Rhetoric before resubmitting a revised version of their original paper. If a student chooses to submit a paper from another course that routinely offers a BIO 459 assignment, in lieu of making revisions, they will not need to enroll in BIO 459 again. To allow for evaluation and possible revision of their writing sample, students are urged to complete their upper-division writing requirement in their junior year or by the end of their next-to-last semester. Completion of the upper-division writing requirement in the final semester is considered but may delay graduation clearance.

Alternate courses that routinely offer assignments that can satisfy the BIO 459 WRTD learning outcomes are listed in the Undergraduate Bulletin: While BIO 459 co-registration with BIO 365 is highly recommended for Biochemistry majors. Before enrolling in alternate advanced courses, students must verify that they have the required pre-or co-requisites and take into consideration the potential limited enrollment opportunities for upper-division laboratories/lecture courses that are requirements for other majors. Students with questions regarding suitability of alternate courses or course planning should direct inquiries to the Biochemistry Undergraduate Program Director at biochem_ugpd@stonybrook.edu or make an appointment with a Division of Undergraduate Biology Advisor using Navigate.

UPPER-DIVISION ELECTIVES (other courses only with prior approval of syllabus by Curriculum Committee) Scheduling is subject to change, be sure to verify with Undergraduate Biology Semester Course Offerings

Fall Semester Courses subject to change

- AMS 333 Mathematical Biology (EXP+, WRTD)
- BIO 312 Bioinformatics (ESI, TECH)
- BIO 314 Cancer Biology
- BIO 317 Principles of Cellular Signaling
- BIO 321 Introduction to Ecological Genetics and Genomics (cannot count for both elective and genetics requirement)
- BIO 325 Animal Development
- BIO 335 Neurobiology Laboratory
- BIO 338 From Synapse to Circuit
- BIO 350 Darwinian Medicine (has not been offered recently)
- BIO 354 Evolution
- BIO 364 Laboratory Techniques in Cancer Biology
- BIO 365 (Cannot count for both lab and upper-division elective)
- CHE 345 Structure and Reactivity in Organic Chemistry
- EBH 302 Human Genetics (cannot count for both elective and genetics requirement)
- EBH 380 Genomics (formerly BIO 304)
- BME 304 Genetic Engineering

Spring Semester Courses subject to change

- BIO 315 Microbiology
- BIO 327 Developmental Genetics Laboratory (ESI)
- BIO 328 Mammalian Physiology
- BIO 332 Computational Modeling
- BIO 334 Principles of Neurobiology
- BIO 337 Neurotransmission and Neuromodulation
- BIO 339 Molecular Development of the Nervous System
- BIO 358 Biology of Human Social and Sexual Behavior (ESI, STAS)
- BIO 364 Laboratory Techniques in Cancer
- CHE 346 Biomolecular Structure and Activity

Summer Semester (elective and required courses) subject to change

- BIO 310 Cell Biology
- BIO 315 Microbiology
- BIO 316 Molecular Immunology
- BIO 317 Principles of Cellular Signaling
- BIO 320 General Genetics
- BIO 321 Introduction to Ecological Genetics (cannot count for both genetics and upper-division requirement)
- BIO 354 Evolution

BIOCHEMISTRY MAJOR (BCH) GRADUATION CHECKLIST

https://www.stonybrook.edu/commcms/biochem/education/undergrad/index.php

- BIO 358 Biology of Human Social and Sexual Behavior
- BIO 361 Biochemistry

- ALL BCH major COURSES MUST BE PASSED WITH A GRADE OF C OR HIGHER
- Courses taken at other institutions must be approved IN ADVANCE and must be taken at four year institutions

BIOCHEMISTRY MAJOR (BCH) GRADUATION CHECKLIST (2024-07-29 updated)