

B.A. BIOCHEMISTRY

CATALOG YEAR 2022-2023

GENERAL EDUCATION REQUIREMENTS

English Composition

ENGL 101 or 107	3	___
ENGL 102 or 108	3	___
Or		
ENGL 109H	3	___

Foundations Math *(Placement may require pre-requisite coursework - MATH 100, MATH 112, or MATH 120R)*

MATH 122A & B (5) or MATH 125 (3)	3	___
---	---	-----

Second Language

4th semester proficiency	4-5	___
--------------------------------	-----	-----

UNIV 101: Intro to the General Education Experience....	1	___
--	---	-----

Exploring Perspectives

Artist	3	___
Humanist	3	___
Natural Scientist	3	___
Social Scientist.....	3	___

Building Connections

Course 1	3	___
Course 2	3	___
Course 3	3	___

UNIV301: General Education Portfolio.....	1	___
--	---	-----

32 Units Minimum	32	___
-------------------------------	----	-----

Note: 9 units may be used to fulfill GE requirements while double-dipping with requirements in a major, pre-major, or minor.

BIOC FOUNDATION COURSES

General Chemistry (with labs)

CHEM 151 OR 141/143 OR 161/163.....	4	___
CHEM 152 OR 142/144 OR 162/164	4	___

Biology *Intro Biology 2 recommended before Intro Biology 1*

ECOL 182R - Introductory Biology II.....	3	___
ECOL 182L - Introductory Biology II Lab 1	1	___
MCB 181R - Introductory Biology I	3	___
MCB 181L - Introductory Biology I Lab	1	___

Mathematics *Calculus I & Calculus II or Biostatistics*

MATH 122A/B OR 125-5.....	3-5	___
MATH 129 or Math 263	3	___

Physics *Introductory Physics*

PHYS 102 OR 140 OR 141 OR 161H	3- 4	___
PHYS 103 OR 240 OR 241 OR 261H	3- 4	___

BIOC MAJOR COURSEWORK

Organic Chemistry *Chemistry of carbon-based molecules.*

First Semester Lecture and Lab

CHEM 241A (F,S,S) OR 246A (F) OR 242A (F)	3	___
CHEM 243A (F,S,SS) OR 247A (F) OR 244A (F).....	1-2	___

Second Semester Lecture and Lab

CHEM 241B (F,S,SS) OR 246B (S) OR 242B (S)	3	___
CHEM 243B (F,S,SS) OR 247B (S) OR 244B (S).....	1-2	___

Biochemistry *Core major coursework*

BIOC 296B Intro to Biochemical Research (F, S).....	1	___
BIOC 462A – Biochemistry (F).....	4	___
BIOC 462B - Biochemistry (S)	4	___
BIOC 463A – Biochemical Lab Techniques (F, S).....	4	___

Biochemistry Electives *(6 units required - see page 2 for descriptions):*

BIOC 392(H), 399(H), 492(H), 499(H) 498(H).....	1-6	___
BIOS 376	3	___
BME 486.....	3	___
CHEE 477R.....	3	___
CHEM 325, 326, 405A, 405B, 405C, 450.....	1-3	___
CHEM 450.....	3	___
ECOL 320, 326, 346, 474.....	3-5	___
ENVS 477.....	3	___
IMB401.....	4	___
MATH 363, 376.....	3	___
MCB 304, 325, 340, 410, 411, 416A. 425, 480	3-5	___
MIC 328R, 419, 428R, 452	3	___
NSC 408, 475.....	3	___
NSCS 307, 310, 430.....	3-4	___
PCOL 410.....	5	___
PHCL 412, 445.....	3	___
PHYS 431.....	3	___
PLS 312, 340, 359, 360, 448A.....	3	___
PSIO 380, 404, 420, 427, 431, 465, 484.....	3 -4	___

UNIVERSITY REQUIREMENTS:

- 120 Total Units
- 42 Upper Division Units
- 2.0+ Cum GPA
- 2.0+ Major GPA
- MCWA
- 30 UA Units
- 18/30 Upper Division UA Units
- 56+ University Units

Biochemistry Elective Descriptions

Please consult the Schedule of Classes for specific semester course information

BIOC 392(H), 492(H) Directed Research (variable units)
BIOC 399(H), 499(H) Independent Study (variable units)
BIOC 498(H) (3) Senior Capstone/Thesis
BIOS 376 (3) Introduction to Biostatistics
BME 486 (3) Biomaterial-Tissue Interactions
CHEE 477R (3) Microbiology for Engineers
CHEM 325 (2) Analytical Chemistry
CHEM 326 (2) Analytical Chemistry Lab
CHEM 405A (1) Basic Lab Safety
CHEM 405B (1) Advanced Lab Safety
CHEM 405C (1) Chemical Hygiene and Regulations
CHEM 450 (3) Synthetic and Mechanistic Organic Chemistry
ECOL 320 or 320H (4/5) Genetics
ECOL 326 (3) Genomics
ECOL 346 (4) Bioinformatics
ENVS 474 (4) Aquatic Plants and the Environment
ENVS 477 (3) Principles of Ecotoxicology
IMB 401 (4) Medical Microbiology and Immunology
MATH 363 (3) Intro. To Statistical Methods
MCB 304 (4-5) Molecular Genetics
MCB 325 (3-4) Biology of Cancer
MCB 410 (3-4) Cell Biology
MCB 411 (3-4) Molecular Biology
MCB 425 (3) Cancer Discoveries
MCB 480 (3) Intro. To Systems Biology
MCB416A (3) Bioinformatics and Functional Genomic Analysis

MIC 328R (3) Microbial Physiology
MIC 419 (4) Immunology
MIC 452 (3) Antibiotics – A Biological Perspective
NSC 408 (3) Nutritional Biology
NSC 475 (3) Nutrigenomics for the Study of Disease Prev & Intervention
NSCS 307 (3-4) Cellular Neurophysiology
NROS 310 (3-4) Molecular and Cellular Biology of Neurons
NROS 430 (3) Neurogenetics
PCOL 410 (5) Medicinal Chemistry
PHCL 412 (3) Intro. To Pharmacology
PHCL 445 (3) Drugs of Abuse
PHYS 431 (3) Molecular Biophysics
PLP 428R (3) Microbial Genetics
PLS 312 (4) Animal and Plant Genetics
PLS 340 (3) Intro. to Biotechnology
PLS 359 (3) Plant Cell Structure and Function
PLS 360 (3) Plant Growth and Physiology
PLS 448a (3) Plant Biochemistry and Metabolic Engineering
PSIO 380 (4) Fundamentals of Human Physiology
PSIO 404 (3) Advanced Topics in Cellular Physiology
PSIO 420 (3) Exercise and Environmental Physiology
PSIO 427 (3) Metabolism and Disease
PSIO 431 (3) Physiology of the Immune System
PSIO 465 (3) Neurophysiology
PSIO 484 (3) Cardiovascular Muscle Biology and Disease