

B.S. BIOCHEMISTRY

NAME _____ **SID #** _____ **DATE:** _____

CATALOG YEAR 2021-2022

EXPECTED GRADUATION DATE _____

GENERAL EDUCATION REQUIREMENTS

English Composition

ENGL 101 or 107 3 _____

ENGL 102 or 108 3 _____

Or

ENGL 109H 3 _____

Second Language

2nd semester proficiency by credit or exam required.... _____

Individuals and Societies (3 courses)

Tier One ____ 150 A, B, or C 3 _____

Tier One ____ 150 A, B, or C 3 _____

Tier Two Individuals & Societies course 3 _____

Traditions and Cultures / Humanities (3 courses)

Tier One ____ 160 A, B, C, or D 3 _____

Tier One ____ 160 A, B, C, or D 3 _____

Tier Two Humanities course 3 _____

Tier Two Arts (3 units total)

_____ 3 _____

Natural Sciences (NATS) - Satisfied by CBC major course work.

Diversity Emphasis Course

(Gender/Race/Class/Ethnicity/Sexual Orient./Non-Western)

One course must be taken from the GRCESONW list; Can be double-dipped with Tier One or Tier Two courses

_____ _____

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

MCB 181R - Introductory Biology I 3 _____

MCB 181L - Introductory Biology I Lab 1 _____

ECOL 182R - Introductory Biology II 3 _____

ECOL 182L - Introductory Biology II Lab 1 1 _____

Mathematics (Calculus I, Calculus II, Calculus III)

MATH 122A&B **OR** 125 3-5 _____

MATH 129 3 _____

CHEM380 (F) **OR** MATH 223 **OR** MATH 254 3 _____

Physics (Introductory Physics)

PHYS 140 **OR** 141 **OR** 161H 3- 4 _____

PHYS 240 **OR** 241 **OR** 261H 3- 4 _____

BIOC MAJOR COURSEWORK

(GRADE OF C OR HIGHER REQUIRED FOR ALL MAJOR COURSEWORK)

Organic Chemistry

First Semester Lecture and Lab

CHEM 241A (F,S,SS) **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 241B (F,S,SS) **OR** 247B (S) **OR** 244B (S) 1-2 _____

Biochemistry (19 units)

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 _____

BIOC 498(H) – Senior Capstone/Thesis (3/3) 6 _____

Physical Chemistry

CHEM 480A (F,S) 3 _____

CHEM 480B (F,S) or 481 (S) 3 _____

Biochemistry Electives (4 units required):

BIOC 395B 1 _____

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 474, 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, 431, 465, 484 3-4 _____

UNIVERSITY REQUIREMENTS:

120 total units **42 upper division units**

2.000+ cum GPA **2.000+ major GPA**

MCWA complete _____ 18 of 30 UA units upper division _____
30+ total units at UA _____ <60 correspondence/UA exam units _____

Biochemistry Electives

BIOC 395B (1) Scientific Writing
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
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) The 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
MIC 328R (3) Microbial Physiology
MCB416A (3) Bioinformatics and Functional Genomic Analysis

MIC 419 (4) Immunology
MIC 452 (3) Antibiotics – A Biological Perspective
NSC 408 (3) Nutritional Biology
NSC 475 (3) Nutrigenomics for the Study of Dis. Prev. & Inter.
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
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 431 (3) Physiology of the Immune System
PSIO 484 (3) Cardiovascular Muscle Biology and Disease
PHYS 431 (3) Molecular Biophysics
PSIO 465 (3) Neurophysiology

Note: Course offerings are subject to change. Please consult the Schedule of Classes for specific semester course information

Biochemistry Academic Plan

1st Semester Fall

General Chemistry I w/ lab (4)
MATH 122A (1)
MATH 122B (4)
ENGL 101 English Composition (3)
Tier I General Education (3)

3rd Semester Fall

*Organic Chemistry I Lecture (3)
*Organic Chemistry I Lab (1-2)
MCB 181R Introductory Biology (3)
MCB 181L Introductory Biology Lab (1)
Chem 380, MATH 223 Calc III or MATH 254 Dif Eq (3-4)
Second Language (4)
*BIOC 296b (1)

5th Semester Fall

*BIOC 462A Biochemistry I (4)
~*BIOC 463A Biochemical Lab (4)
PHYS 141 Physics I w/lab (4)
Tier I General Education (3)
*Biochemistry Elective (3)

7th Semester Fall

*CHEM 480A Physical Chemistry I (3)
*BIOC 498 (H) Senior Capstone (3)
Tier II General Education (3)
Elective (3)

2nd Semester Spring

General Chemistry II w/ lab (4)
MATH 129 (3)
ENGL 102 English Composition II (3)
Tier I General Education (3)

4th Semester Spring

*Organic Chemistry II Lecture (3)
*Organic Chemistry II Lab (1-2)
ECOL 182R Introductory Biology II (3)
ECOL 182L Introductory Biology II Lab (1)
Tier I General Education (3)
Second Language (4)

6th Semester Spring

*BIOC 462B Biochemistry I (4)
PHYS 241 Physics II w/lab (4)
Tier II General Education (3)
*Biochemistry Elective (3)

8th Semester Spring

*CHEM 480B Physical Chemistry II or CHEM 481 Biophysical (3)
*BIOC 498 (H) Senior Capstone (3)
Tier II General Education (3)
Elective (3)

*Denotes grade of C or better required

~Denotes department consent required to enroll.

Note that some courses are offered in the fall or spring only. This checklist indicates BIOCBS requirements. Additional coursework not listed on this page is required in order to graduate. Work with your advisor every semester to be sure you are on track to meet all requirements.