

BACHELOR OF SCIENCE DEGREE IN MOLECULAR AND CELLULAR BIOLOGY

Molecular and Cellular Biology Sub-Plan

NAME _____

SID # _____

CATALOG YEAR 2026-2027

EXPECTED GRADUATION DATE _____

GENERAL EDUCATION REQUIREMENTS (32 unit minimum)

English Composition

WRIT 101 or 107 3 _____

WRIT 102 or 108 3 _____

Or

WRIT 109H 3 _____

Foundation Mathematics

MATH 122A/B OR 125 OR MATH 119A* (F, S, SS) 3-5 _____

* MATH 119A is not a pre-requisite for MATH 129

Second Language

2nd semester proficiency by credit or exam required _____

Intro. to General Education

UNIV 101 1 _____

Exploring Perspectives (4 courses, 12 units)

Artist 3 _____

Humanist 3 _____

Social Scientist 3 _____

Natural Scientist Requirement satisfied by MCB foundations

Building Connections (2 courses, 6 units)

Course One 3 _____

Course Two 3 _____

Civic Institutions (1 course, 3 units)

Course One 3 _____

General Education Capstone

UNIV 301 1 _____

MCB FOUNDATION COURSES (27 UNITS)

Chemistry (General & Organic Chemistry, with labs)

CHEM 151 OR 161/163 OR 141/143 4 _____

CHEM 152 OR 162/164 OR 142/144 4 _____

CHEM 241A & 243A OR 242A & 244A* 3 _____ 1 _____

CHEM 241B & 243B OR 242B & 244B* 3 _____ 1 _____

* Calculated into major GPA

Mathematics (Calculus II or Biostatistics)

MATH 129 OR MATH 263 OR BIOS 376 (F, S, SS) 3 _____

Physics (Introductory Physics)

PHYS 110 OR 141 OR 161H (F, S, SS) 3 _____ 1 _____ or 4 _____

PHYS 111 OR 241 OR 261H (F, S, SS) 3 _____ 1 _____ or 4 _____

MCB MAJOR (42 Unit Minimum)

Core Requirements (24 units)

MCB 195 or 295 – MCB Colloquia (F, S) 1 _____

MCB 181R - Introductory Biology I (F, S) 3 _____

MCB 181L - Introductory Biology I Lab (F, S) 1 _____

ECOL 182R - Introductory Biology II (F, S) 3 _____

ECOL 182L - Introductory Biology II Lab (F, S) 1 _____

MCB 284 – App. of Cellular & Molecular Biology (S) 3 _____

MCB 304 - Molecular Genetics (F)* 4 _____

MCB 305 - Cell & Developmental Biology (S)* 4 _____

MCB 306 - Molecular Basis of Life (F)** 4 _____

* MCB 304, 305, & 306 should be taken in sequence.

** MCB 301 is MCB 306 as of Fall 2026.

Molecular and Cellular Biology Sub-Plan

Upper Division Elective Courses (18 unit minimum):

Choose three of the following courses (9 units):

MCB 325 Biology of Cancer (F) 3 _____

MCB 422 Problem Solving with Genetic Tools (F, SS) 3 _____

MCB 425 Cancer Discoveries (S) 3 _____

MCB 480 Introduction to Systems Biology (F) 3 _____

MCB 482 Modeling Human Disease (S) 3 _____

MCB 442 Human Genetics: Sex, Crime and Disease (S) 3 _____

MCB 447 Big Data in Biology and Medicine (F) 3 _____

BIOC 385 Metabolic Biochemistry** (F, S, SS) 3 _____

**The combo of BIOC 462A and BIOC 462B for BIOC 385 is an approved option.

Choose one Lab/Research/Internship Requirements (3 units):

MCB 392/492 Directed Research (F, S, SS) 3 _____

MCB 399/499 Independent Study (F, S, SS) 3 _____

MCB 399H/499H Honors Independent Study (F, S, SS) 3 _____

MCB 422 Problem Solving with Genetic Tools (F, SS) 3 _____

MCB 473 Recombinant DNA (S) 3 _____

MCB 493 Internship Experience (F, S, SS) 3 _____

MCB 498 Senior Capstone (F, S) 3 _____

MCB 498H Honors Thesis (F, S) 3 _____

Choose additional required elective courses (6 units):

Choose upper division electives to meet requirement - see back of checklist for elective options.

Writing Emphasis Elective 3 _____

Upper Division MCB Elective: 3 _____

UNIVERSITY REQUIREMENTS:

120 total units ☐ 42 upper division units ☐

2.000+ cum GPA ☐ 2.000+ major GPA ☐

Molecular and Cellular Biology Sub-Plan Upper Division Elective Courses:

Choose one Writing Emphasis Elective (3 unit min.):

MCB 404 Bioethics (Recommended) – 3 units (F, S, SS)
MCB 422 Problem Solving w/ Genetic Tools – 3 units (F, SS)
MCB 498 Senior Capstone – 3 units (F, S)
MCB 498H Senior Honors Thesis – 3 units (F, S)
ECOL 379 Evidence Based Medicine – 3 units (S)

Choose one MCB Elective (3 unit min.):

MCB 315 Quantitative Biology – 3 units (F, even years only)
MCB 325 Biology of Cancer – 3 units (F)
MCB 396i Career Explorations & Professional – 2 units (F)
MCB 397A Biology Outreach Development – 1 unit (F)
MCB 397C STEM Outreach and Recruitment – 1 unit (S)
MCB 416A Bioinformatics and Functional Genomic Analysis – 3 units (S, even years only)
MCB 422 Problem Solving w/ Genetic Tools – 3 units (F, SS)
MCB 425 Cancer Discoveries – 3 units (S)
MCB 437 Life in Extreme Environments – 3 units (F, S)
MCB 442 Human Genetics: Sex, Crime, and Disease – 3 units (S)
MCB 447 Big Data in Molecular Biology and Medicine – 3 units (F, odd years only)
MCB 473 Recombinant DNA Methods & Applications – 4 units (S)
MCB 480 Introduction to Systems Biology – 3 units (F)
MCB 482 Modeling Human Disease – 3 units (S)
MCB 391 Lab Preceptorship – 3 units (F, S)
MCB 491 Lab Preceptorship – 3 units (F, S)
MCB 497A Special Tutoring Workshop – 1-5 units (F, S, SS)
BIOC 384 Foundations in Biochemistry – 3 units (F, S, SS)
BIOC 462A Biochemistry – 4 units (F)
ECOL 326 Genomics – 3 units (F, SS)
ECOL 346 Bioinformatics – 3 units (S)
MIC 403R Biology of Animal Parasites – 3 units (F)
MIC 420 Pathogenic Bacteriology – 3 units (F)
MIC 433 Medical and Molecular Virology – 3 units (S)
MIC 452 Antibiotics: A Biological Perspective – 3 units (F)
NROS 430 Neurogenetics – 3 units (S)
NROS 307 Cellular Neurophysiology (F, S, SS)
NSCS 440 How to Build a Brain: Mechanisms of Neural Development – 3 units (S)
PLS 340 Introduction to Biotechnology – 3 units (F)
PLS 360 Principles of Plant Physiology – 3 units (S)
PLS 428R Microbial Genetics – 3 units (S)
PSIO 467 Endocrine Physiology – 3 units (F)
PSIO 484 Cardiovascular Muscle Biology and Disease – 3 units (S)

** courses cannot be used to fulfill two sub-plan requirements*

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