

BACHELOR OF SCIENCE DEGREE IN MOLECULAR AND CELLULAR BIOLOGY

Molecular and Cellular Biology Sub-Plan

NAME _____

SID # _____

CATALOG YEAR 2024-2025

EXPECTED GRADUATION DATE _____

GENERAL EDUCATION REQUIREMENTS (36-38 Units)

English Composition

ENGL 101 or 107 3 _____
 ENGL 102 or 108 3 _____
 Or
 ENGL 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 (3 courses, 9 units)

Course One 3 _____
 Course Two..... 3 _____
 Course Three 3 _____

General Education Capstone

UNIV 301 1 _____

MCB FOUNDATION COURSES (27 UNITS)

Chemistry (General & Organic Chemistry, with labs)

CHEM 141/143 OR 151 OR 161/163 OR 181..... 4 _____
 CHEM 142/144 OR 152 OR 162/164 OR 182..... 4 _____
 CHEM 241A & 243A OR 246A & 247A..... 3 _____ 1 _____
 CHEM 241B & 243B OR 246B & 247B)*..... 3 _____ 1 _____
 * Calculated into major GPA

Mathematics (Calculus II or Biostatistics)

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

Physics (Introductory Physics)

PHYS 110 OR 141 OR 161H (F, S, SS)..... 3 _____ 1 _____ or 4 _____
 PHYS 103/182 OR 241 OR 261H (F, S, SS) 3 _____ 1 _____ or 4 _____

MCB MAJOR (39 Unit Minimum)

Core Requirements (21 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 304 - Molecular Genetics (F)* 4 _____
 MCB 305 - Cell & Developmental Biology (S)*..... 4 _____
 MCB 301 - Molecular Basis of Life (F)*..... 4 _____
 *MCB 304, 305, & 301 should be taken in sequence..

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 (F)..... 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

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

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 (F)
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.