

BACHELOR OF SCIENCE DEGREE IN MOLECULAR AND CELLULAR BIOLOGY

Systems and Big Data Biology Sub-Plan

NAME _____

SID # _____

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)

Requirement satisfied by MCB major course work.

Diversity Emphasis Course

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

One undergraduate course must be taken from the GRCESONW list; certain Tier One and Tier Two courses can also be used to meet this requirement ... _____

MCB FOUNDATION COURSES

Chemistry (General & Organic Chemistry, with labs)

CHEM 141/143 **OR** 151 **OR** 161/163 4 _____
 CHEM 142/144 **OR** 152 **OR** 162/164 4 _____
CHEM 241A & 243A (F, S, SS)* 3 _____ 1 _____
CHEM 241B & 243B (F, S, SS)* 3 _____ 1 _____
 * Calculated into major GPA

Mathematics (Calculus I, & Calculus II)

MATH 122A/B OR 125 (F, S, SS) 3-5 _____
 MATH 129 (F, S, SS) 3 _____

Physics (Introductory Physics)

PHYS 102/181 **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 301 - Molecular Basis of Life (S)* 4 _____
 MCB 304 - Molecular Genetics (F)* 4 _____
 MCB 305 - Cell & Developmental Biology (S)* 4 _____
 *MCB 301, MCB 304, and MCB 305 must be taken in sequence.

Systems and Big Data Biology Sub-Plan

Upper Division Elective Courses (18 unit minimum):

Required Courses (9 units):

MCB 315 Quantitative Biology (F, even years) 3 _____
 MCB 480 Introduction to Systems Biology (S) 3 _____
 MCB 447 Big Data in Biology and Biomedicine (F, odd years) ... 3 _____

Choose one Lab/Research/Internship Requirement (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 498 Senior Capstone (F, S) 3 _____
 MCB 498H Honors Thesis (F, S) 3 _____
 MCB 493 Internship Experience (F, S, SS) 3 _____
 MCB 416A Statistical Bioinfo. & Genomic Analysis (S, even yr.).. 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 _____

SUPPORTING COURSEWORK REQUIRED FOR SUB-PLAN

MATH 223 Vector Calculus (F, S, SS) 3 _____
 MATH 254 or 355 Differential Equations (F, S) 3 _____
 MATH 313 Linear Algebra (F, S, SS) 3 _____
 MATH 363 Introduction to Statistics (F, S, SS) 3 _____
 CSC 250 Essential Computing for the Sciences (S) 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 _____

Systems and Big Data Biology Sub-Plan Upper Division Elective Courses:

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

MCB 404 Bioethics – 3 units (F, S, SS)

MCB 413 Why is the Grass Green- Communicating with the Public – 3 units (F)

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

MCB 473 Recombinant DNA Methods and Applications – 3 units (S)

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 325 Biology of Cancer – 3 units (F)

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

MCB 425 Cancer Discoveries – 3 units (S)

MCB 442 Sex, Crime and Disease – Human Genetics today – 3 units (S)

MCB 482 Modeling Human Disease – 3 units (S)

** 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.