BACHELOR OF SCIENCE DEGREE IN MOLECULAR AND CELLULAR BIOLOGY
Systems and Big Data Biology Sub-Plan

NAME _____ **SID #** _____

CATALOG YEAR 2020-2021 **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 Bioinformatics and Functional Genomic (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 310 Apl. Linear Algebra **or** 313 Linear Algebra (F,S, SS).....3 ___
MATH 375 Statistical Computing ..... 3 ___
or
MATH 363 Introduction to Statistics (F,S) .....3 ___
and
CSC 250 Essential Computing for the Sciences (F,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 Science to the Public – 3 units (S)
MCB 422 Problem Solving with Genetic Tools – 3 units (F, S, 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, S, SS)
MCB 425 Cancer Discoveries – 3 units (S)
MCB 442 Human Genetics: Sex, Crime, and Disease – 3 units (F)
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.