

BACHELOR OF SCIENCE DEGREE IN MOLECULAR AND CELLULAR BIOLOGY

Systems and Big Data Biology Sub-Plan

NAME _____

SID # _____

CATALOG YEAR 2018-2019

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).....3 _____

MCB 480 Introduction to Systems Biology (S).....3 _____

MCB 447 Big Data in Biology and Biomedicine3 _____

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 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 420 Why is the Grass Green- Communicating with the Public – 3 units
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 Sex, Crime and Disease – Human Genetics today – 3 units
MCB 482 Modeling Human Disease – 3 units (S)

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