BACHELOR OF SCIENCE DEGREE IN MOLECULAR AND CELLULAR BIOLOGY

Systems and Big Data Biology Sub-Plan

NAME ______________________________ SID # __________________

CATALOG YEAR 2019-2020 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)

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Natural Sciences (NATS)
Requirement satisfied by MCB major course work.

Diversity Emphasis Course
(If applied) (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 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, even years) ............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 301 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____

MOLECULAR AND CELLULAR BIOLOGY: 2019 – 2020 CATALOG YEAR

OCTOBER 16, 2019
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.