

# BACHELOR OF SCIENCE DEGREE IN MOLECULAR AND CELLULAR BIOLOGY

## Genetics and Human Health 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

2<sup>nd</sup> 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 or Biostatistics)

MATH 122A/B **OR** 125 **OR** MATH 119A\* (F, S, SS) ..... 3-5 \_\_\_\_\_  
MATH 129 **OR** MATH 263 (F, S, SS) ..... 3 \_\_\_\_\_  
\* MATH 119A is not a pre-requisite for MATH 129

#### 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.

#### Genetics and Human Health 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 442 Sex, Crime and Disease (S) ..... 3 \_\_\_\_\_  
MCB 482 Modeling Human Disease (S) ..... 3 \_\_\_\_\_  
BIOC 385 Metabolic Biochemistry (F, S, SS)\*\* ..... 3 \_\_\_\_\_

\*\*The combination of BIOC 462A and BIOC 462B is an approved option.

#### 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 422 Problem Solving with Genetic Tools (F, SS) ..... 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 \_\_\_\_\_

### SUPPORTING COURSEWORK REQUIRED FOR SUB-PLAN

MCB 330 Critical Reasoning and Problem Solving in Biomedicine (F) ..... 1 \_\_\_\_\_

### RECOMMENDED COURSES:

PSIO 201-Human Anatomy and Physiology I (F, S, SS) 4 units  
PSIO 202 Human Anatomy and Physiology II (F, S, SS) 4 units

#### 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 \_\_\_\_\_

## Genetics and Human Health 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 (F)

MCB 422 Problem Solving w/ Genetic Tools – 3 units (F, SS)\*

MCB 473 Recombinant DNA Methods & Applications – 4 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 315 Quantitative Biology – 3 units (F, even years only)

MCB 325 Biology of Cancer – 3 units (F)\*

MCB 422 Problem Solving w/ Genetic Tools – 3 units (F, SS)\*

MCB 425 Cancer Discoveries – 3 units (S)

MCB 442 Human Genetics Today: Sex, Crime and Disease – 3 units (S)\*

MCB 447 Big Data in Biology and Medicine – 3 units (F, odd years only)

MCB 480 Introduction to Systems Biology – 3 units (F)

MCB 482 Modeling Human Disease – 3 units (S)\*

PSIO 380 Fundamentals of Human Physiology – 4 units (F, S) \*\*

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

*\*\* Cannot take if taking PSIO 201 and PSIO 202*

*Course offerings are subject to change. Please consult the Schedule of Classes for specific semester course information.*