

# BACHELOR OF SCIENCE DEGREE IN MOLECULAR AND CELLULAR BIOLOGY

## Genetics and Human Health Sub-Plan

NAME \_\_\_\_\_

SID # \_\_\_\_\_

CATALOG YEAR 2024-2025

EXPECTED GRADUATION DATE \_\_\_\_\_

### GENERAL EDUCATION REQUIREMENTS (36-38 Units)

#### English Composition

ENGL 101 or 107 ..... 3 \_\_\_\_\_

ENGL 102 or 108 ..... 3 \_\_\_\_\_

Or

ENGL 109H ..... 3 \_\_\_\_\_

#### Foundation Mathematics

MATH 122A/B OR 125 OR MATH 119A\* (F, S, SS) .....3-5 \_\_\_\_\_

\* MATH 119A is not a pre-requisite for MATH 129

#### Second Language

2<sup>nd</sup> semester proficiency by credit or exam required ..... \_\_\_\_\_

#### Intro. to General Education

UNIV 101 ..... 1 \_\_\_\_\_

#### Exploring Perspectives (4 courses, 12 units)

Artist ..... 3 \_\_\_\_\_

Humanist ..... 3 \_\_\_\_\_

Social Scientist ..... 3 \_\_\_\_\_

Natural Scientist ....Requirement satisfied by MCB foundations

#### Building Connections (3 courses, 9 units)

Course One ..... 3 \_\_\_\_\_

Course Two ..... 3 \_\_\_\_\_

Course Three ..... 3 \_\_\_\_\_

#### General Education Capstone

UNIV 301 ..... 1 \_\_\_\_\_

### MCB FOUNDATION COURSES (27 UNITS)

#### Chemistry (General & Organic Chemistry, with labs)

CHEM 141/143 OR 151 OR 161/163 OR 181 .....4 \_\_\_\_\_

CHEM 142/144 OR 152 OR 162/164 OR 182 .....4 \_\_\_\_\_

CHEM 241A & 243A OR 246A & 247A .....3 \_\_\_\_\_ 1 \_\_\_\_\_

CHEM 241B & 243B OR 246B & 247B .....3 \_\_\_\_\_ 1 \_\_\_\_\_

\* Calculated into major GPA

#### Mathematics (Calculus II or Biostatistics)

MATH 129 OR MATH 263 (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.

#### 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 (F) .....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 473 Recombinant DNA (S) ..... 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 FOR PRE-HEALTH STUDENTS ONLY:

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 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 Sex, Crime and Disease – Human Genetics Today – 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 (F)
- PSIO 380 Fundamentals of Human Physiology – 4 units (F, S) \*\*

*\* courses 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.*