# BACHELOR OF SCIENCE DEGREE IN MOLECULAR AND CELLULAR BIOLOGY

**Genetics and Human Health Sub-Plan**

**NAME _______________________________________

BACHELOR OF SCIENCE DEGREE IN MOLECULAR AND CELLULAR BIOLOGY**

**PHYS 103**

**Physics (Introductory Physics)**

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

**MATH 129 OR MATH 263 (F, S, SS) ................. 3**

**CHEM 141**

**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

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

**MATH 129 OR MATH 263 (F, S, SS) ................. 3**

**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**

## 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 or Biostatistics)**

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

**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 .................. 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, S, 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**

## UNIVERSITY REQUIREMENTS:

120 total units □ 42 upper division units □

2.00+ cum GPA □ 2.00+ 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 420 Why is the Grass Green – Communicating with the Public – 3 units
- MCB 422 Problem Solving w/ Genetic Tools – 3 units (F, S, 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)
- MCB 325 Biology of Cancer – 3 units (F)*
- MCB 422 Problem Solving w/ 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 447 Big Data in Biology and Medicine – 3 units
- MCB 480 Introduction to Systems Biology – 3 units (F)
- MCB 482 Modeling Human Disease – 3 units (S)*
- PSIO 201 Intro to Anatomy & Physiology I – 4 units (F, S, SS) **
- PSIO 202 Intro to Anatomy & Physiology II – 4 units (F, S, SS) **
- PSIO 380 Fundamentals of Human Physiology – 4 units (F, S) ***

* cannot be used to fulfill two sub-plan requirements
** Must take PSIO 201 before taking PSIO 202
*** Cannot take if taking PSIO 201 and PSIO 202