

# B.S. - Biology - Biotechnology concentration

(Effective Fall 2012) (An overall GPA of at least 2.5 is required to remain in this concentration)

## GENERAL EDUCATION PROGRAM

### I. Required Skills and Competencies (16 cr.)

Fluency in Writing

ENG 101, 106 or 110 (3) \_\_\_\_\_

Fluency in Speech

HCS 100 - Human Communication (3) \_\_\_\_\_

Historical Perspective

HIS 105 - His Foun Glob Cul (3) \_\_\_\_\_

HIS 106 - Thin His Glob Age (3) \_\_\_\_\_

Mathematical Competency -

MAT 211 - Calculus I (4) \_\_\_\_\_

Reading Comprehension (required only

if the student needs additional instruction; credits do NOT count towards graduation)

### II. Categories of Knowledge\* (35 cr.)

#### A. Logic and Numbers for Rational Thinking

MAT 117 - Applied Statistics (4) \_\_\_\_\_

#### B. Linguistics, Literary, Artistic, Cultural Traditions (9)

\_\_\_\_\_ (lit.)

\_\_\_\_\_ (humanity)

\_\_\_\_\_ (humanity)

#### C. Biological and Physical Sciences

BIO 161 - Principles of Biology: Cell Structure & Function (4) \_\_\_\_\_

CHM 121 - Chemical Bonding (3) \_\_\_\_\_

PHY 121 - Intro. to Physics I (3) \_\_\_\_\_

#### D. Political, Economic, Geographic Sciences (6)

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#### E. Social and Behavioral Sciences (6)

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\* Refer to the Undergraduate Catalog to determine the courses that can be counted under each section.

## MAJOR REQUIREMENTS

### Biology Requirements\* (37 cr.)

#### Core Courses:

BIO 161 - Princ. Bio: Cell Structure & Function (4) *see Category C*

BIO 162 - Princ. Bio: Organismal Diversity (4) \_\_\_\_\_

BIO 230 - Botany (3) \_\_\_\_\_

BIO 260 - Genetics (3) \_\_\_\_\_

BIO 385 - Cell Biology (3) \_\_\_\_\_

BIO 418 - Molecular Biology (3) \_\_\_\_\_

BIO 461 - Techniques in Biotechnology (3) \_\_\_\_\_

BIO 499 - Capstone Seminar in Biology (1) \_\_\_\_\_

#### Physiology elective (4 cr.) - choose:

BIO 350 - Human Physiology (4) \_\_\_\_\_

or

BIO 351 - Animal Physiology (4) \_\_\_\_\_

#### Experiential Requirement (3 cr)

BIO 397 - Intro to Research (3) **or**

BIO 391 - Internship (3) \_\_\_\_\_

#### Additional Biology Electives (10 cr.)

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#### Strongly recommended electives:

BIO 220 - Microbiology

BIO 324 - Pathogenic Microbiology

BIO 371 - Human Anatomy

BIO 408 - Virology

BIO 409 - Immunology

\* Students must earn a C or higher in BIO 161 & 162 before upper division Biology courses may be taken. Only 3 credits of internship/research may be counted for Biology credit, with all additional internship/research credits counting as free elective credit.

## COGNATE COURSES REQUIRED FOR THE BIOLOGY MAJOR

### Chemistry Requirements (19-20 cr.)

CHM 121 - Chemical Bonding (Cat. C) with CHM 125 lab IB (1) \_\_\_\_\_

CHM 122 - Chemical Dynamics (3) with CHM 126 lab IIB (1) \_\_\_\_\_

CHM 221 - Organic Chemistry I (3) with CHM 225 lab IIIB (1) \_\_\_\_\_

CHM 222 - Organic Chemistry II (3) with CHM 226 lab IVB (1) \_\_\_\_\_

CHM 301 - Biochemistry I (3) \_\_\_\_\_

CHM 420 - Biochemistry II (3) \_\_\_\_\_

**or**

CHM 371 - Analytical Chemistry (4) \_\_\_\_\_

**or**

CHM XXX - Forensic Chemistry (4) \_\_\_\_\_

### Physics Requirements (5 cr.)

PHY 121 - Introductory Physics I (Cat. C)

with PHY 123 - Physics I lab (1) \_\_\_\_\_

PHY 122 - Introductory Physics II (3)

with PHY 125 - Physics II lab (1) \_\_\_\_\_

### Math Requirements (listed under the general education program)

MAT 117 - Applied Statistics

MAT 211 - Calculus I

### Free Electives (7-8 credits)

A minimum of 120 credits are required for graduation.

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### Strongly recommended free elective:

CHM 421 - Biochemistry Laboratory

Revised July 2012