

B.S. - BIOLOGY / Ecology, Environment and Conservation concentration

Effective Fall 2020

GENERAL EDUCATION PROGRAM (47 credits)

FOUNDATIONS (15 credits)

(16 cr required by Biology major)

- ___ First Yr. Seminar(3) UNIV 101
- ___ Academic Writing (3 cr.) ENG 114 or 115
- ___ Oral Communication (3 cr.) HCS 100
- ___ History (3 cr.) HIS 105
- ___ Quantitative (Q) (3 cr.) MAT 211 (4 cr)
(MAT 211 - required by Biology major)

INTERCONNECTIONS (9 credits)

At least 3 credits each must come from the Diversity (D) and from the Global Perspectives (G) categories.

- ___ Diversity (D)
- ___ Global Perspectives (G)
- ___ Foreign Language (F)

CITIZENSHIP & RESPONSIBILITY (6 credits)

Minimum of 2 courses within C&R, with no more than 1 course attributed to the same program goal.

- ___ Citizenship (S)
- ___ Ethical Reasoning (E)
- ___ Critical Reasoning (R)

NATURAL WORLD & TECHNOLOGY (9 credits)

(10 cr required by Biology major)

- ___ BIO 161 (4 cr)
- ___ CHM 121 (3 cr)
- ___ PHY 121 (3 cr)

CREATIVITY & EXPRESSION (6 credits)

3 credits must come from the Literature (L) category and the other 3 credits from either Arts (A) or Creativity (C).

- ___ Literature (L)
- ___ Arts (A)
- ___ Creative (C)

Free Electives* (14-16 credits)

A minimum of 120 credits is required for graduation.

MAJOR REQUIREMENTS (57-59 credits)

Biology Requirements (40-41 cr.)

Core Courses:

- ___ BIO 161 - Princ. Bio: Cell Structure & Function (see gen ed Category N)
- ___ BIO 162 - Princ. Bio: Organismal Diversity (4)
- ___ BIO 230 - Botany (3)
- ___ BIO 242 - Ecology (3)
- ___ BIO 260 - Genetics (4)
- ___ BIO 499 - Capstone Seminar in Biology (1)

Cellular elective** (3-4 cr.) choose one:

- ___ BIO 220 - Microbiology (4) **OR**
- ___ BIO 385 - Cell Biology (3)

Physiology elective (4 cr.)*** choose one:

- ___ BIO 350 - Human Physiology (4) **OR**
- ___ BIO 351 - Animal Physiology (4)

Conservation and Management elective (3 cr.)

choose 1:

- ___ BIO 444 - Conservation Biology (3)
- ___ BIO 483 - Wildlife and Fisheries Management (3)

Ecology electives (9 cr.) choose any 3:

- ___ BIO 363 - Vertebrate Zoology (3)
- ___ BIO 406 - Mammalogy (3)
- ___ BIO 412 - Ichthyology (3)
- ___ BIO 417 - Herpetology (3)
- ___ BIO 419 - Ornithology (3)
- ___ BIO 430 - Principles of Evolution (3)
- ___ BIO 442 - Aquatic Ecology (3)
- ___ BIO 448 - Field Botany & Plant Tax. (3)
- ___ BIO 4XX - Entomology (3)
- ___ BIO 4XX - Freshwater Invertebrate Zoology (3)
- ___ BIO 444 **or** BIO4xx (3) - see Conservation and Management elective above.

Additional Biology electives**** (6 cr.)

COGNATE COURSES REQUIRED FOR THE BIOLOGY MAJOR (17-18 cr.)

Chemistry Requirements (13 cr.)

- ___ CHM 121 - Chemical Bonding (Cat. N) 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 227 - Introduction to Biochemistry (4)
- OR**
- ___ CHM 222 - Organic Chemistry II (3) with CHM 226 lab IVB (1)

Physics Requirements***** (1 cr.)

- ___ PHY 121 - Introductory Physics I (Cat. N) with PHY 123 - Physics I lab (1)

Math Requirements (3-4 cr.)

- ___ MAT 211 (see Quantitative gen ed)
- ___ MAT 117 - Applied Statistics (3)
- OR** MAT 217 - Statistics I (4)

*Courses in Geography/Earth Science, including GIS, are recommended.

**BIO 385 is recommended for students planning to attend graduate school.

***BIO 351 is recommended

****One of the following Geography/Earth Science courses may be substituted for a biology course (3 credits):

- ESS 110 - Intro. to Geology (3)
- ESS 210 - Physical Geology (3)
- ESS 220 - Oceanography (3)
- GEO 202 - Introduction to GIS (3)
- GEO 224 - Soils (3)
- GEO 226 - Hydrology (3)
- GEO 244 - Land Use
- GEO 405 - Environmental Conservation and Management in PA
- GEO 421 - Environmental Law
- GEO 444 - Environmental Land-Use Planning

*****PHY 122 and PHY 125 may be required by some graduate and professional programs.