BIOLOGY - HEALTH PROFESSIONS CONCENTRATION - B.S.

Includes: Pre-Chiropractic, Pre-Medicine, Pre-Dentistry, Pre-Veterinary medicine, Pre-Optometry, Pre-Podiatry, Pre-Physical Therapy and Pre-Pharmacy

A 4-year template is available at www.ship.edu/undeclared

General Education Requirements

I. Required Skills and Competencies 16 cr
   ___ ENG 106 Writing Intensive First Year Seminar OR
   ___ ENG 110 Advanced Placement Writing (3 cr)
       May need ENG 050 Basic Writing first, based on test results
   ___ HCS 100 Intro to Human Communication (3 cr)
   ___ Mathematical Competency-Required
   ___ MAT 211 Calculus I —if necessary, student may need
   ___ MAT 175 Pre-Calculus first
   ___ HIS 105 Historical Foundations of Global Cultures (3 cr) AND
   ___ HIS 106 Thinking Historically in a Global Age (3 cr)

II. Categories of Knowledge 35 cr

A: Logic/Numbers for Rational Thinking (4 cr)
   ___ MAT 117 Applied Statistics

B: Literary, Artistic & Cultural Traditions (9 cr)

C: Biological & Physical Sciences (10 cr)
   ___ PHY 121 Introductory Physics
   ___ CHM 121 Chemical Bonding
   ___ BIO 161 Principles of Biology: Cell Structure & Function

D: Political, Economic & Geographic Science (6 cr)

E: Social & Behavioral Science (6 cr)

III. Library Skills Complete via College/Advanced Writing course

Biology Major Requirements 38 cr

CORE COURSES** 15 cr
   ___ BIO 161 Principles of Biology: Cell Structure & Function (4 cr)
   ___ BIO 162 Principles of Biology: Organismal Diversity (4 cr)
   ___ BIO 220 Microbiology (3 cr)
   ___ BIO 260 Genetics (3 cr)
   ___ BIO 499 Capstone Seminar in Biology (1 cr)

**Students must earn at least a 2.0 average in Bio 161 & 162 before upper level Biology electives may be taken. See the catalog for remediation procedure.

Physiology elective Select 1 course: 4 cr
   ___ BIO 350 Human Physiology (4 cr) OR
   ___ BIO 351 Animal Physiology (4 cr)

Anatomy elective Select 1 course: 3-4 cr
   ___ BIO 370 Comparative Anatomy (3 cr) OR
   ___ BIO 371 Human Anatomy (4 cr) OR
   ___ BIO 375 Histology (3 cr)

Molecular/Cellular elective Select 1 course: 3 cr
   ___ BIO 385 Cell Biology (3 cr) OR
   ___ BIO 418 Molecular Biology (3 cr)

Breadth Biology electives Select 1 course: 3 cr
   ___ BIO 210 Field Zoology (3 cr)
   ___ BIO 230 Botany (3 cr)
   ___ BIO 242 Ecology (3 cr)
   ___ BIO 330 Animal Behavior (3 cr)
   ___ BIO 362 Invertebrate Zoology (3 cr)
   ___ BIO 363 Vertebrate Zoology (3 cr)
   ___ BIO 406 Mammalogy (3 cr)
BIO 412 Ichthyology (3 cr)
BIO 417 Herpetology (3 cr)
BIO 419 Ornithology (3 cr)
BIO 430 Principles of Evolution (3 cr)
Breadth Biology electives 12-13 cr
BIO ____________________________ (3 cr)
BIO ____________________________ (3 cr)
BIO ____________________________ (3 cr)
BIO ____________________________ (3 cr)
BIO 300 Careers in the Health Professions (1 cr) recommended
Math Requirements 8 cr
MAT 211 Calculus (4 cr) *
MAT A Statistics course 4 cr * See Category A
Physics Requirements 8 cr
PHY 121 Introductory Physics I (3 cr)* AND
PHY 123 Introductory Physics I lab (1 cr)
PHY 122 Introductory Physics II (3 cr) AND
PHY 124 Introductory Physics II lab (1 cr)
Chemistry Requirements 13-16 cr
CHM 121 Chemical Bonding* AND
CHM 125 Lab IB (4 cr)
CHM 122 Chemical Dynamics AND
CHM 126 Lab IIB (4 cr)
CHM 221 Organic Chemistry I AND
CHM 225 Lab IIIB (4 cr)
CHM 227 Introduction to Biochemistry (4 cr)
For pre-med, pre-dental, pre-vet, and pre-pharmacy majors:
CHM 222 Organic Chemistry II (instead of CHM 227) AND
CHM 226 Lab IVB (4 cr) AND
CHM 301 Biochemistry (3 cr) [in place of CHM 227]
Free Electives 3-7 cr
Refer to the Undergraduate Catalog to determine the courses that can be counted under each section.
*Major requirement double counts as General Education credits
# PSY 101 General Psychology is required for all pre-Chiropractic students.
Human Anatomy & Human Physiology are required of all pre-Physical Therapy, pre-Physician Assistant, and pre-Occupational Therapy students.
Total Graduation Requirements 120 cr
GPA Needed to Declare: 2.8
Admission to this major is competitive. Students must have earned at least 15 credits and have grades of "C" or better in BIO 161/BIO 162 AND one of the following CHM 121: Chemical Bonding, MAT 175: Pre-Calc OR MAT 211: Calculus I.
Helpful Hints for Advising:
Students should begin their math sequence in the freshman year.
Year I BIO 161 Principles of Biology: Cell Structure & Function
BIO 162 Principles of Biology: Organismal Diversity
Year II CHM 121 & CHM 125 Chemical Bonding and lab
CHM 122 & CHM 124 Chemical Dynamics and lab
Students lacking strong chemistry/math backgrounds should consider taking CHM 105: Chemistry: An Observational Approach during their first year.
Physics is normally taken in the senior year.
A Biology minor is available 19 credits