BIOLOGY - ECOLOGY AND ENVIRONMENTAL CONCENTRATION - B.S.
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
   ___ CHM211 Chemical Bonding
   ___ BIO 161 Principles of Biology: Cell Structure & Function **
   D: Political, Economic & Geographic Science (6 cr)
   ___ ECO 101 Principles of Macroeconomics [recommended]
   ___ ______________________________
   E: Social & Behavioral Science (6 cr)
   ___ ______________________________
   ___ ______________________________

III. Library Skills Complete via College/Advanced Writing course

Biology Requirements 38 cr
CORE COURSES** 18 cr
   ___ BIO 161 Principles of Biology: Cell Structure & Function (4 cr) *
   ___ BIO 162 Principles of Biology: Organismal Diversity (4 cr)
   ___ BIO 230 Botany (3 cr)
   ___ BIO 242 Ecology (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.
Cellular elective Select 1 course: 3 cr
   ___ BIO 220 Microbiology (3 cr) OR
   ___ BIO 385 Cell Biology (3 cr)
Physiology elective Select 1 course: 3-4 cr
   ___ BIO 351 Animal Physiology (3 cr)
   ___ BIO 350 Human Physiology (4 cr)
Ecology and Conservation electives Select any 3 courses: 9 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)
   ___ BIO 442 Aquatic Ecology (3 cr)
   ___ BIO 444 Conservation Biology (3 cr)
   ___ BIO 448 Field Botany & Plant Taxonomy (3 cr)
Experiential elective Select 1 course: 3 cr
BIO 396-398 Research (3 cr)
BIO 391-392 Internship (3 cr)
Additional Biology electives with advisement 4 cr
___ BIO ____________________________ (3 cr)
___ BIO ____________________________ 1 or 2 cr
Math Requirements 8 cr
___ MAT 211 Calculus I (4 cr) *
___ MAT A Statistics course (4 cr) * See Category A
Physics Requirements 8 cr
___ PHY 121 Introductory Physics I* and
___ PHY 123 Introductory Physics I lab (4 cr)
___ PHY 122 Introductory Physics II and
___ PHY 124 Introductory Physics II lab (4 cr)
Chemistry Requirements 16-20 cr
___ CHM 121 Chemical Bonding* and
___ CHM 125 Lab IB (4 cr)
___ CHM 122 Chemical Dynamics and
___ CHM 126 Lab IIIB (6 cr)
___ CHM 221 Organic Chemistry I and
___ CHM 225 Lab IIIB (4 cr)
___ CHM 222 Organic Chemistry II and
___ CHM 226 Lab IVB (6 cr)
OR
___ CHM227 Introduction to Biochemistry (4 cr)
Geography-Earth Science Requirement 3 cr
Choose one from the following:
___ ESS 110 Introduction to Geology (3 cr)
___ ESS 210 Physcial Geology (3 cr)
___ GEO 202 Introduction to GIS (3 cr)
___ GEO 224 Soils (3 cr)
___ GEO 226 Hydrology (3cr)
Free Electives 11 cr
*Major requirement double counts as General Education credits
Total Graduation Requirements 120 cr

GPA Needed to Declare: 2.5
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.
Semester I BIO 161 Principles of Biology: Cell Structure & Function
Semester II BIO 162 Principles of Biology: Organismal Diversity
Year II BIO 242 Ecology
CHM 121 & CHM 125 Chemical Bonding and lab