BIOLOGY-SECONDARY EDUCATION CERTIFICATION- 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
   ___ CHM121 Chemical Bonding
   ___ BIO 161 Principles of Biology: Cell Structure & Function
D: Political, Economic & Geographic Science (6 cr)
   ___ ______________________________
   ___ ______________________________
E: Social & Behavioral Science (6 cr)
   ___ PSY 101 General Psychology
   ___ ______________________________

One course which emphasizes intergroup education must be included in
the Categories of Knowledge. See the Biology Dept. for details.

III. Library Skills Complete via College/Advanced Writing course

Biology 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 208 Field Biology (3 cr)
   ___ BIO 242 Ecology (3 cr)
   ___ BIO 260 Genetics (3 cr)
   ___ BIO 385 Cell Biology (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.
Physiology elective Select 1 course: 4 cr
   ___ BIO 350 Human Physiology (4 cr) OR
   ___ BIO 351 Animal Physiology (4 cr)
Biology Electives 10 cr
   ___ BIO ______________________________
   ___ BIO ______________________________
   ___ BIO ______________________________
   ___ BIO ______________________________
Math Requirements: 8 cr
   ___ MAT 211 Calculus I (4 cr) *
   ___ MAT 117 Applied Statistics (4 cr) *
Physics Requirements 4 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 125 Introductory Physics II lab ** (1 cr)
** Optional, but strongly recommended
Chemistry Requirements 12 cr
___ CHM 121 Chemical Bonding* & CHM 125 Lab IB (4 cr)
___ CHM 122 Chemical Dynamics & CHM 126 Lab IIB (4 cr)
___ CHM 221 Organic Chemistry I & CHM 225 Lab IIIB (4 cr)
___ CHM 227 Introduction to Biochemistry (4 cr) recommended
Professional Education Requirements 33 cr
___ TCH 207 Organ. & Psych.Foundations is Secondary Education (3 cr)
___ EEC 273 Introduction to Exceptionality** (3 cr)
___ EDU 440 Teaching Science In Secondary Schools (3 cr) **
___ EDU 441 Curriculum & Evaluation in the Secondary Science Classroom (3 cr) **
___ EEC 423 Effective Instructional Strategies (3 cr)
___ EEC 483 Assessing Students for Curricular Decision Making (3 cr)
___ RDG 413 Teaching Reading ELL (3 cr)
___ EDU 495 Student Teaching & Professional Practicum (12 cr) **
*Major requirement fulfills General Education credits
Total Graduation Requirements 120+ cr
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GPA Needed to Declare: 3.0
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:
Semester I BIO 161 Principles of Biology: Cell Structure & Function and/or CHM 121 Chemical Bonding (and lab)
Semester II BIO 162 Principles of Biology: Organismal Diversity and/or CHM 122 Chemical Dynamics (and lab)
Semester III BIO 208 Field Biology and/or BIO 260 Genetics
Students lacking strong chemistry/math backgrounds should consider taking CHM 105: Chemistry: An Observational Approach. Physics is normally taken in the junior year.
Environmental Education Certificate is available may teach any subject matter labeled as environmental education for grades K - 12. Requires 24 credits — See the department for details.
** All education majors must pass the first level of the PAPA assessments in reading, math, and writing between 48 and 60 credits of course work. These basic skills tests must be passed before students are permitted to take any 300 level or above education course.