Science Education- Biology Concentration
College of Science

SCI-EDU-BS
Code: SIED Conc: BIED
122 Credits

Departmental/Program Major Courses

Required Science Education Core Courses (24-30 Credits)

- Required Chemistry Selective Courses (4-5 credits):
  - (4-5) CHM 11500 General Chemistry or CHM 12300 General Chemistry for Engineers I or CHM 12500 Introduction to Chemistry I *(satisfies Science Selective for core and CHED, ESSE, PHED Concentration Requirement)*
  - OR
  - (5) CHM 12901 General Chemistry With A Biological Focus *(satisfies BIED Concentration Requirement)*

- Required Computing Option (3-4 credits):
  - (3-4) CS 15800 C Programming or CS 17700 Programming With Multimedia Objects *(satisfies CHED Concentration requirement)*
  - OR
  - (3-4) CS 15800 C Programming or CS 17700 Programming With Multimedia Objects or CS 18000 Problem Solving and Object-Oriented Programming *(satisfies BIED, PHED Concentration requirement)*
  - OR
  - (3-4) CS 17700 Programming With Multimedia Objects *(satisfies ESSE Concentration requirement)*

- Required Calculus Selective Courses (6-10 credits):
  - (3) MA 16010 Applied Calculus I *(satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)*
  - (3) MA 16020 Applied Calculus II *(satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)*
  - OR
  - (4-5) MA 16100 Plane Analytic Geometry And Calculus I or MA 16500 Analytic Geometry And Calculus I *(satisfies Quantitative Reasoning for core and BIED, CHED, ESSE, PHED Concentration requirement)*
  - OR
  - (4-5) MA 16200 Plane Analytic Geometry And Calculus II or MA 16600 Analytic Geometry And Calculus II *(satisfies Quantitative Reasoning for core and (satisfies Quantitative Reasoning for core and BIED, CHED, ESSE, PHED Concentration requirement)*

- Required Physics Selective Courses (8 credits):
  - (4) PHYS 17200 Modern Mechanics *(satisfies Science Selective for core/BIED,CHED, ESSE, PHED Concentrations)*
  - (4) PHYS 27200 Electric and Magnetic Interactions or PHYS 24100 Electricity and Optics AND PHYS 25200 Electricity and Optics Laboratory *(satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)*
  - (4) PHYS 23300 Physics For Life Sciences I *(satisfies BIED Concentration)*
  - (4) PHYS 23400 Physics For Life Sciences II *(satisfies BIED Concentration)*

- Required Statistics Selective Courses (3 credits):
  - (3) STAT 30100 Elementary Statistical Methods *(satisfies CHED, ESSE, PHED Concentrations)*
  - OR
  - (3) STAT 50300 Statistical Methods For Biology *(satisfies BIED Concentration)*

Educational Program Course Requirements (36 credits)
Professional Education GPA Average ≥ 3.00 – no grade lower than C-

- (3) EDCI 27000 Introduction To Educational Technology And Computing
- (3) EDCI 20500 Exploring Teaching As A Career
- (3) EDCI 28500 Multiculturalism And Education *(satisfies Behavior/Social Science for University Core) (satisfies Language III/Culture/Diversity Option)*
- (3) EDPS 23500 Learning And Motivation *(satisfies Behavior/Social Science for University Core) (satisfies General Education III Option)*
- (3) EDPS 26500 The Inclusive Classroom *(satisfies Behavior/Social Science for University Core)*
- (1) EDST 20010 Educational Policies and Laws
- (2) EDPS 32700 Assessment Literacy
- (3) EDCI 30900 Reading in Middle and Secondary School
- (3) EDCI 42400 Physical Science In The Secondary Schools *(satisfies Multidisciplinary Experience) – for CHED, ESSE, and PHED Conc OR EDCI 42100 The Teaching of Biology in Secondary School*(satisfies Multidisciplinary Experience)–for BIED
- (2) EDCI 42800 Teaching Science In The Middle And Junior High School
- (10) EDCI 49800 Supervised Teaching *(Meets Teambuilding and Collaboration Experience)*
Other Departmental/Program Course Requirements (21-27)

Within Dept/Program
Calculus I Option - MA 16010 Applied Calculus I (satisfies Quantitative Reasoning for University Core)

Within Dept/Program
Calculus II Option - MA 16020 Applied Calculus II (satisfies Quantitative Reasoning for University Core)

(3-4) Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core)

(3-4) Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core)

Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core)

(3-6) Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core)

Laboratory Science I Option (satisfies Science Selective for core)

Laboratory Science II Option (satisfies Science Selective for core)

(3) General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core)

(3) General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core)

Within Dept/Program
STAT 50300 Statistical Methods For Biology

Within Dept/Program
Computing Option

Within Dept/Program
Teambuilding and Collaboration Experience*

(3) Great Issues Option

Within Dept/Program
Multidisciplinary Experience* (Select courses COULD satisfy Science, Technology, and Society Selective for core)

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Biology Concentration (37-38 credits)

Overall GPA for Biology Concentration courses with the Departmental/Program Major Courses must be ≥ 2.5

Within Dept/Program
MA 16010, 16500 or 16100 Calculus I Option (satisfies Quantitative Reasoning for University Core)

Within Dept/Program
MA 16020, 16600 or 16200 Calculus II Option (satisfies Quantitative Reasoning for University Core)

Within Dept/Program
PHYS 23300 Physics For Life Sciences I or PHYS 17200 Modern Mechanics (satisfies Laboratory Science I Option)

Within Dept/Program
PHYS 23400 Physics For Life Sciences II or PHYS 27200 Electricity & Magnetism or PHYS 24100 Electricity & Optics

Within Dept/Program
AND PHYS 25200 Electricity & Optics Laboratory (satisfies Laboratory Science II Option)

Within Dept/Program
STAT 50300 Biostatistics (satisfies Statistics Option)

Within Dept/Program
C S 15800 or CS 17700 (satisfies Computing Option)

Within Dept/Program
CHM 12901 General Chemistry With A Biological Focus

(4) CHM 25500/25501 or CHM 26505/26300 Organic Chemistry I and Laboratory

(4) CHM 25600/25601 or CHM 26605/26400 Organic Chemistry II and Laboratory

(2-3) BIOL 12100 Biology I: Diversity, Ecology, and Behavior (satisfies Science, Technology & Society for Univ Core)

(3) BIOL 13100 Biology II: Development, Structure, and Function of Organisms

(2) BIOL 13500 First Year Biology Lab or BIOL 14501 First Yr Lab Neuro Res Project or IT 22600 Biotech Lab I

(3) BIOL 23100 Biology III: Cell Structure and Function

(2) BIOL 23200 Lab in Cell Structure and Function

(3) BIOL 24100 BIOL IV: Genetics and Molecular Biology

(2) BIOL 24200 Lab in Genetics and Molecular Biology

(2) BIOL 28600 Intro to Ecology and Evolution

(10) Biology Selectives, One course may satisfy multiple requirements – MUST BE A TOTAL OF 10 CREDITS

(3-4) Intermediate Biology Selective

(2-3) Group A Selective

(2-3) Group B Selective

(3-4) 500 Level Biology Selective

(2-4) Biology Lab Selective

University Core Requirements

Human Cultures Humanities

Human Cultures Behavioral/Social Science

Information Literacy

Science Selective

Science, Technology & Society elective

Written Communication

Oral Communication

Quantitative Reasoning

Note: This degree is intended to give students many options. Students need to consult with a College of Science Academic Advisor regarding requirements.

The student is ultimately responsible for knowing and completing all degree requirements.

(Degree Works) MyPurduePlan is knowledge source for specific requirements and completion

Effective Fall 2016
## Science Education – Biology Concentration

### Suggested Arrangement of Courses:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall 1st Year</th>
<th>Prerequisite</th>
<th>Credits</th>
<th>Spring 1st Year</th>
<th>Prerequisite</th>
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<td>BIOL 12100**^ (meets Science, Technology, Society Requirement)</td>
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<td>BIOL 13500^</td>
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<td>Organic CHM I Selective^</td>
<td>CHM 11600 or 12901</td>
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<tr>
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<td>BIOL 24200^ Spring only</td>
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<td>Technical Writing and Technical Presenting – (COM 21700*)</td>
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<td>EDCI 27000</td>
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<td>Intermediate Biology Selective*</td>
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<td>PHYS II Selective^</td>
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<td>500 Level Biology Selective^</td>
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<td>EDCI 49800 (Teambuilding and Collaboration Experience)</td>
<td>EDCI 20500, 28500 AND EDCI 23500, 25000 (C- or better)</td>
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*Satisfies a University Core Requirement

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122 semester credits required for Bachelor of Science degree.
2.0 average in BIOL courses required to graduate.
2.5 average in Biology concentration ^ courses required to graduate
3.0 average in Professional Education courses required to graduate (No grade below a C-)

The student is ultimately responsible for knowing and completing all degree requirements.

Degree Works is knowledge source for specific requirements and completion

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