PURDUE UNIVERSITY

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)***

(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 Major Calculus I Option - MA 16010 Applied Calculus I ***(satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)***

_____ Within Major Calculus II Option - MA 16020 Applied Calculus II ***(satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)***

_____ (3-4) ENGL 10600 or ENGL 10800 - ***(satisfies Written Communication and Information Literacy for 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)***

_____ Within Ed Program 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)***

_____ Within Major Laboratory Science I Option ***(satisfies Science Selective for core)***

_____ Within Major 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 Ed Program General Education II Option ***(Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core)***

_____ Within Major STAT 50300 Statistical Methods For Biology

_____ Within Major Computing Option

_____ Within Ed Program Teambuilding and Collaboration Experience*

_____ (3) Great Issues Option

_____ Within Ed Program Multidisciplinary Experience* ***(Select courses COULD satisfies 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)***
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	☐ _____	*Science, Technology & Society elective*	☐ _____
Human Cultures Behavioral/Social Science	☐ _____	*Written Communication*	☐ _____
Information Literacy	☐ _____	*Oral Communication*	☐ _____
Science Selective	☐ _____	*Quantitative Reasoning*	☐ _____
Science Selective	☐ _____		

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

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

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

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Effective Fall 2016

Science Education – Biology Concentration

Suggested Arrangement of Courses:

Credits	Fall 1st Year	Prerequisite	Credits	Spring 1st Year	Prerequisite
2	BIOL 12100*^ (meets Science, Technology, Society Requirement)		3	BIOL 13100^	
2	BIOL 13500^	CHM 12901 coreq	4	Organic CHM I Selective^	CHM 11600 or 12901
5	CHM 12901*^ Fall only	Calc I coreq	3	Calc II Option*^ (MA 16020)	Calc I
3	Calc I Option*^ (MA 16010)	ALEKS 75	3	Language II Option	Language I Option
3	Language I Option*		3-4	ENGL 10600 or 10800*	
15			**16-17**		

Credits	Fall 2nd Year	Prerequisite	Credits	Spring 2nd Year	Prerequisite
3	BIOL 23100^	CHM 12901, BIOL 13100	3	BIOL 24100^	BIOL 23100
2	BIOL 23200^		2	BIOL 24200^ Spring only	
4	Organic CHM II Selective^	Organic I lecture	2	BIOL 28600^	BIOL 12100
3	General Education I Option		1	EDST 20010	
3	Technical Writing and Technical Presenting – (COM 21700*)		3	EDCI 27000	
			3	General Education II Option	
15			**14**		

Credits	Fall 3rd Year	Prerequisite	Credits	Spring 3rd Year	Prerequisite
3-4	Intermediate Biology Selective^	varies	3	Group B Selective^	varies
2-3	Group A Selective^	varies	4	PHYS II Selective^	PHYS I
4	PHYS I Selective^	varies	3-4	CS Option^	
3	Great Issues Option	varies	3	EDPS 23500* (General Education III Option)	
3	EDCI 20500		3	EDPS 26500	
3	EDCI 28500* (Language III/Culture/Diversity Option)				
18-20			**16-17**		

Credits	Fall 4th Year	Prerequisite	Credits	Spring 4th Year	Prerequisite
2-4	Biology Lab Selective(s)^		2	EDCI 42800 Spring only	EDCI 20500, 28500 AND EDPS 23500, 26500 (C- or better) AND EDCI 42100
3	STAT 50300^		3	EDCI 30900	
3-4	500 Level Biology Selective^	varies	10	EDCI 49800 (Teambuilding and Collaboration Experience)	EDCI 20500, 28500 AND EDPS 23500, 26500 (C- or better)
3	EDCI 42100 Fall only (Multidisciplinary Experience)	EDCI 20500, 28500 AND EDPS 23500, 26500 (C- or better)			
2	EDPS 32700	EDPS 23500			
13-16			**15**		

*Satisfies a University Core Requirement

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-)

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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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