

Bachelor of Science in Biology and Education with Endorsement in Secondary Education in Biology			
MAJOR REQUIREMENTS/BIOLOGY: 45 Credits (a)		MAJOR REQUIREMENTS/EDUCATION: 24 Credits (c)	
BY-109: Intro to Biodiversity & Evolution	4.0	ED-250: Foundations of Teaching and Learning	3.0
BY-110: Intro to Cell & Molecular Biology	4.0		
BY-205: Zoology	3.0		
BY-214: Botany	3.0		
BY-223: General Microbiology	4.0	EDL-201: Educational Psychology	3.0
BY-310: Biochemistry and Laboratory	4.0		
BY-370: Cell Biology	3.0		
BY-375L: Lab in Molecular & Cellular Biology	3.0		
BY-423: Genetics	4.0	EDL-206: Child and Adolescent Development	3.0
BY-425: Principles of Developmental Biology	4.0		
<b>Take 8 Credits of Biology from the Following Courses:</b>	8.0	ED-319: Content Literacy	3.0
BY-211: Physiology with Anatomy I			
BY-212: Physiology with Anatomy II		ED-320: Teaching Students with Diverse Needs	3.0
BY-324: Applied Microbiology			
BY-340: Ecology			
BY-406: Introduction to Neurosciences			
BY-410: Molecular Biology		<b>9 Credits as Follows (d):</b>	
BY-475: Endocrinology		ED-416: Student Teaching <b>AND</b>	8.0
BY-499: Independent Study in Biology		ED-416S: Seminar in Student Teaching	1.0
			1.0
BY-495: Senior Seminar	1.0		
BIOLOGY OUTSIDE MAJOR REQUIREMENTS: 30 Credits		EDUCATION METHODS REQUIREMENTS: 6 Credits (c)	
MA-115: Intro to Math. Models in Bio. Science	3.0		
or MA-116: Calculus for the Biological Science		ED-369: Methods of Teaching Science for the Secondary Teacher Part I	3.0
or MA-116: Calculus for the Biological Science		<b>*OR*</b>	
		ED-375: Integrated Secondary Teaching Methods Part I	
MA-151: Statistics with Applications	3.0		
		ED-370: Methods of Teaching Science for the Secondary Teacher Part II	3.0
CE-111: General Chemistry	3.0	<b>*OR*</b>	
CE-111L: General Chemistry Lab	1.0	ED-376: Integrated Secondary Teaching Methods Part II	
CE-112: General Chemistry	3.0		
CE-112L: General Chemistry Lab	1.0		
CE-241: Organic Chemistry	3.0		
CE-241L: Organic Chemistry Lab	2.0		
CE-242: Organic Chemistry	3.0		
PH-105: Physics for the Life Sciences	3.0		
PH-105L: Physics for the Life Sciences Lab	1.0		
PH-106: Physics for the Life Sciences	3.0		
PH-106L: Physics for the Life Sciences Lab	1.0		
<p>(a) Courses BY-101 through BY-108 are not used to calculate major GPA.</p> <p>(b) BY-102, BY-104, BY-105, and BY-106 are not available to BY majors.</p> <p>(c) Minimum grade of "C" required for Education Courses</p> <p>(d) Students must complete the appropriate test requirement(s) with a passing score PRIOR to Student Teaching.</p>			

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GENERAL EDUCATION REQUIREMENTS: 36 Credits		Credits
First Year Seminar	FY-101: First Year Seminar *(Select Section "BY")	3.0
Reading and Writing	EN-101: College Composition I	3.0
	EN-102: College Composition II	3.0
Mathematics	Fulfilled in Biology Outside Maj. Requirements with MA-115, or MA-116, or MA-125, and/or MA-151	0.0
Natural Sciences	Fulfilled in Major Requirements with required BY courses	0.0
Literature	3 Credits from courses designated with Course*Type: LIT	3.0
Aesthetics and Creativity	3 Credits from Art, Music, Theatre, or Dance	3.0
Technological Literacy	IT-102: Information Technology for Scientists	3.0
Reasoned Oral Discourse	Fulfilled in Major Requirements with BY-375L, or ED-320	0.0
Historical Perspective	3 Credits from courses designated with Course*Type: HS.SV	3.0
Social Science	3 Credits from courses designated with Course*Type: SS.SV	3.0
Historical	3 Credits from courses designated with Course*Type: HS.SV or 3 Credits from courses designated with Course*Type: SS.SV	3.0
Interdisciplinary Perspectives	3 Credits from courses designated with Course*Type: ISP	3.0
Cultural Diversity and Global Understanding or Foreign Language	3 Credits from courses designated with Course*Type: CD	6.0
	and 3 Credits from courses designated with Course*Type: GU or 6 Credits from the SAME foreign language	
Experiential Education	One course designated with Course*Type: EX	0.0
Writing Intensive	Two courses from Biology (BY) designated with Course*Type: WT	0.0
	Two courses from Education (ED, EDL, EDS) designated with Course*Type: WT	0.0
		0.0

**Minimum Credits for Bachelor of Science in Biology and Education with Endorsement in Secondary Education in Biology = 141.0**

**ADDITIONAL ENDORSEMENTS AVAILABLE:**  
• TSD - Teacher of Students with Disabilities - Secondary • ESL - English as a Second Language - Secondary

**NOTES:**

\* 58 credits must be completed at the 200 level or higher.

\*\* Education majors are required to have an overall GPA of 3.00 for State Certification.

\*\*\*By state regulation, all Education Majors seeking content area endorsement must complete 30 content credits (12+ credits at the 300+ level).