

**BACHELOR OF SCIENCE IN EDUCATION, Science and Mathematics Education  
Earth Sciences Education  
Program Sheet**

Effective for students admitted to the College of Education and Human Ecology beginning Summer 2017

<b>COURSE &amp; NUMBER</b>	<b>HRS</b>	<b>COURSE &amp; NUMBER</b>	<b>HRS</b>
		<b>Pre-Major Requirements (61-63 hours)</b>	
<b>General Education (28-34 hours)</b>		<b>Professional Pre-Major (9 hours)</b>	
		ESCE 2189S – First Education Experience Program (also fulfills Open Option GE)	3
<b>Writing (6)</b>		ESPHE 3410- Philosophy of Education (also fulfills Culture & Ideas GE)	3
ENGLISH 1110.01 or 1110.02 or <sup>1</sup> 1110.03	3	ESEPSY 5401 – Adolescent Learning & Development in School Context or HDFS 2420 - Adolescence and Emerging Adult Development	3
<sup>3</sup> 2 <sup>nd</sup> Level Writing Course ( 2367)	3	<b>Content (52-54)</b>	
		CHEM 1210 (also fulfills Science GE) - Chemistry I <sup>L</sup>	5
<b><sup>2</sup>Literature (3)</b>	3	CHEM 1220 (also fulfills Science GE) - Chemistry II <sup>L</sup>	5
		BIOL 1113 (also fulfills Science GE) – Biology I <sup>L</sup>	4
<b><sup>2</sup>Arts (3)</b>	3	BIOL 1114 – Biology II <sup>L</sup>	4
		EARTHSCI 1121 (also fulfills Open Option GE) - The Dynamic Earth <sup>L</sup>	4
<b>Math (5-7)</b>		EARTHSCI 1122 - Earth Through Time <sup>L</sup>	4
Math Placement M or higher, MATH 1148 or Equiv	0-4	ASTRON 1101, 1140, 1142, 1143 or EARTHSCI 2205- Astronomy <sup>L</sup>	3
MATH 1149 or 1150	3-5	EARTHSCI 2206, 5206 or 5584 Oceanography <sup>L</sup>	2-3
		GEOG 5900 Weather, Climate, and Global Warming <sup>L</sup>	3
<b>Data Analysis (3)</b>		EARTHSCI 5189.06 or 5580 Field Geology <sup>L</sup>	2
STAT 1350 or 1450		EEOB 3310 Evolution or ANTHRO 3315 <sup>L</sup>	3-4
		PHYSICS 1200 or 1250 – Mech, Kinem, Fluids, Waves <sup>L</sup>	5
<b><sup>2</sup>Historical Study (3)</b>	3	PHYSICS 1201 or 1251 – E&M, Optics, Modern Physics <sup>L</sup>	5
		EARTHSCI 2203, ENR 2100- Intro to Environ Sci, or EARTHSCI 2204- Exploring Water Issues <sup>L</sup>	3
<b><sup>3</sup>Social Sciences (6)</b>	6	<b>Major Requirements (43 hours)</b>	
Take two social science courses from the University approved GE list. Choose from 2 different subcategories.		EDUTL 5501 - Inclusion: Philos, Social, and Practice Issues	3
		EDUTL 5442 – Teaching Reading Across the Curriculum	3
<b>University Requirement (1)</b>		EDUTL 5721 – Methods in Teaching STEM I	3
EHE 1100	1	EDUTL 5722 – Methods in Teaching STEM II	5
		EDUTL 5005 – Equity and Diversity in Education	3
		EDUTL 5741 – Learning, Cognition, & Teaching in STEM	3
		EDUTL 5744 – Technologies Used in STEM	3
		EDUTL 5745 –Assessment in STEM I: Introduction	3
<b>Major Admission Requirements:</b> Competitive application process requiring completion of application. Students should consult their academic advisor to discuss eligibility and the application process. While a 2.75 CGPA is required for admission, meeting the minimum requirements does not guarantee admission.		EDUTL 5195 – Reflective Seminar	2
		EDUTL 4189 – Advanced Field Experience	3
		<sup>4</sup> EDUTL 5191 – Supervised Student Teaching Internship	10
		EDUTL 5195 – Reflective Seminar	2
<b>FREE ELECTIVES (0)</b>		<b>TOTAL HOURS REQUIRED*</b>	132-140
<b>Successful completion of the Ohio Assessment for Educators examinations are required prior to student teaching. Cumulative grade point average of 2.75 required at time of graduation in order to be recommended for state of Ohio teacher licensure.</b>			

<sup>1</sup> English 1110.03 must be taken concurrently with English 1193.03

<sup>2</sup>Students must complete two Global Issues courses, which are typically met by selecting Literature, Art, Cultures & Ideas, or Historical Study courses that meet this requirement.

<sup>3</sup> Students must complete one Social Diversity in the US course, which is typically met by selecting a 2nd Writing, Historical Study, or Social Science course that meets this requirement.

<sup>4</sup> A grade of B- or better is required.

<sup>L</sup> Courses that are required for state license. Cumulative grade point average of 2.75 required at time of graduation in these courses in order to be recommended for state of Ohio teacher licensure. Course grades transferred from other institutions will also be included in these GPA calculations.

**Dual License Requirements:** Students wishing to pursue a dual license will need to take and achieve a 2.75 CGPA in the following courses in addition to the major above.

<b>Earth Science and Life Science</b>			
<b>COURSE &amp; NUMBER</b>	<b>HRS</b>	<b>COURSE &amp; NUMBER</b>	<b>HRS</b>
CHEM 2510 – Organic Chemistry I	4	BIOCHEM 4511 – Biological Chemistry	4
MOLGEN 3300 – General Plant Biology	3	MICROBIOL 4000 - Microbiology	4
MOLGEN 4500 – General Genetics	3		
		<b>Additional Hours</b>	18

<b>Earth Science and Chemistry</b>			
<b>COURSE &amp; NUMBER</b>	<b>HRS</b>	<b>COURSE &amp; NUMBER</b>	<b>HRS</b>
CHEM 2210 - Analytical Chemistry I	5	BIOCHEM 4511- Introduction to Biological Chemistry	4
CHEM 2510 – Organic Chemistry I	4	MATH 1151- Calculus I	5
CHEM 2540 – Organic Chemistry Lab I or BIOCHEM 5621	2	MATH 1152- Calculus II	5
*Notes: Complete PHYSICS 1250 & 1251 above		<b>Additional Hours</b>	25

<b>Earth Science and Physics</b>			
<b>COURSE &amp; NUMBER</b>	<b>HRS</b>	<b>COURSE &amp; NUMBER</b>	<b>HRS</b>
MATH 1151- Calculus I	5	PHYSICS 2300	4
MATH 1152- Calculus II	5	PHYSICS 2301	4
MATH 2153 – Calculus III	4	PHYSICS 4700	3
*Notes: Complete PHYSICS 1250 & 1251 above		<b>Additional Hours</b>	25

<b>Integrated Science</b>			
<b>COURSE &amp; NUMBER</b>	<b>HRS</b>	<b>COURSE &amp; NUMBER</b>	<b>HRS</b>
MATH 1151- Calculus I	5	CHEM 2510 – Organic Chemistry I	4
MATH 1152- Calculus II	5	MOLGEN 4500 – General Genetics	3
MATH 2153 – Calculus III	4	BIOCHEM 4511 – Biological Chemistry	4
PHYSICS 2300 - Intermediate Mechanics I	4	MICROBIOL 4000 – Microbiology	4
PHYSICS 2301- Intermediate Mechanics II	4		
*Notes: Complete PHYSICS 1250 & 1251 above		<b>Additional Hours</b>	37