

**ACADEMIC ROADMAP: Earth Sciences, Earth Science Concentration (BS)**

(This roadmap is specially designed for students planning to apply to the MSED program upon the successful completion of their BS degree to pursue teaching certification in NYS for Earth Sciences) (*Recommended courses in italics - these courses will greatly improve your performance in the major and are expected of any student planning to apply to graduate school.*)

**Freshman Year**

FIRST SEMESTER (Fall) (16 cr.)			SECOND SEMESTER (Spring) (15 cr.)		
Course Title	Catalog Number	Prerequisite(s)	Course Title	Catalog Number	Prerequisite(s)
Introductory Geology	GES 101	None	Historical Geology	GES 102	None
Introductory Geology Laboratory (1 cr)	GES 103	Co-registration with GES 101	Introductory Astronomy	GES 131	None
College Writing I	CWP 101		College Writing II	CWP 102	CWP 101
<i>Applied Calculus I (4cr) or</i> Appropriate MAT by advisement	<i>MAT 126</i>	4 years Regents High School Math	<i>Applied Calculus II (4cr)</i>	<i>MAT 127</i>	<i>MAT 126</i>
Intellectual Foundations course			<i>‡ Nature and Needs of Individuals with Special Needs (IF Diversity)</i>	<i>EXE 100</i>	<i>None</i>
Intellectual Foundations course					

Freshmen should satisfy the following IF 14 requirements as soon as possible: CWP 101 and 102; an appropriate math course or sequence to fulfill the Mathematics & Quantitative Reasoning requirement; Global Engagement requirement (students applying to the MSED program must demonstrate foreign language competency to the 102 level). It is important to balance some courses in the major with IF 14 courses to ensure timely degree completion.

**Sophomore Year**

THIRD SEMESTER (17 cr.)			FOURTH SEMESTER (17 cr.)		
Course Title	Catalog Number	Prerequisite(s)	Course Title	Catalog Number	Prerequisite(s)
Invertebrate Paleontology (4 cr)	GES 302	GES 102	Geomorphology (4 cr)	GES 307	GES 101, GES 103
Oceanography	GES 111	None	Meteorology	GES 241	
<i>Fundamentals of Chemistry I (4 cr)</i>	<i>CHE 111</i>	None	<i>Fundamentals of Chemistry II (3 cr /1 cr laboratory)</i>	<i>CHE 112/ CHE 114</i>	<i>CHE 111</i>
Intellectual Foundations course			Intellectual Foundations course		
Intellectual Foundations course			Intellectual Foundations course		

**Junior Year**

FIFTH SEMESTER (17 cr.)			SIXTH SEMESTER (17 cr.)		
Course Title	Catalog Number	Prerequisite(s)	Course Title	Catalog Number	Prerequisite(s)
Mineralogy and Petrology (4 cr)	GES 303	GES 101, GES 103	Structural Geology (4 cr)	GES 408	GES 101, GES 103
<i>General Physics I (4 cr) or</i> <i>University Physics I (5 cr)</i>	<i>PHY 107</i> <i>PHY111</i>		Upper division Astronomy course		GES 131
<i>† Undergraduate research</i>	<i>GES 499</i>		<i>General Physics II (4 cr) or</i> <i>University Physics II (5 cr)</i>	<i>PHY 108</i> <i>PHY112</i>	<i>PHY 107</i> <i>PHY 111</i>
<i>‡ Introduction to Biology (4 cr) or</i>	<i>BIO 111</i>		<i>* 200 level Biology course (4 cr)</i>	<i>BIO 2--</i>	<i>BIO 111</i>
<i>‡ Educational Psychology: Middle and Secondary Education</i>	<i>SPF 303</i>	<i>Upper division status</i>	Intellectual Foundations course or all-college elective		

**Senior Year**

SEVENTH SEMESTER (15 – 18cr.)			EIGHTH SEMESTER (15 – 18cr.)		
Course Title	Catalog Number	Prerequisite(s)	Course Title	Catalog Number	Prerequisite(s)
Upper division GES Elective by advisement (3 – 4 cr)			Geology of North America	GES 405	GES 101, GES 103
<i>* ‡ Upper division all college elective</i>			<i>‡ Teaching Literacy in Middle &amp; Secondary Schools</i>	<i>EDU 416</i>	<i>Upper division status</i>
<i>* Upper division all college elective</i>			<i>* Upper division all college elective</i>		

\* 33 credits worth of upper division coursework (courses at the 300 and 400 level) is required for all SUNY Buffalo State degrees.

† All students are strongly encouraged to pursue undergraduate research.

‡ Students interested in pursuing a Master of Science in Science Education (M.S.Ed.) degree and teaching certification are encouraged to take these courses in order to help determine if a teaching career is right for them. In addition, Next Generation Science standards require familiarity with global warming, natural resources, the water cycle, human impacts, and natural systems. All-college electives should be chosen from courses in these topical areas. Discuss options with your advisor.