

# GEOLOGY COMPREHENSIVE MAJOR: SECONDARY LICENSURE IN EARTH-SPACE SCIENCE EMPHASIS (WITH A 3+2 MASTER OF ARTS IN EDUCATION)

The 3+2 Secondary and K-12 Licensure Program allows students to complete a B.A. in their academic major with an emphasis in Secondary and K-12 Licensure and a Master of Arts in Education in five years. Students apply to the program by December of their junior year. MUS majors interested in the program need to set up an individualized plan with their MUS and EDUC advisors. To be accepted into the 3+2 Program, each student must:

- Provide letters of recommendation from at least one Education Department faculty member and one faculty member from the student’s major
- Prove content, as defined by the Colorado Department of Education
- Be accepted into Western’s Teacher Licensure Program
- Successfully complete EDUC 340 (by Spring of junior year)
- Be on track to complete all coursework required within the academic major

Upon satisfactory completion of these requirements, students will be designated as “MAED candidates with provisional acceptance.” Upon completion of the final undergraduate credits for the Western B.A., students will be designated as “MAED degree-seeking students.” Students who have completed all other requirements of the 3+2 Secondary and K-12 Licensure Degree Program and all Western undergraduate requirements, yet choose to leave the MAED program before Year Five, will still have completed the BA in Secondary and K-12 Licensure, have earned 120 credits necessary for a Western undergraduate degree, and be eligible to apply for initial teacher licensure .

## Program Requirements

Students interested in pursuing this comprehensive program should consult with the Teacher Education Program advisor in addition to the advisor in their major as soon as possible.

The Secondary Licensure in Earth-Space Science Emphasis requires a minimum of 64 credits. In addition, the student must fulfill the requirements of the Secondary Licensure 3+2 Program (<https://catalog.western.edu/graduate/programs/education/#programrequirementstext>) (see description under Education), and the following:

Code	Title	Credits
<b>Geology Requirements</b>		
GEOL 101 or GEOL 103	Physical Geology (GT-SC2) Earth and Energy Systems	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 201	Historical Geology (with laboratory)	4

GEOL 302	Geoscience Writing	2
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
GEOL 315	Earth Materials (with laboratory)	4
GEOL 320	Geomorphology (with laboratory)	4
GEOL 345	Structural Geology (with laboratory)	4
GEOL 450	Field Geology	4

### Required Supporting Courses

BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
MATH 141 or MATH 151	Precalculus (GT-MA1) Calculus I (GT-MA1)	4
PHYS 110	Introductory Astronomy (GT-SC2)	3
PHYS 120	Meteorology (GT-SC2)	3

Select one of the following pairs of courses: 8

PHYS 170 & PHYS 185 AND	Principles of Physics I (GT-SC2) and Laboratory Physics I (GT-SC1)	
PHYS 171 & PHYS 186	Principles of Physics II (GT-SC2) and Laboratory Physics II (GT-SC1)	

OR

PHYS 190 & PHYS 185 AND	General Physics I (GT-SC2) and Laboratory Physics I (GT-SC1)	
PHYS 191 & PHYS 186	General Physics II (GT-SC2) and Laboratory Physics II (GT-SC1)	

**Total Credits 64**

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ENG 102	Writing and Rhetoric I (GT-C01)	3
Gen Ed	General Education courses	6
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
HWTR 100	First Year Seminar	1
<b>Credits</b>		<b>14</b>
<b>Spring</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
Gen Ed	General Education course	3
GEOL 201	Historical Geology (with laboratory)	4
MATH 141	Precalculus (GT-MA1) (or higher, depending on MATH placement) <sup>1</sup>	4
<b>Credits</b>		<b>15</b>
<b>Year Two</b>		
<b>Fall</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
Gen Ed	General Education course	3
GEOL 302	Geoscience Writing	2
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
PHYS 110	Introductory Astronomy (GT-SC2)	3
<b>Credits</b>		<b>16</b>

2 Geology Comprehensive Major: Secondary Licensure in Earth-Space Science Emphasis (with a 3+2 Master of Arts in Education)

<b>Spring</b>		
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
ENG 103	Writing and Rhetoric II (GT-CO2)	3
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
GEOL 345	Structural Geology (with laboratory)	4
<b>Credits</b>		<b>15</b>
<b>Year Three</b>		
<b>Fall</b>		
BIOL 301	General Ecology	3
GEOL 305	Mineralogy (with laboratory)	4
GEOL 320	Geomorphology (with laboratory)	4
GEOL 495	Geology Seminar	1
PHYS 170 or PHYS 190	Principles of Physics I (GT-SC2) or General Physics I (GT-SC2)	3
PHYS 185	Laboratory Physics I (GT-SC1)	1
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
EDUC 340	Application of Pedagogy and Practice	3
Gen Ed	General Education courses	6
PHYS 120	Meteorology (GT-SC2)	3
PHYS 171 or PHYS 191	Principles of Physics II (GT-SC2) or General Physics II (GT-SC2)	3
PHYS 186	Laboratory Physics II (GT-SC1)	1
<b>Credits</b>		<b>16</b>
<b>Summer</b>		
GEOL 450	Field Geology	4
<b>Credits</b>		<b>4</b>
<b>Year Four</b>		
<b>Fall</b>		
EDUC 603	Content Area Learning	3
EDUC 604	Learning Environments	3
EDUC 605	Curriculum Development and Assessment	3
EDUC 609	Secondary Student Teaching	3
EDUC 624	Managing to Differentiate	3
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
EDUC 606	Reading and Writing Across the Content Areas	3
EDUC 607	Rethinking Learning in the 21st Century	3
EDUC 609	Secondary Student Teaching	3
EDUC 629	Inclusion and English Learners	3
<b>Credits</b>		<b>12</b>
<b>Total Credits</b>		<b>123</b>

<sup>1</sup> Geology requires completion of mathematics through Calculus II. Additional mathematics courses may be required and would fill Elective courses as needed.