

# EDUCATION: SECONDARY EDUCATION, GEOSCIENCES (BS)

Degree: Bachelor of Science  
Major: Geosciences  
Concentration: Secondary Education  
Program Code: 3474

## About This Major . . .

The Geosciences secondary licensure degree is structured for graduates to pursue teaching careers at the middle or high school level. The basic curriculum includes all of the major topics within a traditional geology program while also incorporating teacher education courses required for licensure by the state of Colorado. The degree plan includes basic chemistry, physics, and biology. Instruction takes place in a state of the art science complex on campus which houses several instructional laboratories, projects rooms, a computer applications lab, petrology-mineralogy lab, and rock storage facilities. Most classes include a strong field component, allowing students to take advantage of the diverse geological setting of the Grand Junction area. Students have access to department equipment that includes research petrographic microscopes, binocular microscopes, a computer-assisted x-ray diffractometer, scanning electron microscopes, GPS units, short- and long-period seismometers, and a magnetometer.

The secondary licensure program provides teacher education candidates with broad content knowledge in science and prepares them as teachers for grades 7 through 12. A minimum of 75 credit hours of Essential Learning and content area coursework must be completed with a minimum GPA of 2.80 before a candidate may apply for admission to the Center for Teacher Education secondary licensure program. Please see the Teacher Education Admission Packet for further information on admissions criteria. EDUC 115, What It Means to be an Educator, and EDUC 215, Teaching as a Profession, must be taken before applying to the program.

Important information about this degree:

- 2.80 cumulative GPA or higher in all CMU coursework.
- 2.80 cumulative GPA or higher in coursework toward the major content area.
- A "C" or higher is required in all major and foundation courses.
- All EDUC prefix courses must be completed with a grade of "B" or better.
- Students must pass the PRAXIS II exam in the content area prior to beginning the internship. Also, all other coursework toward the degree must be successfully completed prior to the internship.

For more information on what you can do with this major, visit Career Services' [What to Do with a Major?](#) resource.

All CMU baccalaureate graduates are expected to demonstrate proficiency in specialized knowledge/applied learning, quantitative fluency, communication fluency, critical thinking, personal and social responsibility, and information literacy. In addition to these campus-wide student learning outcomes, graduates of this major will be able to:

- Geosciences Outcome 1: Articulate the fundamental knowledge base and ideas of the major fields of geoscience. (Specialized Knowledge)
- Geosciences Outcome 2: Collect and interpret geoscience field data. (Applied Learning/Critical Thinking)
- Geosciences Outcome 3: Collect and interpret geoscience laboratory data. (Applied Learning/Critical Thinking)
- Geosciences Outcome 4: Use technology (e.g. computer software) for evaluating quantitative geoscience data. (Quantitative Fluency)
- Geosciences Outcome 5: Write an effective report on a geoscience study. (Communication Fluency)
- Geosciences Outcome 6: Give an effective oral presentation on a geoscience study. (Communication Fluency)
- Teacher Education Outcome 1: Demonstrate mastery of major area's content knowledge and pedagogical strategies through fieldwork with learners in professional settings. (Specialized Knowledge/Applied Learning)
- Teacher Education Outcome 2: Design and establish a safe, inclusive, and respectful learning environment for a diverse population of students. (Specialized Knowledge/Applied Learning)
- Teacher Education Outcome 3: Plan and deliver effective instruction to students, based on research-based pedagogical practices. (Communication Literacy/Information Literacy)
- Teacher Education Outcome 4: Collect and analyze student assessment data and use results to inform planning and instruction. (Quantitative Fluency)
- Teacher Education Outcome 5: Demonstrate professionalism through ethical conduct, reflection, and leadership. (Personal and Social Responsibility)

## Requirements

Each section below contains details about the requirements for this program. Select a header to expand the information/requirements for that particular section of the program's requirements.

**To print or save an overview of this program's information, including the program description, learning outcomes, requirements, suggested course sequencing (if applicable), and advising and graduation information, scroll to the bottom of the left-hand navigation menu and select "Print Options."** This will give you the options to either "Send Page to Printer" or "Download PDF of This Page." The "Download PDF of This Page" option prepares a much more concise presentation of all program information. The PDF is also printable and may be preferable due to its brevity.

## Institutional Degree Requirements

The following institutional degree requirements apply to all CMU baccalaureate degrees. Specific programs may have different requirements that must be met in addition to institutional requirements.

- 120 semester hours minimum.
- Students must complete a minimum of 30 of the last 60 hours of credit at CMU, with at least 15 semester hours in major discipline courses numbered 300 or higher.
- 40 upper-division credits (an alternative credit limit applies to the Bachelor of Applied Science degree).
- 2.00 cumulative GPA or higher in all CMU coursework.
- A course may only be used to fulfill one requirement for each degree/certificate.

- No more than six semester hours of independent study courses can be used toward the degree.
- Non-traditional credit, such as advanced placement, credit by examination, credit for prior learning, cooperative education and internships, cannot exceed 30 semester credit hours for a baccalaureate degree. A maximum of 15 of the 30 credits may be for cooperative education, internships, and practica.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Capstone exit assessment/projects (e.g., Major Field Achievement Test) requirements are identified under Program-Specific Degree Requirements.
- The Catalog Year determines which program sheet and degree requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements you should follow.
- See "Requirements for Undergraduate Degrees and Certificates" in the catalog for a complete list of graduation requirements.

Specific to this program:

- 126 semester hours required for the BS in Geosciences, Secondary Education.
- 2.80 cumulative GPA or higher in all CMU coursework.

Essential Learning Requirements

(31 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is an Essential Learning option and a requirement for your major, you must use it to fulfill the major requirement and make a different selection for the Essential Learning requirement.

Code	Title	Semester Credit Hours
English <sup>1</sup>		
ENGL 111	English Composition I-GTCO1	3
ENGL 112	English Composition II-GTCO2	3
Mathematics <sup>2</sup>		
MATH 113	College Algebra-GTMA1 (or higher) <sup>3</sup>	3
History		
Select one History course		3
Humanities		
Select one Humanities course		3
Social and Behavioral Sciences		
PSYC 233	Human Growth and Development-GTSS3 <sup>4</sup>	3
Select one Social and Behavioral Sciences course <sup>5</sup>		3
Fine Arts		
Select one Fine Arts Course		3
Natural Sciences <sup>6</sup>		
BIOL 105	Attributes of Living Systems-GTSC1	3
BIOL 105L	Attributes of Living Systems Laboratory-GTSC1	1
Select one Natural Science course		3
Total Semester Credit Hours		31

<sup>1</sup> Must receive a grade of "B" or better and must be completed by the time the student has 60 semester hours.

- <sup>2</sup> Must receive a grade of "C" or better, must be completed by the time the student has 60 semester hours.
- <sup>3</sup> This is a 4 semester credit hour course. 3 credits apply to the Essential Learning requirements and one credit applies to foundation courses.
- <sup>4</sup> Must receive a grade of "B" or better.
- <sup>5</sup> GEOG 103 - World Regional Geography (3) recommended.
- <sup>6</sup> One course must include a lab.

Other Lower Division Requirements

Code	Title	Semester Credit Hours
Wellness Requirement		
KINE 100	Health and Wellness	1
Select one Activity course		1
Essential Learning Capstone <sup>1</sup>		
ESSL 290	Maverick Milestone	3
ESSL 200	Essential Speech	1
Total Semester Credit Hours		6

<sup>1</sup> Essential Learning Capstone must be taken after completion of the Essential Learning English and Mathematics requirements, and when a student has earned between 45 and 75 hours.

Foundation Courses

(17 semester hours, must earn a grade of "C" or better in each course.)

Code	Title	Semester Credit Hours
MATH 113	College Algebra-GTMA1 <sup>1</sup>	1
CHEM 131	General Chemistry I-GTSC1	4
CHEM 131L	General Chemistry Laboratory I-GTSC1	1
PHYS 101	Elementary Astronomy-GTSC2	3
PHYS 111	General Physics-GTSC1	4
PHYS 111L	General Physics Laboratory-GTSC1	1
MATH 130	Trigonometry	3
Total Semester Credit Hours		17

<sup>1</sup> This is a 4 semester credit hour course. 3 credits apply to the Essential Learning requirements and one credit applies to foundation courses.

Program Specific Degree Requirements

(40 semester hours, must pass all courses with a grade of "C" or higher with a 2.8 accumulative GPA or higher)

- Students must pass the PRAXIS II exam in the content area prior to beginning the internship. Also, all other coursework toward the degree must be successfully completed prior to the internship.

Code	Title	Semester Credit Hours
Core Courses		
GEOL 103	Weather and Climate-GTSC2	3

or GEOL 104	Oceanography-GT-SC2	
Select one of the following: <sup>1</sup>		4
GEOL 111 & 111L	Principles of Physical Geology-GTSC1 and Principles of Physical Geology Laboratory-GTSC1	
GEOL 113 & 113L	Field-Based Introduction to Physical Geology-GTSC1 and Field-Based Introduction to Physical Geology Laboratory-GTSC1	
GEOL 112	Principles of Historical Geology-GTSC1	3
GEOL 112L	Principles of Historical Geology Laboratory-GTSC1	1
GEOL 202	Introduction to Field Studies	3
GEOL 204	Computer Applications in Geology	3
GEOL 250	Environmental Geology	3
GEOL 301	Structural Geology	3
GEOL 301L	Structural Geology Laboratory	1
GEOL 331	Crystallography and Mineralogy	3
GEOL 331L	Crystallography and Mineralogy Laboratory	1
GEOL 340	Igneous and Metamorphic Petrology	3
GEOL 340L	Igneous and Metamorphic Petrology Laboratory	1
GEOL 402	Applications of Geomorphology	3
GEOL 402L	Applications of Geomorphology Laboratory	1
GEOL 444	Sedimentology and Stratigraphy	3
GEOL 444L	Sedimentology and Stratigraphy Laboratory	1
<b>Total Semester Credit Hours</b>		<b>40</b>

<sup>1</sup> Either GEOL 111/GEOL 111L or GEOL 113/GEOL 113L may be taken for credit, but not both.

## Secondary Education Requirements

(29 semester hours, must earn a grade of "B" or better in each course.)

### Program

Requirements: ENGL 111, ENGL 112, PSYC 233, EDUC 115 and EDUC 215 (all with a grade of B or better) and formal acceptance to the Teacher Education Program.

Code	Title	Semester Credit Hours
EDUC 115	What It Means To Be An Educator (8 field experience hours)	1
EDUC 215	Teaching as a Profession (12 field experience hours)	1
EDUC 342	Pedagogy and Assessment: Secondary and K-12 (20 field experience hours)	3
EDUC 343	Teaching to Diversity (20 field experience hours)	3
EDUC 442	Integrating Literacy Across the Curriculum: Secondary and K-12 Art (60 field experience hours)	3
EDUC 475	Classroom Management for K-12 Educators	1
EDUC 497	Content Methodology Practicum (80 field experience hours)	3
EDUC 497D	Methods of Teaching Secondary Science <sup>1</sup>	2
EDUC 499G	Teaching Internship and Colloquia: Secondary (600 12 field experience hours)	

Praxis II Exam Passed	
<b>Total Semester Credit Hours</b>	<b>29</b>

<sup>1</sup> This course is only offered in the fall semester. It may be taken with either the 300-level or 400-level EDUC courses but must be taken before the student teaching semester.

All EDUC prefix courses listed above must be completed with a grade of B or better to progress through the program sequence.

Students must pass the PRAXIS II exam in the content area prior to commencing the internship. Also, ALL other coursework toward the degree must be successfully completed prior to the internship.

## General Electives

All college level courses appearing on your final transcript, not listed above that will bring your total semester hours to 120 hours. 3 semester hours.

Code	Title	Semester Credit Hours
Select electives		3
<b>Total Semester Credit Hours</b>		<b>3</b>

## Suggested Course Plan

<b>First Year</b>		
<b>Fall Semester</b>		<b>Semester Credit Hours</b>
GEOL 103 or GEOL 104	Weather and Climate-GTSC2 or Oceanography-GT-SC2	3
Select one of the following:		4
GEOL 111 & 111L	Principles of Physical Geology-GTSC1 and Principles of Physical Geology Laboratory-GTSC1	
GEOL 113 & 113L	Field-Based Introduction to Physical Geology-GTSC1 and Field-Based Introduction to Physical Geology Laboratory-GTSC1	
ENGL 111	English Composition I-GTC01	3
MATH 113	College Algebra-GTMA1	4
KINE 100	Health and Wellness	1
<b>Semester Credit Hours</b>		<b>15</b>
<b>Spring Semester</b>		
GEOL 112 & 112L	Principles of Historical Geology-GTSC1 and Principles of Historical Geology Laboratory-GTSC1	4
ENGL 112	English Composition II-GTC02	3
MATH 130	Trigonometry	3
PSYC 233	Human Growth and Development-GTSS3	3
GEOG 103	World Regional Geography-GTSS2	3
<b>Semester Credit Hours</b>		<b>16</b>
<b>Second Year</b>		
<b>Fall Semester</b>		
GEOL 202	Introduction to Field Studies	3
GEOL 250	Environmental Geology	3
CHEM 131 & 131L	General Chemistry I-GTSC1 and General Chemistry Laboratory I-GTSC1	5
PHYS 111 & 111L	General Physics-GTSC1 and General Physics Laboratory-GTSC1	5
EDUC 115	What It Means To Be An Educator	1
<b>Semester Credit Hours</b>		<b>17</b>

**Spring Semester**

GEOL 204	Computer Applications in Geology	3
BIOL 105 & 105L	Attributes of Living Systems-GTSC1 and Attributes of Living Systems Laboratory-GTSC1	4
PHYS 101	Elementary Astronomy-GTSC2	3
Essential Learning - Fine Arts		3
Essential Learning - Natural Science		3
KINA Activity		1
<b>Semester Credit Hours</b>		<b>17</b>

**Third Year****Fall Semester**

GEOL 301 & 301L	Structural Geology and Structural Geology Laboratory	4
GEOL 331 & 331L	Crystallography and Mineralogy and Crystallography and Mineralogy Laboratory	4
Essential Learning - History		3
ESSL 290	Maverick Milestone	3
ESSL 200	Essential Speech	1
EDUC 215	Teaching as a Profession	1
<b>Semester Credit Hours</b>		<b>16</b>

**Spring Semester**

GEOL 340 & 340L	Igneous and Metamorphic Petrology and Igneous and Metamorphic Petrology Laboratory	4
GEOL 444 & 444L	Sedimentology and Stratigraphy and Sedimentology and Stratigraphy Laboratory	4
EDUC 342	Pedagogy and Assessment: Secondary and K-12	3
EDUC 343	Teaching to Diversity	3
General Elective		3
<b>Semester Credit Hours</b>		<b>17</b>

**Fourth Year****Fall Semester**

GEOL 402 & 402L	Applications of Geomorphology and Applications of Geomorphology Laboratory	4
Essential Learning - Humanities		3
EDUC 442	Integrating Literacy Across the Curriculum: Secondary and K-12 Art	3
EDUC 475	Classroom Management for K-12 Educators	1
EDUC 497	Content Methodology Practicum	3
EDUC 497D	Methods of Teaching Secondary Science	2
<b>Semester Credit Hours</b>		<b>16</b>

**Spring Semester**

EDUC 499G	Teaching Internship and Colloquia: Secondary	12
<b>Semester Credit Hours</b>		<b>12</b>
<b>Total Semester Credit Hours</b>		<b>126</b>

department head. Discrepancies in requirements should be reported to the Registrar's Office.

## Graduation Process

Students must complete the following in the first two months of the semester prior to completing their degree requirements:

- Review their DegreeWorks audit and create a plan that outlines how unmet requirements will be met in the final semester.
- Meet with their advisor and modify their plan as needed. The advisor must approve the final plan.
- Submit the "Intent to Graduate" form to the Registrar's Office to officially declare the intended graduation date and commencement ceremony plans.
- Register for all needed courses and complete all requirements for each degree sought.

Submission deadlines and commencement details can be found at <http://www.coloradomesa.edu/registrar/graduation.html>.

If a student's petition for graduation is denied, it will be her/his responsibility to consult the Registrar's Office regarding next steps.

## Advising and Graduation

### Advising Process and DegreeWorks

Documentation on the pages related to this program is intended for informational purposes to help determine what courses and associated requirements are needed to earn a degree. The suggested course sequencing outlines how students could finish degree requirements. Some courses are critical to complete in specific semesters, while others may be moved around. Meeting with an academic advisor is essential in planning courses and altering the suggested course sequencing. It is ultimately the student's responsibility to understand and fulfill the requirements for her/his intended degree(s).

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a degree and determine eligibility for graduation. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic