# 2008 – 09 PETITION/PROGRAM SHEET
## Degree: Bachelor of Science
## Major: Physical Sciences
## Concentration: Geology
## Option: Environmental Geology
## www.mesastate.edu/schools/snsm/geology/

**About This Major . . .**

The Bachelor of Science Degree with a concentration in Environmental Geology is designed for students who (1) desire a strong liberal arts education with emphasis on environmental issues within the earth sciences, (2) wish to pursue a graduate degree in environmental geology, or (3) desire a professional or technical career. The Environmental Geology B.S. degree has the same basic framework as the B.S. degree with a concentration in Geology. The specific focus of the Environmental Geology Program is different from the Geology Program, in that a stronger emphasis is placed on geologic hazards, ground-water and surface-water hydrology, low-temperature geochemistry, biological systems, and environmental science. Recent graduates are attending graduate programs at major universities or have entered the work force as geological technicians or professional geologists. Instruction takes place in a state-of-the-art science complex, which houses several instructional laboratories, a projects room, computer-applications laboratory, class preparation room, petrology-mineralogy laboratory, rock-storage facilities, and a sample preparation room. Most classes have a strong field component so that students can enjoy the diverse geological setting of the Grand Junction area. The program is supported by five tenure-track faculty members, plus four instructors. Equipment available includes research petrographic microscopes, binocular microscopes, a computer-assisted x-ray diffractometer, several scanning-electron microscopes (available through the Biology Department), GPS units, short-period and long-period seismometers and a magnetometer. Computer facilities include modern PC systems with software basics for communications, database management, word-processing, and also include software for geographical information systems (GIS) and geostatistics.

POLICIES:

1. It is your responsibility to determine whether you have met the requirements for your degree. Please see the MSC Catalog for a complete list of graduation requirements.
2. You must turn in your "Intent to Graduate" form to the Registrar's Office **by September 15 if you plan to graduate the following May, and by February 15 if you plan to graduate the following December**.
3. This program sheet must be submitted with your graduation planning sheet to your advisor during the **semester prior to the semester of graduation, no later than October 1 for spring graduates, no later than March 1 for fall graduates.**
4. Your advisor will sign and forward the Program Sheet and Graduation Planning Sheet to the Department Head for signature.
5. Finally, the Department Head or the department administrative assistant will take the signed forms to the Registrar's Office. (Students cannot handle the forms once the advisor signs.)
6. If your petition for graduation is denied, it will be your responsibility to reapply for graduation in a subsequent semester. Your "Intent to Graduate" does not automatically move to a later graduation date.
7. NOTE: The semester before graduation, you will be required to take a Major Field Achievement Test (exit exam).

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**NAME:** _____ **STUDENT ID #** _____

**LOCAL ADDRESS AND PHONE NUMBER:** _____

_____ **(  )** _____

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I, (Signature)_____, hereby certify that I have completed (or will complete) all the courses listed on the Program Sheet. I further certify that the grade listed for those courses is the final course grade received except for the courses in which I am currently enrolled and the courses which I complete next semester. I have indicated the semester in which I will complete these courses.

_____ _____ 20_____
Signature of Advisor Date

_____ _____ 20_____
Signature of Department Head Date

_____ _____ 20_____
Signature of Registrar Date

**Students should work closely with a faculty advisor when selecting and scheduling courses prior to registration.**

Degree Requirements:

- Must earn 120 semester hours total and meet the academic residency requirements to earn a baccalaureate degree at Mesa State College.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- 40 upper division credits (i.e., 300-level and 400-level courses).
- 2.00 cumulative GPA or higher in all MSC coursework
- A "C" or higher is required in all major courses.
- Program sheets are for advising purposes only. Because a program may have requirements specific to the degree, check with your advisor for additional guidelines, including prerequisites, grade point averages, grades, exit examinations, and other expectations. It is the student's responsibility to be aware of, and follow, all guidelines for the degree being pursued. Any exceptions or substitutions must be approved by the faculty advisor and/or Department Head. Courses related to teacher licensure must also be approved by the Teacher Education Dept.
- When filling out the program sheet a course can be used only once.
- See the "Undergraduate Graduation Requirements" in the Mesa State College catalog for additional graduation information.

**GENERAL EDUCATION REQUIREMENTS** (31 semester hours)
See the current Mesa State College catalog for a list of courses that fulfill the requirements below. If a course is on the general education list of options and a requirement for your major, you must use it to fulfill the major requirement and make a different selection within the general education requirement.

| Course | No | Title | Sem.hrs | Grade | Term/Trns |
|---|---|---|---|---|---|

**English** (6 semester hours, must receive a grade of "C" or better and must be completed by the time the student has 60 semester hours.)

| | | | | | |
|---|---|---|---|---|---|
| ENGL | 111 | English Composition | 3 | | |
| ENGL | 112 | English Composition | 3 | | |

(ENGL 129, Honors English, may be substituted for ENGL 111 & ENGL 112.)

**Math:** (3 semester hours, must receive a grade of "C" or better, must be completed by the time the student has 60 semester hours.)

| | | | | | |
|---|---|---|---|---|---|
| MATH | 151 | Calculus I | 5* | | |

*3 credits apply to the General Ed requirements and 2 credits apply to elective credit

**Humanities** (3 semester hours)

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**Social and Behavioral Sciences** (6 semester hours)

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**Natural Sciences** (7 semester hours, one course must include a lab)

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| | | | | | |
| | L | | | | |

**History** (3 semester hours)

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|---|---|---|---|---|---|
| HIST | | | | | |

**Fine Arts** (3 semester hours)

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|---|---|---|---|---|---|
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| Course | No | Title | Sem.hrs | Grade | Term/Trns |
|---|---|---|---|---|---|

**OTHER LOWER DIVISION REQUIREMENTS** (6 semester hours)

**Kinesiology** (3 semester hours)

| | | | | | |
|---|---|---|---|---|---|
| KINE | 100 | Health and Wellness | 1 | | |
| KINA | 1 | | 1 | | |
| KINA | 1 | | 1 | | |

**Applied Studies** (3 semester hours)

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|---|---|---|---|---|---|
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**BACHELOR OF SCIENCE DEGREE DISTINCTION REQUIREMENTS** (6 semester hours) Must receive a grade of "C" or better.

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|---|---|---|---|---|---|
| STAT | 200 | Probability and Statistics | 3 | | |

**Humanities or Social/Behavioral Sciences:** (3 semester hours)

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**PHYSICAL SCIENCES – ENVIRONMENTAL GEOLOGY MAJOR REQUIREMENTS** (70 semester hours)

**Required Geology Courses (49 semester hours)**

GEOL 111/111L or GEOL 113/113L *

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|---|---|---|---|---|---|
| *GEOL | | | 3 | | |
| *GEOL | L | | 1 | | |

* Either GEOL 111/111L or GEOL 113/113L may be taken for credit, but not both.

| | | | | | |
|---|---|---|---|---|---|
| GEOL | 112 | Principles of Historical Geology | 3 | | |
| GEOL | 112L | Principles of Historical Geology Lab | 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 Lab | 1 | | |
| GEOL | 331 | Crystallography & Mineralogy | 3 | | |
| GEOL | 331L | Crystallography & Mineralogy Lab | 1 | | |
| GEOL | 355 | Basic Hydrology | 3 | | |
| GEOL | 402 | Applications of Geomorphology | 3 | | |
| GEOL | 402L | Applications of Geomorphology Lab | 1 | | |
| GEOL | 415 | Intro to Ground Water | 3 | | |
| GEOL | 415L | Intro to Ground Water Lab | 1 | | |
| GEOL | 444 | Stratigraphy and Sedimentation | 3 | | |
| GEOL | 444L | Stratigraphy and Sedimentation Lab | 1 | | |
| GEOL | 480 | Summer Field Camp | 6 | | |
| GEOL | 490 | Seminar | 3 | | |

**Required Support Courses (14 semester hours)**

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|---|---|---|---|---|---|
| BIOL | 102 | General Organismal Biology | 3 | | |
| BIOL | 102 | General Organismal Biology | 1 | | |
| CHEM | 131 | General Chemistry | 4 | | |
| CHEM | 131L | General Chemistry Lab | 1 | | |

PHYS 111/111L **or** PHYS 131/131L

| | | | | | |
|---|---|---|---|---|---|
| PHYS | | | 4 | | |
| PHYS | L | | 1 | | |

Course No Title Sem.hrs Grade Term/Trns

**Restricted Electives (7 semester hours)**
NOTE: Eight hours of Restricted and General Electives must be upper division.
Choose from GEOL 325, GEOL 359, GEOL 361, GEOL 404, GEOL 404L, GEOL 455, GEOL 455L, GEOL 497, ENVS 312, ENVS 312L, ENVS 313, ENVS 313L, POLS 488, CHEM 132, CHEM 132L, MATH 152, STAT 311, *PHYS 112/112L or *PHYS 132/132L

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*Either PHYS 112/112L or PHYS 132/132L may be taken for credit, but not both.

Course No Title Sem.hrs Grade Term/Trns

**ELECTIVES** (All college level courses appearing on your final transcript, **not listed above** that will bring your total semester hours to 120 hours.)
NOTE: Eight hours of Restricted and General Electives must be upper division.

*MATH 151 Calculus I 2 _____ _____
_____ ____ _____ ____ _____ _____
_____ ____ _____ ____ _____ _____
_____ ____ _____ ____ _____ _____
_____ ____ _____ ____ _____ _____
_____ ____ _____ ____ _____ _____

**Restricted Electives:**
GEOL 325 Introduction to Engineering Geology
GEOL 359 Survey of Energy-Related Natural Resources
GEOL 361 Survey of Mineral-Related Natural Resources
GEOL 404 Geophysics
GEOL 404L Geophysics Lab
GEOL 455 River Dynamics
GEOL 455L River Dynamics Lab
GEOL 497 Structured Research
ENVS 312 Soil Science and Sustainability
ENVS 312L Soil Science and Sustainability Lab
ENVS 313 Characterization of Contaminated Sites
ENVS 313L Characterization of Contaminated Sites Lab
POLS 488 Environmental Politics and Policy
CHEM 132 General Chemistry
CHEM 132L General Chemistry Lab
MATH 152 Calculus II
STAT 311 Statistical Methods
PHYS 112 General Physics **and**
PHYS 112L General Physics Lab **OR**
PHYS 132 Electromagnetism and Optics **and**
PHYS 132L Electromagnetism and Optics Lab

# SUGGESTED COURSE SEQUENCING FOR A MAJOR IN PHYSICAL SCIENCE – ENVIRONMENTAL GEOLOGY

This is a recommended sequence of course work. Certain courses may have prerequisites or are only offered during the Fall or Spring semesters. It is the student's responsibility to meet with the assigned advisor and check the 2 year course matrix on the Mesa State website for course availability.

## FRESHMAN YEAR

| Fall Semester | | Hours |
|---|---|---|
| GEOL 111* | Principles of Physical Geology and | 3 |
| GEOL 111L* | Principles of Physical Geology Lab **or** | 1 |
| GEOL 113* | Fld. Based Intro to Phys Geology **and** | 3 |
| GEOL 113L* | Fld. Based Intro to Phys Geology Lab | 1 |
| ENGL 111 | English Composition | 3 |
| MATH 151 | Calculus I | 5 |
| General Education History | | 3 |
| | | 15 |

| Spring Semester | | Hours |
|---|---|---|
| GEOL 112 | Principles of Historical Geology | 3 |
| GEOL 112L | Principles of Historical Geology Lab | 1 |
| ENGL 112 | English Composition | 3 |
| General Education Humanities | | 3 |
| General Education Social/Behavioral Science | | 3 |
| KINA | Activity (2 courses) | 2 |
| | | 15 |

## SOPHOMORE YEAR

| Fall Semester | | Hours |
|---|---|---|
| GEOL 202 | Introduction to Field Studies | 3 |
| GEOL 250 | Environmental Geology | 3 |
| CHEM 131 | General Chemistry | 4 |
| CHEM 131L | General Chemistry Lab | 1 |
| PHYS 111 | General Physics **and** | 4 |
| PHYS 111L | General Physics Lab **OR** | 1 |
| PHYS 131 | Fundamental Mechanics **and** | 4 |
| PHYS 131L | Fundamental Mechanics Lab | 1 |
| KINE 100 | Health and Wellness | 1 |
| | | 17 |

| Spring Semester | | Hours |
|---|---|---|
| GEOL 204 | Computer Applications in Geology | 3 |
| BIOL 102 | General Organismal Biology | 3 |
| BIOL 102L | General Organismal Biology Lab | 1 |
| STAT 200 | Probability and Statistics | 3 |
| Degree Distinction Social/Behavioral Science or Humanities | | 3 |
| General Education Natural Science | | 3 |
| | | 16 |

## JUNIOR YEAR

| Fall Semester | | Hours |
|---|---|---|
| GEOL 301 | Structural Geology | 3 |
| GEOL 301L | Structural Geology | 1 |
| GEOL 331 | Crystallography & Mineralogy | 3 |
| GEOL 331L | Crystallography & Mineralogy Lab | 1 |
| GEOL 355 | Basic Hydrology | 3 |
| General Education Natural Science with Lab | | 4 |
| | | 15 |

| Spring Semester | | Hours |
|---|---|---|
| General Education Fine Arts | | 3 |
| General Education Applied Studies | | 3 |
| General Education Social/Behavioral Science | | 3 |
| Restricted Electives | | 4 |
| | | 13 |

## SENIOR YEAR

| Fall Semester | | Hours |
|---|---|---|
| GEOL 402 | Applications of Geomorphology | 3 |
| GEOL 402L | Applications of Geomorphology | 1 |
| Restricted Electives | | 3 |
| Electives | | 5 |
| | | 12 |

| Spring Semester | | Hours |
|---|---|---|
| GEOL 415 | Introduction to Ground Water | 3 |
| GEOL 415L | Introduction to Ground Water Lab | 1 |
| GEOL 444 | Stratigraphy and Sedimentation | 3 |
| GEOL 444L | Stratigraphy and Sedimentation | 1 |
| GEOL 490 | Seminar | 3 |
| | | 11 |

| Summer Semester | | Hours |
|---|---|---|
| GEOL 480 | Field Studies | 6 |

* Either GEOL 111/111L or GEOL 113/113L may be taken for credit, but not both.