

I. ASCRC General Education Form			
Group	Group XI Natural Science		
Dept/Program	Geosciences	Course #	101
Course Title	General Geology Laboratory		
Prerequisite	Prereq. or coreq., any 100 level geoscience courses.	Credits	1
II. Endorsement/Approvals			
Complete the form and obtain signatures before submitting to Faculty Senate Office			
	Please type / print name	Signature	Date
Instructor	Kathleen Harper		
Phone / Email	243-4720; kathleen.harper@umontana.edu		
Program Chair	William Woessner		
Dean	Gerald Fetz		
III. Description and purpose of the course: General Education courses must be introductory and foundational. They must emphasize breadth, context, and connectedness; and relate course content to students' future lives: See Preamble: http://www.umt.edu/facultysenate/gened/GEPreamble_final.htm			
<p>General Geology Lab is a series of laboratory and field experiences designed around basic geologic processes and materials. Lab topics include familiarization with common minerals, rocks, land forms, geologic structures, and behavior of surface water and groundwater, mineral and natural resources, and geologic time. Activities are designed to model the process of science and to guide students in understanding how observation and quantitative data are used to construct a scientific theory. Distribution, occurrence and availability of natural resources such as oil and gas, economic minerals, and water and are discussed, as well as some of the issues arising from use of these resources such as contamination of groundwater and other hazards. An additional focus is on the geologic development of Montana and the surrounding region.</p>			
IV. Criteria: Briefly explain how this course meets the criteria for the group. See: http://www.umt.edu/facultysenate/ASCRCx/Adocuments/GE_Criteria5-1-08.htm			

1. This course is designed to give students hands-on experience exploring a variety of disciplines within the diverse field of geosciences. These currently include plate tectonics, rocks and minerals, geologic time, structural geology, regional geologic history, development of landscapes, and the study of surface water and groundwater in a laboratory setting. Lab activities are designed to give students experience collecting and analyzing different types of data to draw scientific conclusions about geologic processes. One example is the process of observing rock and mineral properties to identify the rock within a given classification scheme and to use the observed characteristics to describe the processes that led to the formation of the sample. Another example is to construct a subsurface geologic cross section from well-log data or observations of rocks at the surface and use the cross-section to interpret the geologic history of the area.

2. The course includes a number of lab activities that involve working with quantitative data. One example is an activity on understanding the principal of a radiometric decay curve – an important concept for understanding how the absolute ages of earth materials can be determined. In this activity, students construct a radiometric decay curve for a fictitious element using a large number of dice. They graph the data and answer questions regarding different scenarios with materials containing the fictitious element by utilizing the decay curve they have created.

3. Course activities engage students in inquiry-based investigation of geoscience problems. For example, in our plate tectonics lab, students formulate hypotheses about the pattern of occurrence of geologic phenomena associated with different types of plate boundaries (for example, presence of volcanoes, and patterns of earthquakes, topography, and age of sea floor) then share with fellow students in a jigsaw activity. Student groups then compile their conclusions and present to the rest of the class.

V. Student Learning Goals: Briefly explain how this course will meet the applicable learning goals. See: http://www.umt.edu/facultysenate/ASCRCx/Adocuments/GE_Criteria5-1-08.htm

1. This course is designed to give students hands-on experience exploring a variety of disciplines within the diverse field of geosciences. Lab activities are selected to engage students in a variety of subdisciplines within geosciences, and to give them an opportunity to learn the general principles associated with each of these.

2. Topics and activities are chosen both to introduce students to methodology and activities commonly used in geosciences, such as procedures for use of rock textures to interpret processes of formation, analysis of relationships between rock units to interpret relative ages and geologic history of a geologic cross-section, and application of recognition of potential oil and gas traps when prospecting for hydrocarbon deposits.

3. Students will engage in activities which allow them to make hypotheses based on observations, design an experiment to test the hypothesis and then carry out their experiment and present data to support their conclusions. Table-top groundwater flow models, for example, allow students to observe behavior of groundwater and to test hypotheses regarding behavior of the water table or of a contaminant plume in confined and unconfined aquifers during pumping of groundwater wells.

4. Course instruction and discussion will reinforce the idea that major theories and laws of geosciences are developed and tested using the same process of observation, data collection, and logical/critical reasoning used in lab activities.

5. Assessment of analytic uncertainty and discussion of the implications for data interpretation will be addressed whenever applicable to lab activities.

VII. Syllabus: Paste syllabus below or attach and send digital copy with form. ↓ The syllabus should clearly describe how the above criteria are satisfied. For assistance on syllabus preparation see: <http://teaching.berkeley.edu/bgd/syllabus.html>

*Please note: As an instructor of a general education course, you will be expected to provide sample assessment items and corresponding responses to the Assessment Advisory Committee.

General syllabus:

GEOS101 General Geology Lab

Course Description: This class is an introduction to lab work in geology. There will be a lab assignment every week, excluding test weeks. Labs will consist of a brief lecture with the remaining lab time devoted to hands-on work with rocks, earth materials, and lab apparatuses. The objective of this course is to familiarize you with basic geologic concepts and the methods used to study them. Emphasis will be on observation and description, the building of a “geologic toolbox”, and application of these skills in interpreting geologic processes.

Assigned Instructor will provide: Office Hours, email address, and syllabus specific to your section

Text: Laboratory Manual in Physical Geology, 8th Edition, R.M. Busch (ed.), 2009

Labs: Pre-labs are assigned most weeks and due the following class period (unless informed otherwise) in order to prepare you before coming to lab. Labs are turned in to your assigned instructor regardless of the lab period attended.

Exams: There will be a midterm and a final that will cover material presented in the lab. The final will be during the last lab class of the semester (the week *before* finals week). You must take the exams in your assigned section. Review sessions will be arranged before each exam.

Topics Covered

Lab Week	Week of:	Required Reading in the Lab Manual	Topics
Week 1	Sept 1	1	Plate Tectonics
Week 2	Sept 8	2	Plate Tectonics
Week 3	Sept 15	3	Mineral Identification
Week 4	Sept 22	4 and 5	Igneous Rocks
Week 5	Sept 29	4 and 6	Sedimentary Rocks
Week 6	Oct 6	4 and 7	Metamorphic Rocks
Week 7	Oct 13	-----	EXAM
Week 8	Oct 20	9	Topographic Maps
Week 9	Oct 27	10	Geologic Structures and Maps
Week 10	Nov 3	8	Geologic Time and Fossils
Week 11	Nov 10	TBA	Geology of Montana
Week 12	Nov 17	11 and 12	Streams and Groundwater Hydrology
No labs	Nov 24	-----	Thanksgiving Break – no labs
Week 13	Dec. 1	-----	EXAM

Honor Code:

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All Students need to be familiar with the Student Conduct Code. The Code is available for review online at: www.umt.edu/SA/VPSA/index.cfm/page/1321.

TA syllabus:

G101 General Geology LAB Fall 2008

TA: Chelsea Feeney

Email: chelsea.feeney@umontana.edu

Lab Sections: Tuesday 10¹⁰-12⁰⁰pm (section 3) & Wednesday 3¹⁰-5⁰⁰pm (section 8)

Office: CHCB 101

Office Hours: Tuesday 3-4pm and Thursday 3-4pm, and by appointment

Text: 1. Laboratory Manual in Physical Geology, 7th or 8th edition, R.M. Busch (ed.)

2. Geos101 Course Packet

Course Description: Geology 101 is an introductory geology lab. The objective of this course is to familiarize you with basic geologic concepts and the methods used to study them. I will emphasize observation and description, the building of a "geologic toolbox", and application of these skills in interpreting geologic processes. There will be a lab assignment every week, excluding mid-term and final exam weeks. Labs will consist of a brief lecture with the remaining time devoted to hands-on work.

Attendance: Attendance is mandatory for each lab. If you *know* that you will not be able to attend a lab, you must make prior arrangements with me to make it up. If you are sick the day of the lab, you must email me so we may arrange a time to make up the lab. PLEASE NOTE: regardless of which lab you attend, all labs must be turned in to me. CHCB is a science building, shoes and proper attire must be worn for each lab (the lab room gets very warm, so dress in layers). Please clean up after yourself at the end of each lab period and leave the room *better* than how you found it.

Labs: Pre-labs are assigned nearly every week (see course packet) and are to be turned in at the *beginning* of class the following week. The labs are designed to be finished during the class period; however, if you do not finish by the end of the period, you must see me to arrange a time to finish it. Labs will be accepted **no later than 5:00pm the day after your lab period**, the *only* exception to this deadline is for extenuating circumstances that *must* be brought to my attention immediately. You are encouraged to work together on the labs, but keep in mind that copying another individual's lab will NOT be

tolerated and may result in a failing grade in the class. Any extra credit assignments offered are individual assignments.

Exams: The midterm and final will be based solely on the information presented to you during labs and the chapters covered in the lab manual. The final will be during the last lab class of the semester, NOT during exam week (see schedule below). You must take the midterm and final in your assigned section since every section's exams will be different. If you *must* be excusably absent on a test day please notify me immediately (*prior* to the exam) and an alternative test time may be arranged. **There will be no make-up midterms or finals** outside the two lab periods I teach. Review sessions will be arranged before each exam.

Grading: The total points for each lab and pre-lab are listed at the top of each page in your course packet. There will be extra credit assignments offered worth up to one lab grade.

Standard Grading Scale:

Pre-labs:	10%
Labs:	55%
Midterm:	15%
Final:	20%
Total:	100%

100-93	= A	76-73	= C
92-90	= A-	72-70	= C-
89-87	= B+	69-67	= D+
86-83	= B	66-63	= D
82-80	= B-	62-60	= D-
79-77	= C+	< 59	= F

Blackboard: Check the online Blackboard site for latest announcements, course info and extra credit assignments. I will periodically email you from Blackboard so be sure you check your assigned University of Montana student email account.

Honor Code: *All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All Students need to be familiar with the Student Conduct Code. The Code is available for review online at: <http://ordway.umt.edu/SA/documents/fromWeb/StudentConductCode1.pdf>*