Physical Geology – 36110
Course Outline
Fall 2006

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Hours: Scheduled hours (see office door) or anytime I'm free. E-mail anytime.

Course Description:
Physical geology is a study of geologic processes and features with emphasis on plate tectonics. Topics include the origin of magma, volcanoes, earthquakes, weathering, sediments, metamorphism, rivers, glaciers and groundwater. Laboratory studies include mineral and rock identification and topographic map reading. One field trip is normally taken.

Grading:
Grades will be based on at least two lecture tests, at least two lab tests, one comprehensive final exam, and 10 to 15 lab/homework/library assignments. Scoring is on a point basis with tests worth 100-130 point and labs averaging about 30 points each. The course work normally totals about 1000 points. If you fail to turn in **as few as four assignments** you will receive an automatic **"F"** grade. **Late** lab/homework assignments receive **half credit**. Late assignments will not be accepted if they are more than three weeks late. No assignments will be accepted after the last day of normal classes without previous permission from the instructor. Your grade may be lowered for missing assignments or unexcused absences.

Perfect attendance is your responsibility. Never miss a class or lab. I consider **even one** absence to be excessive. The official school policy is stated in the college catalog.

Course Goals:
1. Identify 30 minerals and to know their compositions and uses.
2. Identify 30 rocks and to know their compositions and origins.
3. Identify major tectonic plates and terms relating to plate techtonics.
4. Identify and/or draw plutonic features.
5. Read topographic maps and construct topographic profiles.
6. Read and understand articles written about geologic topics.
7. Enjoy learning.

Text: Earth: An Introduction to Physical Geology, 8th ed., 2005, E.J. Tarbuck and F.K. Lautgens, Prentice-Hall, 711 pages, $106.75, ISBN 0-13-114865-6

	Topic	**Text Readings (pages)**
	Introduction	2-33, 387
I.	Plate Tectonics: An Overview	21, 53-75, 322-323, 400
II.	Mineralogy	78-107
III.	Magmas: Origin and Crystallization	78-107
IV.	Plutonic Forms and Features	162-168, 274-275, 298
V.	Volcanism	138-162, 168-180
VI.	Weathering, Processes and Features	184-209, 650
VII.	Sedimentary Processes and Features	212-239
VIII.	Metamorphism	244-269
IX.	Groundwater	504-529
X.	Running Water	468-501
XI.	Glaciers and Glaciation	532-564, 586-587
XII.	Wind and Deserts	568-589
XIII.	Earthquakes (Seismology)	328-358
XIV.	The Earth's Interior; Isostasy	19-21, 362-378, 437-439
XV.	Economic Geology: Metals, Non-metals, Fuels	624-655

If you are interested in the chapters on geologic time, folding/structural geology, and mountains, they will be covered along with a lot of other material in **historical geology**. The material on landslides, waves and beaches and geologic resources is covered along with the much other material in **environmental geology**. Keep this book if you are thinking about taking either one of these courses.

Be sure to use the glossary of your book (p.688-704) to help you with the words you don't understand. You can also use the additional textbooks in the back of the geology lab as well as the library for more information on any topic. Ask me if you need help. The CD-ROM in this book seems worthwhile.

Learning is fun so enjoy yourself in this course. College is a golden time for learning: you have professors who are specialists in their fields, labs full of learning materials and an excellent library. Use them all as much as possible to help you learn. And learning doesn't stop with college. Of the material I teach, I have probably learned over half of it since I completed my undergraduate and graduate education.

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Lab Schedule
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Lab Manual: Instructor prepared sheets. I will pass them out as you need them.
Lab Book: Rocks, Minerals, Gems, 2001, H.S. Zim and P.R. Shaffer, St. Martin's Pr., 160 pages, $6.95, ISBN 1-58238-132-1
Materials: Optional-small hand lens. A calculator will be useful for some topics in the lab.

	Topic	**Text Readings (pages)**
1.	Mineral identification in hand specimen	handouts
2.	Mineral identification in hand specimen	88-93
3.	Mineral **TEST**: Identification, composition, use	
4.	Rock identification in hand specimen	handouts, 119-124
5.	Rock identification in hand specimen	215-228, 250-256
6.	Mineral **TEST**: Identification, description	
7.	Introduction to topographic maps	handouts
8.	Topographic map reading exercise	handout
9.	Topographic profiles, vertical exaggeration	handouts
10.	Groundwater studies	504-529, 628-630 (oil traps)
11.	River studies	468-501
12.	Glaciation studies	532-564
13.	FIELD TRIP: streams and glacial deposits	
14.	Library Journal Report	handout
15.	Stereo air photographs	

Your lab handout sheets, work sheets, lecture notes and old tests can be conveniently kept in a three-ring binder. This is the best way to keep them orderly and easy to study from. Put this outline in front of your 3-ring binder and keep a running tally of your scores on tests and assignments on the back page of this handout. That way you can quickly check and make sure I have you correct scores entered on my computer. There is a 3-hole puncher in the lab room for your use.

The lab/homework activities constitute a **significant** portion of your grade. It is easy to do well on them and to bring up low test grades. Do not fail to complete them and complete them **on time**. **Late** lab/homework assignments receive **half credit**. Late assignments will not be accepted if they are more than three weeks late. If you fail to turn in **as few as four** assignments you will receive an automatic **"F"** grade.
You many use the lab at almost any time outside of class hours to work with the minerals, rocks and maps. Just ask me (or anyone else in the building) to let you in. Sets of both the minerals and rocks are also available at the reserve desk in the library.