

GEOLOGY 105 PHYSICAL GEOLOGY

Fall 2008 (NDSU Class #5434)

DEPARTMENT OF GEOSCIENCES, NORTH DAKOTA STATE UNIVERSITY

REVISION: SEPT. 10, 2008

COURSE INFORMATION AND SCHEDULE

(SUBJECT TO CHANGE)

Time and Place: MWF, 1:00-1:50 p.m., Stevens Auditorium
Professor: B. Saini-Eidukat, office 129 Stevens Hall
tel. 231-8785; email: bse@geosci.ndsu.edu
Teaching Assistant: Jessie Rock; email: jessie.rock@ndsu.edu
Office hours: Tuesdays, 10:00 am - 12:00 pm, or by appointment
Text: Understanding Earth, 5th Ed. (hardcopy or e-book, your choice)
Authors: John Grotzinger, Thomas H. Jordan, Frank Press, Raymond Siever
Instructional Web Sites: www.ndsu.edu/instruct/sainieid/physical/ and Blackboard

Lecture and Exam Schedule – Subject to Change

Assignments:

W	Aug. 27	Introduction	Ch. 1; Ch. 9,
F	29	Matter, minerals	Ch. 3
M	Sep. 1	NO CLASS: Labor Day	
W	3	Minerals and their properties	Ch. 3
F	5	Igneous rocks - introduction	Ch. 4
M	8	Extrusive igneous rocks	Ch. 12
W	10	Extrusive / Intrusive igneous rocks	Ch. 4
F	12	Intrusive ign. Rocks / Bowen's Series	Ch. 4
M	15	Mechanical and chemical weathering	Ch. 16
M	15	<i>(Optional Geol. 105 Review Session, 6:00 – 6:50 p.m. Loftsgard 114)</i>	
W	17	HOURLY EXAM #1	
F	19	Chemical weathering; Soils	Ch. 16
M	22	Soils	p. 381-384
W	24	Sedimentary rocks	Ch. 5
F	26	Sedimentary / Metamorphic rocks	Ch. 6
M	29	Metamorphic rocks / Stress and strain	Ch. 7
W	Oct. 1	Stress and strain / Folds	Ch. 7
F	3	Folds	Ch. 7
M	6	Faults	Ch. 7
		<i>(Possible Optional Geol. 105 Review Session – To Be Announced)</i>	
W	8	HOURLY EXAM #2	
F	10	Earthquakes	Ch. 13
M	13	Earthquakes	Ch. 13
W	15	Interior of the Earth	Ch. 14
F	17	Isostasy	Ch. 14, p. 524
M	20	Earth's magnetic field	Ch. 14
W	22	Wegener and continental drift	Ch. 2
F	24	Paleomagnetism	p. 342-344
M	27	Geologic Time	Ch. 8
		<i>(Possible Optional Geol. 105 Review Session – To Be Announced)</i>	
W	29	HOURLY EXAM #3	
F	31	Plate tectonics: an overview of the theory	Ch. 2

M	Nov. 3	Plate boundaries	Ch. 2
W	5	Evolution of the continents	Ch. 10
F	7	West Coast tectonics	Ch. 10
M	10	Mantle Convection / Precambrian Tectonics	Ch. 2
W	12	Geobiology	Ch. 11
F	14	Running Water	Ch. 18
M	17	Running Water	Ch. 18
W	19	Running Water	Ch. 18
F	22	Glaciers and glaciation	Ch. 21
M	24	HOOR EXAM #4	
W	26	Glaciers and glaciation	Ch. 21
F	28	NO CLASS: Thanksgiving Recess	
M	Dec. 1	Glaciers / Groundwater	Ch. 17
W	3	Groundwater	Ch. 17
F	5	The Climate System	Ch. 15
M	8	Mass wasting	Ch. 16
W	10	Energy and Mineral Resources	Ch. 23, Ch. 3
F	12	Energy and Mineral Resources	Ch. 23, Ch. 3
M	15	FINAL EXAM (10:30 a.m.-12:30 p.m.)	

Examinations:

Four, 40-question, computer-graded hour exams will be given on the dates indicated above. Exams will include questions derived from both lecture material and assigned reading. *YOU WILL NEED A #2 LEAD PENCIL FOR MARKING THE ANSWER SHEET.* One hour exam may be missed without penalty, but if all four are taken, the lowest grade will be dropped before calculating the average.

The hour exams must be taken at the scheduled time, except in cases of serious emergency or pre-excused absence necessitated by official university activities. Regardless, a pre-exam notification of the absence must be given in direct discussion with the instructor (i.e. an e-mail, voice-mail, or other message does not constitute adequate notification). Make-up exams for excused absences are of a (often-rigorous) short essay format. No make-ups will be allowed after one week past the scheduled exam time. It is to your advantage to take the exam as scheduled.

A comprehensive final exam will be given from 10:30 a.m. - 12:30 p.m. on **Monday, December 15**. NDSU policy prohibits final examinations outside of this schedule. **ALL STUDENTS WILL TAKE THIS EXAM AT THIS TIME.**

Assignments:

Exercises and other activities will constitute 10% of your grade. Details will be provided on the course web site and on Blackboard.

Evaluation Procedures and Criteria:

Hour exams (average of best 3 out of 4)	300 pts
Final exam	150 pts
Assignments	50 pts
TOTAL POINTS	500 pts

The final letter grade will be assigned based on the following table (no curve is applied):

A = 90 - 100; B = 80 - 89; C = 70 - 79; D = 60 - 69; F = < 60

"Borderline" cases will be individually judged, based on grade improvement through demonstrated effort, etc.

Study Aids:

Copies of course exams from previous years will be provided as a handout packet. The instructional web site includes course news, self-tests, a Blackboard site with course content, the textbook website "GeoPortal" with additional self-tests, and links to NDSU Geosciences' "Geology in North Dakota" and "Fargo Geology" resource sites.

Most importantly: if you need extra help, please see me or the Teaching Assistant.

Course Attendance:

Regular attendance in lecture is an expectation. A significant percentage of the course content and associated exam questions is made available only during lecture.

Special Needs:

Any students who require special accommodations for learning or who have special needs should share those concerns or requests with the instructor as soon as possible.

Academic Responsibility:

All work in this course must be completed in a manner consistent with NDSU University Senate Policy, Section 335: Code of Academic Responsibility and Conduct (<http://www.ndsu.nodak.edu/policy/335.htm>).

Catalog Description:

Lecture course. Study of the Earth as a physical body; its structure, composition, and the geologic processes acting on and within the Earth.

General Education Categories:

Geology 105 has been approved in the "Science and Technology" category, Outcomes #3 and #5. #3: "Comprehend the concepts and perspectives needed to function in national and international societies." You will learn that geologic resources, and land-use problems and decisions, are not confined by political boundaries. The course presents an international perspective by drawing from examples worldwide.

#5: "Comprehend concepts and methods of inquiry in science and technology, and their applications for society." The concepts and applications of the scientific method are explicitly described and modeled in class using a wide variety of examples.

Geology 105 has also been approved in the "Global Perspectives" category. "The focus of the Global Perspectives category is on analysis and interpretation of issues that illustrate global interdependence." Geology is by nature a global study. In Geology 105, students learn that geologic and environmental processes (ranging from natural events such as volcanic eruptions to anthropogenic such as air pollution) cross borders and often affect nations in distant parts of the globe. In lecture and in the textbook, concrete examples illustrating such processes are drawn from every continent.

Course Objectives:

- To understand the position and relationships of geology to the physical sciences.
- To demonstrate the application of the scientific method through examples in geology.
- To understand the physical nature of Earth.
- To learn the basic concepts and terminology of physical geology.
- To appreciate the physical settings of human populations: origins, processes, resources, and hazards.
- To understand the dynamic nature of geologic processes.
- To interpret landscapes.

Are You Considering Becoming a Geologist or an Earth Science Educator?:

Students talented in the sciences are encouraged to visit any geology faculty member to review the various options in our program. Employment opportunities in the geosciences are abundant!