

GEOL 120 “*Earth’s Environments*” SYLLABUS - Fall, 2008

Instructor: BRUCE SIMONSON *office:* Carnegie 401 *voice:* ext. 58347
e-mail: bruce.simonson@oberlin.edu *office hours:* Monday 2:30-4:30, Wed 9-11 AM, or by appt.
 Lectures: Tuesday and Thursday - 9:30-10:50 AM in SEVERANCE 108
 Labs: EITHER Tuesday OR Wednesday OR Thursday - 1:30-4:20 PM in CARNEGIE 212
 Required text: Marshak, 2008, *Earth: Portrait of a Planet*. W.W. Norton & Co., 3rd edition (N.B. – the 2nd edition from 2005 will also work, but the reading assignments are slightly different - ask for details).

This course is an intro to the risks and riches of your geological environment via lectures, labs, and field trips to nearby sites (which take place within regular lab time). Previous coursework in NS is clearly to your advantage but neither expected nor required for this course. The schedule of topics and required readings is tentative. All readings are from text listed above; you can purchase new or used hard copies at the Oberlin Bookstore or an e-version at wwnorton.com. Please do all readings PRIOR to class for which they’re assigned. I may add supplemental readings as needed. Your grade will be based on a combination of open-book lab assignments handed in over the course of the semester, one closed-book lab quiz, and 3 closed-book written exams. It is your obligation to know and follow the Honor Code in executing these assignments.

<i>Day</i>	<i>Date</i>	<i>Topic</i>	<i>Readings</i>
TU	9/2	Plate tectonics: the grand synthesis	skim Chapter 4
TU/W/TH	9/2,3,4	LAB: Sampling the earth visually and physically	Interludes B and C
TH	9/4	Hydrologic cycle and intro to rivers and groundwater	Interlude F
TU	9/9	Groundwater, caves and karst	Chapter 19
TU/W/TH	9/9,10,11	FIELD TRIP: AW landfill and local groundwater	--
TH	9/11	Slope processes and mass movement	Chapter 16
TU	9/16	Humans and rivers: an uneasy alliance	Chapter 17
TU/W/TH	9/16,17,18	FIELD TRIP: Black River & bedrock @ Cascade Park	--
TH	9/18	Coastal processes and hurricanes	Chapter 18
TU	9/23	Glaciers and Deserts: the deep-freeze and the dry	Chapters 21, 22
TU/W/TH	9/23,24,25	LAB: Topo map mechanics	--
TH	9/25	Climate and atmospheric change	Chapter 20
TU	9/30	Weathering and soil formation	Chapter 7 to p. 198
TU/W/TH	9/30,10/1,2	LAB: Reading recent Earth history from topo maps	--
TH	10/2	Sediments and sedimentary rocks	remainder of Chap. 7
TU	10/7	Crystals and minerals: the basic building blocks	Chapter 5
TU/W	FLEXTIME	OPTIONAL REVIEW: maps and geomorphic processes	--
TH	10/9	YOM KIPPUR - NO CLASS	--
TU	10/14	EXAM #1 - (covers material through 9/25 + fans)	--
TU/W/TH	10/14,15,16	LAB: How crystals and minerals work	--
TH	10/16	Evidence of prehistoric life	Interlude E
***** FALL BREAK *****			

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TU	10/28	Measuring geologic time and the age of the Earth	Chapters 12, 13
TU/W/TH	10/28,29,30	LAB: Sedimentary rocks and fossils	--
TH	10/30	Volcanoes and their different eruption styles	Chapter 9
TU	11/4	Volcanic hazards + Plutons: the stuff under the volcano	Chapter 6
TU/W/TH	11/4,5,6	LAB: Igneous rocks and processes	--
TH	11/6	Faulting, folding, and the creation of mountain chains	Chapter 11
TU	11/11	Metamorphism: the transmutation of rocks	Chapter 8
TU/W/TH	11/11,12,13	LAB: Metamorphic rocks and processes	--
TH	11/13	The origin of everything, or at least the Solar System	Chapter 1
TU	11/18	EXAM #2 - (covers material from 9/30 thru 11/6)	--
TU/W/TH	11/18,19,20	LAB: Geological maps and their interpretation	--
TH	11/20	Geophysics, pt. 1: Earth as magnet and nuclear reactor	Chapter 3, Interlude A
TU	11/25	Geophys. pt. 2: internal structure, gravity and seismicity	Chapter 2, Interlude D
TU/W/TH	FLEXTIME	LAB: Closed-book quiz on rock interpretation	--
TH	11/27	THANKSGIVING - NO CLASS	--
TU	12/2	Earthquake hazards	Chapter 10
TU/W/TH	12/2,3,4	LAB: How plate tectonics works	Chapter 4
TH	12/4	Material resources of the Earth (AKA ore deposits)	Chapter 15
TU	12/9	Energy resources we now use: conventional fossil fuels	Chapter 14
TU/W/TH	12/9,10,11	Hubbert's Peak, alternative fossil fuels, LAB REVIEW	--
TH	12/11	Energy resources we need to use: the Renewables	Chapter 23
TH	12/18, 9 AM	EXAM #3 - (covers material from 11/11 to end)	--

Your **GRADE** in this course will be determined via the following formula:

3 hour-long, closed-book EXAMS @ 20%	60%
ca. 10 equally weighted lab hand-in exercises and quiz	40%
TOTAL	100%

ADDITIONAL INFORMATION

- you must pay a **LAB FEE** of \$10.00 to help cover the cost of hand-outs, lab materials, and transportation for this course; pay either the instructor or Retha Ball (Carnegie Room 417) **EARLY** in the semester.
- upper-class geology majors serve as **TUTORS** for this course; you can contact the instructor any time during the semester to make arrangements to meet with one at your convenience & there is **NO CHARGE**
- other **ACCOMMODATIONS** can be made for any student needing them; appropriate arrangements can be made by contacting Jane Boomer's Office at Student Academic Services, ext. 58464.