

SUNY College at Cortland
Department of Geology
GLY 261-001
GLY 261-803

Physical Geology
Physical Geology (Earth & Sky Learning Community)

Credit hours: 4
Semester: Fall 2011
Lecture: Sperry 307, TR 11:40-12:55
Labs: Bowers 333

Sect. L01 Tuesday 1:15-4:05 (**Dr. Jin**)

Sect. L83 Thursday 1:15-4:05

Web page: <http://web.cortland.edu/gleasong/gly261.html>

Professor: Dr. Gayle Gleason
Phone: 753-2816
Office: Bowers 325
Office hours: Tues & Thurs 9:30-10:45
and Tues 1:00 to 2:30
or by appointment

Email: gleasong@cortland.edu

Texts: Marshak, S., 2009, Essentials of Geology. W.W. Norton & Co., pub., 518 pp.
This syllabus is for the **3rd edition**, if you want to use the 1st or 2nd edition, ask for that syllabus.

Darling, R.S., 2010, Physical Geology Laboratory Manual

Course Description: Principles of physical geology. Earth materials, intracrustal forces and products, agents of gradation and their physiographic expression. Laboratory study includes minerals, rocks, topographic and geologic maps, simple geologic structures. Three lectures, one three-hour laboratory, field trips. Primarily for science, math and geography majors.

Not open to students with credit for GLY 160 or 171.

Grading Policy:	1 st Lecture Exam:	20%	Lab Exam 1:	9%
	2 nd Lecture Exam:	20%	Lab Exam 2:	6%
	Final Lecture Exam:	25%	Lab Exam 3:	6%
	Written Assign. 1:	2%	Lab Exam 4:	9%
	Written Assign. 2:	3%		

Attendance Policy: You are expected to attend lecture and lab. I will not be formally taking attendance; however, exam questions are derived from lecture material. Therefore, students who regularly attend lectures will have a decisive advantage over those who do not. If you miss an exam, lab or the field trip, you will be given a chance to make them up **only** if your absence was a valid absence. Valid absences are those due to approved College activities (see the College Handbook regarding this policy) or due to illness (email my office ASAP). It is always best to talk to me about an expected valid absence before it occurs, when possible, so that we can work out a make up time. **NOTE:** taking the SGA bus home early for Fall break or Thanksgiving break is NOT a college-valid excuse for missing class.

Field Trip: The field trip is scheduled for lecture and lab time, and is required. There will be questions on one of the lecture exams on the material. If you miss the field trip for any non-valid reason, you will automatically receive a zero (0) on those questions on the exam.

Class time etiquette: During Lecture and Lab time I will expect your full attention, which means that you will silence your cell phone and refrain from all text messaging.

Disability Statement: If you are a student with a disability and wish to request accommodations, please contact the Office of Student Disability Services located in B-1 Van Hoesen Hall or call (607) 753-2066 for an appointment. Information regarding your disability will be treated in a confidential manner. Because many accommodations require early planning, requests for accommodations should be made as early as possible.

Conceptual Framework: This course adheres to the spirit of the SUNY Cortland Conceptual Framework regarding liberal learning and the Learning outcomes / Expectations of SUNY Cortland Teacher Candidates. Specifically, Physical Geology (GLY 261) addresses Learning Outcomes 2 (Possess in-depth knowledge of the subject area to be taught).

Outline of *Course Objectives* and when we will cover them:

To examine the materials from which the Earth is made and to learn techniques of identifying and interpreting these materials.

Lectures: weeks 1, 2, 3, 4, 5, 6

Labs: weeks 2, 3, 5, 6

To gain an understanding of the physical processes that operate in the Earth's interior; i.e., igneous and metamorphic processes and processes leading to earthquakes.

Lectures: weeks 1, 2, 3, 4, 6, 10, 11

Labs: week 7

To gain an understanding of the physical processes that operate on and near the Earth's surface; i.e., weathering and erosion, deposition, and groundwater.

Lectures: weeks 4, 5, 6, 7, 8, 12, 13, 14, 15

Labs: weeks 8, 12, 14

To gain an appreciation of the time scale over which these processes operate.

Lectures: weeks 1, 9, 11

To develop an understanding of the Theory of Plate Tectonics and the evidence supporting it. We will be looking at the history of the Theory of Plate Tectonics as an example of how the scientific method is employed.

Lectures: weeks 2, 3

Labs: week 7

Writing Assignment 1

To learn how to use geologic maps and air photos to decipher the geologic features and history of an area.

Lectures: week 11

Labs: weeks 1, 10, 11, 12

To examine the interactions between on going geologic processes and humans.

Lectures: weeks 4, 6, 7, 10, 12, 13, 14, 15

To gain an understanding of the Scientific Method.

Lectures: weeks 2, 3

Labs: weeks 7, 9, 14

Writing Assignment 2

Course Schedule and Activities:

Dates:	Lecture Topic:	Pages in textbook (3rd ed.)
Aug 30	Introduction and Origin of the Earth	1-20
Aug 30	Lab L01 – Topographic maps	354 (Box F.1)
Sept 1	Composition and Structure of the Earth	21-32
Sept 1	Lab L83– Topographic maps	354 (Box F.1)
Sept 6	Mineralogy: the study of minerals	68-84
Sept 6	Lab L01 – Minerals I	75-80
Sept 8	Plate Tectonics: History of a Theory	33-46
Sept 8	Lab L83 – Minerals I	75-80
Sept 13	More Plate Tectonics	47-67
Sept 13	Lab L01 – Minerals II	79-80
Sept 15	Igneous petrology: rocks from melt	95-107
Sept 15	Lab L83 – Minerals II	79-80
Sept 20	Igneous rocks and Magma	85-110
Sept 20	Lab L01– Lab Exam I Topo maps & Minerals	
Sept 22	Volcanoes and Weathering	111-137, 138-151
Sept 22	Lab L83– Lab Exam I Topo maps & Minerals	
Sept 27	First Lecture Exam	
Sept 27	Lab L01 – Igneous Rocks	104-108
Sept 29	Sedimentary petrology	152-174
Sept 29	Lab L83 – Igneous Rocks	104-108
Oct 4	Metamorphic petrology and the Rock Cycle	175-199 WA-1
Oct 4	Lab L01 – Sedimentary and Metamorphic Rocks	154-160, 180-183
Oct 6	Finish Met. Rocks & Mass Wasting	361-377
Oct 6	Lab L83 – Sedimentary and Metamorphic Rocks	154-160, 180-183
Oct 11	L01 Field Trip (meet at Bowers loading dock) 11:40 until 4:00 PM	
Oct 11	L83 Lab Exam II Rocks (during lecture time)	
Oct 13	L83 Field Trip (meet at Bowers loading dock) 11:40 until 4:00 PM	
Oct 13	L01 Lab Exam II Rocks (during lecture time)	
	(L83: Do not plan to take the SGA bus home for Fall Break, as you will be on a field trip.)	
Oct 18	Glaciers & Glacial land forms	469-477
Oct 18	Lab L01 – Plate Tectonics	(review Chap. 2)
Oct 20	Glaciers & Glacial land forms	477-491
Oct 20	Lab L83 – Plate Tectonics	(review Chap. 2)
Oct 25	Geologic Time	276-287
Oct 25	Lab L01 – Meteorite lab	
Oct 27	Geochronology: Numeric age dating	287-297
Oct 27	Lab L83 – Meteorite lab	
Nov 1	Earthquakes	200-219
Nov 1	Lab L01 – Intro to Geologic Maps	246-252 (Box 9.1; Figs.) WA-2
Nov 3	Seismology: How we see into the Earth	219-239
Nov 3	Lab L83 – Intro to Geologic Maps	246-252 (Box 9.1; Figs.) WA-2

Dates:	Lecture Topic:	Pages in textbook
Nov 8	Crustal Deformation and Mountain Building	240-272
Nov 8	Lab L01 – Geologic Maps	246-252 (Box 9.1; Figs.)
Nov 10	Second Lecture Exam	
Nov 10	Lab L83 – Geologic Maps	246-252 (Box 9.1; Figs.)
Nov 15	Streams	378-392
Nov 15	Lab L01 – Aerial Photos lab AND Lab Exam III	
Nov 17	Streams and Floods	392-403
Nov 17	Lab L83 – Aerial Photos lab AND Lab Exam III	
Nov 22	Groundwater	430-440
Nov 22	Lab L01 – no lab	
Nov 24	no class - Thanksgiving	
Nov 24	Lab L83 – no lab	
Nov 29	More Groundwater	440-450
Nov 29	Lab L01 – Hydrogeology	
Dec 1	Oceans and Coastlines	404-429
Dec 1	Lab L83 – Hydrogeology	
Dec 6	Climate Change	491-518
Dec 6	Lab L01 – Lab Exam IV	
Dec 8	Energy Resources	321-340
Dec 8	Lab L83 – Lab Exam IV	
Dec 14	Final Exam: Wednesday 8:00 AM to 10:00 AM	

Lab Exam I Topographic Maps & Mineral Identification

Lab Exam II Rock Identification

Lab Exam III Plate Tectonics & Intro to Geologic Maps

Lab Exam IV Geologic Maps, Aerial Photos & Hydrogeology

WA-1 Contribution to Plate Tectonic Theory Paper Due

WA-2 Meteorite Lab Report Due
