

# Spring 2013 GEOL 113: Physical Geology Laboratory Sections 002 (meets Tuesday), 004 (meets Thursday)

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Meets: 6:30-9:20 PM

Room: Sims 202

Office Hours: By Appointment Only

Text: Busch, R.M. 2006. Laboratory Manual in Physically Geology, 9<sup>th</sup> Ed.

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**Objectives:** To explore the major processes responsible for shaping the physical Earth, and the relationship of those processes to the distribution of different landscapes, oceans, and mineral resources on Earth using hands-on demonstrations and activities.

**General Education Requirements:** Geol 113 and the co-requisite Geol 110 together fulfill four hours of the Touchstone requirement for natural sciences. The courses are co-requisites, meaning that students who are taking Geol 113 are required to take Geol 110, and vice versa. Listed below are the seven fundamental student learning outcomes for natural science courses as well as examples of how they will be fulfilled in Geol 113 and 110. Students should be:

1. Conversant with a few fundamental concepts from among the three main areas of natural science, including earth, life, and physical sciences. (e.g., *hydrology, plate tectonics, physical and historical geology, etc.*)
2. Able to apply the scientific methodologies of inquiry. (e.g., *Geol 113 laboratory exercises and experiments*)
3. Able to discuss the strengths and limitations of science. (e.g., *discussion of scientific methodology*)
4. Able to demonstrate an understanding of the history of scientific discovery. (e.g., *the development of plate tectonics, discovery of geologic time*)
5. Able to discuss the social and ethical contexts within which science operates. (e.g., *plate tectonics paradigm shift, coastal development, conservation of resources.*)
6. Able to communicate about scientific subjects including (lab courses only) the defense of conclusions based on one's own observations. (e.g., *Geol 113 laboratory write-ups*)
7. Able to discuss the application of scientific knowledge to the social sciences and to non-scientific disciplines. (e.g., *the uses of geologic data to make political and economic decisions about resources like water*)

Date	Lab	Laboratory Handout	Notes
1/8 & 1/10	No Laboratory		
1/15 & 1/17	Tectonics	<a href="#">Plate Tectonics</a>	Chapter 2
1/22 & 9/24	Minerals	<a href="#">Minerals</a>	Chapter 3
1/29 & 1/31	Igneous Rocks and Processes	<a href="#">Igneous</a>	Quiz 1: Minerals Chapter 4
2/5 & 2/7	Weathering	<a href="#">Weathering</a>	Quiz 2: Igneous rocks (Lab Handout)
2/12 & 1/14	Sedimentary Rocks and Processes	<a href="#">Sedimentary</a>	
2/19 & 2/21	Metamorphic Rocks and Processes	<a href="#">Metamorphic</a>	Quiz 3: Sedimentary rocks
2/26 & 2/28	Seismology	<a href="#">Earthquakes</a>	Chapter 16 Quiz 4: Metamorphic rocks
3/5 & 3/7	Earthquakes	Web-based assignment	
<b>3/12 &amp; 3/14</b>	<b>SPRING BREAK</b>		<b>No Lab</b>
3/19 & 3/21	Geologic Time	<a href="#">Dating</a>	Chapter 8
3/26 & 3/28	Topographic Mapping	<a href="#">Topographic Maps</a>	Chapter 9
4/2 & 4/4	Streams	<a href="#">Streams</a>	Chapter 11
4/9 & 4/11	Groundwater	<a href="#">Handout</a>	
4/16 & 4/18	Coastal Process	<a href="#">Handout</a>	Chapter 15
<b>THERE IS NO FINAL</b>			

*Laboratory topics subject to change*

**Attendance:** Lab attendance is mandatory and necessary. Make up labs are not permitted. All assigned laboratories are due at the end of the scheduled laboratory

**Grading:** Grades in this lab will be assigned based on the results of the following:

<b>Eight (8) labs</b>	10 pts each	80 pts
<b>Four (4) Quizzes</b>	10 pts each	40 pts

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**Total:** **120 pts**

**Grades** will be calculated on a straight scale:

- A 108-120
- B 96-107
- C 84-95
- D 72-83
- F <71

**Statement on Cheating:** Your grade is based on work you have done. Any attempt to submit someone else's work is plagiarism, and thus cheating. Attempting to use any unauthorized material during quizzes (including material stored on calculators or other electronic devices) is strictly forbidden, and is cheating. Unethical behavior such as cheating could result in a grade of "F" for the course, and other unpleasant action may also be taken. See your student handbook for more details.

**Quizzes:** The scheduled quizzes will be practical exercises in rock and mineral terminology and identification. There will be no make-up quizzes or labs without either prior arrangement with the instructor or documentation of a genuine emergency. Extensions may be requested prior to the scheduled date for the quiz, but once the date has passed, the quiz can not be taken or turned in for a grade without proof of emergency. If you think you are in danger of not getting something done on time or not being able to attend a lab, call me or e-mail me as soon as possible.

**Winthrop University Level Competency #1:** Winthrop graduates think critically and solve problem.

This Physical Geology laboratory course encourages students to solve Earth Science and environmental problems using scientific reasoning. For instance, students will determine the long term effect of coastal development on areas with documented sea-level rise. Students will learn about how to determine if sea-level is rising and also assess the overall risk for the rise. Students learn about the role of scientific hypothesis testing in developing and accurate model of Earth processes, and how these models can be used to make predictions about the Earth. Students also learn about the history of scientific discovery, including how the accumulation of anomalies can lead to a scientific paradigm shift (e.g., the emergence of the Plate Tectonic Theory)."

*Students with Disabilities: Winthrop University is dedicated to providing access to education. If you have a disability and require specific accommodations to complete this course, contact the Office of Disability Services (ODS) at 803/323-3290. Once you have your official notice of accommodations from the ODS, please inform me as early as possible in the semester*

*Winthrop University's Office of Nationally Competitive Awards (ONCA) identifies and assists highly motivated and talented students to apply for nationally and internationally competitive awards, scholarships, fellowships, and unique opportunities both at home and abroad. ONCA gathers and disseminates award information and deadlines across the campus community, and serves as a resource for students, faculty, and staff throughout the nationally competitive award nomination and application process. ONCA is located in Dinkins 222B. Please fill out an online information form at the bottom of the ONCA webpage [www.winthrop.edu/onca](http://www.winthrop.edu/onca) and email [onca@winthrop.edu](mailto:onca@winthrop.edu) for more information.*

*Winthrop's Academic Success Center is a free resource for all undergraduate students seeking to perform their best academically. The ASC offers a variety of personalized and structured resources that help students achieve academic excellence, such as tutoring, academic skill development (test taking strategies, time management counseling, and study techniques), group and individual study spaces, and academic coaching. The ASC is located on the first floor of Dinkins, Suite 106. Please contact the ASC at 803-323-3929 or [success@winthrop.edu](mailto:success@winthrop.edu). For more information on ASC services, please visit [www.winthrop.edu/success](http://www.winthrop.edu/success).*

**Non-Traditional Students** - The Resource Center for Adult Students located in 108 Dinkins Hall, serves Winthrop's non-traditional, veteran, and transfer student populations. The Resource Center for Adult Students will provide programmatic and student support services, as well as serve as a resource for students as they transition to and navigate Winthrop's campus. The staff at the Resource Center for Adult Students looks forward to serving our non-traditional, veteran, and transfer students and would like to encourage you to refer students in these populations to our office. The Resource Center for Adult Students can be reached at (803) 323-4784.