

*Geology 250 Sect. 2 Syllabus; Spring, 2014*

<b>GEOL250 Section 2</b>	<b>Spring, 2014</b>	<b>Earth and Space Systems</b>
<b>Dr. Scott Werts</b>		<b>Office: Sims 212A</b>
<b>Course Classroom: Sims 201</b>		<b>Meeting Time: MW 9:30–10:45</b>
<b>Email: <a href="mailto:wertss@winthrop.edu">wertss@winthrop.edu</a></b>		<b>Office Hours: TR 9:30-11 or by appointment</b>
<b>Text:</b> Marshak, 2012. Earth: Portrait of a Planet, 4 <sup>th</sup> Edition		<b>Office Phone: 323-4930</b>

**Co-Requisite:** Geol 251 (Earth and Space Systems Laboratory).

**Course Goals and Objectives:** The objective of this course is to give the students a basic understanding of space systems, the composition and structure of the earth and how they interact with each other. Much of the course will focus on the four major “spheres” of the earth that we come in contact with on a daily basis; the atmosphere, lithosphere, biosphere and hydrosphere.

This course, combined with GEOL 251, fulfill 4 hours of the general education requirement for natural science courses at Winthrop University. The general education requirements met by this course are included below.

1. **Students should be conversant with a few fundamental concepts from among the three main areas of natural science, including Earth, life, and physical sciences.** In this course, some example topics that meet these requirements will include astronomy, weather systems, plate tectonics, earthquakes, soil formation (with biological influences) and biostratigraphy.
2. **Students should be able to apply the scientific methodologies of inquiry.** Students in this course will perform many experiments and testing strategies on both solid and liquid earth materials.
3. **Students will be able to discuss the strengths and limitations of science.** This will be accomplished through discussions of scientific methodology, our understanding of space and time and the very definition of the natural world.
4. **Students will demonstrate an understanding of the history of scientific discovery.** Discussions of the development of the theory of plate tectonics, radioactivity and geologic time will be featured prominently as well as the timing of our understanding of climate change.
5. **Students will be able to discuss the social and ethical contexts within which science operates.** In this course, we will be discussing aspects of air, soil and water pollution as well as domestic energy policy in relation to our personal responsibility and societal needs.
6. **Students will be able to communicate about scientific subjects.** Several homework and in class assignments will ask students to explain and expand on many of the subjects covered in both lecture and reading assignments.

7. **Students will be able to discuss the application of scientific knowledge to the social sciences and to non-scientific disciplines.** For example, this class will provide students insight into energy policy and environmental justice and basic information regarding considerations when purchasing a home (flood zones, soil types, land movements, etc.)

**Global Learning Initiative:** The GLI components of this course include studies of the following: (1) causes of natural disasters, such as earthquakes, volcanic eruptions, flooding and droughts. All of this affects economic and society in many ways, which will be explored; (2) causes and implications of global climate change.

**Course Attendance:** Attendance at lecture is both necessary and mandatory. There will be course material covered in lecture that goes beyond the assigned readings and that material will be considered testable. If you are unable to attend class on a particular day, please provide me the common courtesy of informing me prior to your absence and have a plan as to how to make up the work you missed. Persistent failure to attend class will be taken into account when calculating your final grade.

**Course Preparation:** You are responsible for assigned readings in this course prior to the associated lecture. The information contained in these readings is pertinent to the course and is considered testable material. If you do not understand something from the readings, please ask. There is no such thing as a “dumb question” in this course and I will try in earnest to answer every question asked.

Physical geology is a very “visual” subject and many students view diagrams, drawings and pictures as a useful supplement to the readings and discussions in this course. I post all images used in my lectures on the course website prior to my lectures. You are welcome to print these prior to class if you wish and take notes along side them or view them online when studying after class time.

**Course Grading:** Your grade for this course will be based on the following distribution of work:

<b>3 Mid-Term Exams</b>	<b>50 pts. each</b>	<b>150 pts.</b>
<b>1 Final Exam</b>	<b>100 pts.</b>	<b>100 pts.</b>
<b>Astronomical Observation Project</b>	<b>50 pts.</b>	<b>50 pts.</b>
<b>Homework Assignments</b>	<b>5-10 pts. each</b>	<b>50 pts.</b>
<b>10 Pop Quizzes</b>	<b>5 pts. each</b>	<b>50 pts.</b>
<b>Total</b>		<b>400 pts.</b>

The quizzes will occur randomly throughout the course and will be conducted in the first 10 minutes of class. If you are not present to take the quiz within those first 10 minutes, you will receive a zero for the quiz. The quizzes will be composed of multiple choice or short answer questions from recently covered material in lecture and readings. A total of

12 quizzes will be given with your two lowest scores being dropped before determining your final grade.

Homework assignments will be distributed at various intervals throughout the semester. They are designed to reinforce lecture and reading material. Assignments will always be due during the beginning of class on the Monday after they are assigned. There is a late penalty of 2 points per day for each day the assignment is late. Some of the assignments will be turned in on Turnitin.com, a website designed for online grading and plagiarism analysis. The turnitin class ID for this course is **7498340**.

The dates for the exams are included below. There will be no make-up exams or quizzes without prior arrangement from the instructor *and/or* documentation of an emergency that necessitates the student missing class. If an exam is missed for non-emergency reasons, that exam will be made up at the end of the semester on a day and time to be arranged with the instructor. The format of the exam will be entirely short answer/essay questions. If you are in danger of missing class, it is best if you notify me by email or phone message as soon as possible.

Exams will be in the format of multiple choice and short answer questions. The final exam will be cumulative and will reflect both the course material discussed since Exam #3 and material from previous exams. A portion of each exam will be a “group effort” and will count as a smaller percentage of the total exam grade. Details of this exam format will be provided for you in class.

Grades for the course will be determined based on the following grading scale:

A	< 89%
B	80 - 89%
C	70 – 79%
D	60 – 69%
F	> 59%

A grading curve may be applied at the instructor’s discretion, but the point value required for a particular grade will never be more than indicated above. A total score greater than 89% of the total points available for the course will always equal an A.

Opportunities for extra credit may be offered at the instructor’s discretion. If an extra credit assignment becomes available, further details and instructions will be provided.

**Statement on Cheating:** Your grade in this course will be based solely on your work alone. Any attempt to copy another students answers during tests, quizzes, homework assignments or any use of unauthorized materials (cheat sheets/information stored on calculators/etc.) during test and quiz time is strictly forbidden and could result in an “F” for the entire course in conjunction with other unpleasant administrative actions. Unethical behavior with regard to course material will not be tolerated.

**Students with Disabilities:** Winthrop University is dedicated to providing equal access to education for all students. If you have a disability and need classroom or testing accommodations, please contact Gena Smith, Coordinator, Services for Students with Disabilities, at 323-3290 as soon as possible. Once you have your professor notification, please tell me immediately so that I am aware of your accommodations.

**Course Schedule (*Tentative*):**

Date	Lecture	Reading; Notes
Jan-13	Introduction; Begin History of the Universe	Pg. 1-11
Jan-15	History of the Universe	Pg. 15-32
Jan-20	<i>MLK Holiday – No Class</i>	
Jan-22	Our Solar System	Pg. 35-38
Jan-27	The Atmosphere	Pg. 680-692
Jan-29	<i>No Class (NCSE conference)</i>	
Feb-3	The Seasons	Box 20.2 on 690
Feb-5	Weather (Part 1)	Pg. 693-698
Feb-10	<b><i>Test #1</i></b>	
Feb-12	Weather (Part 2)	Pg. 699-709
Feb-17	Streams and Rivers	Pg. 569-589
Feb-19	Groundwater (Part 1)	Pg. 646-676
Feb-24	Groundwater (Part 2)	
Feb-26	Climate Change	Pg. 793-804
Mar-3	Earth Composition and Structure	Pg. 39-53
Mar-5	Plate Tectonics (Part 1)	Pg. 56-75
Mar-10	<b><i>Test #2</i></b>	
Mar-12	Plate Tectonics (Part 2)	Pg. 76-100
Mar-17	<i>Spring Break – No Class</i>	
Mar-19	<i>Spring Break – No Class</i>	
Mar-24	Minerals	Pg. 105-128
Mar-26	Igneous Rocks	Pg. 131-166
Mar-31	Weathering	Pg. 169-175
Apr-2	Soils and Sediments	Posted Reading
Apr-7	Sedimentary Rocks	Pg. 185-210
Apr-9	Metamorphic Rocks	Pg. 213-237
Apr-14	<b><i>Test #3</i></b>	
Apr-16	Seismology	Pg. 287-329
Apr-21	Coastal Process	Pg. 624-644
Apr-23	Geologic Time (Part 1)	Pg. 400-427
Apr-28	Geologic Time (Part 2)	

May-6 (T)	<i>Final Exam – 11:30 am</i>	
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