

ES104 – Earth System Science I (Solid Earth Processes)
POLICIES AND PROCEDURES

Summer Term 2019 - Western Oregon University – **June 24 to July 18** – Four Weeks
5 CR MTWR 1:00 PM – 4:20 PM ED116-118

INSTRUCTOR: Dr. S. Taylor
OFFICE HOURS: By Arrangement

OFFICE: RM 210 Natural Sciences Bldg
PHONE: (w) 838-8398 (cell) 541-760-9216
E-MAIL: taylors@wou.edu
WEB SITE: www.wou.edu/taylor

COURSE DESCRIPTION:

This course provides an introduction to Earth System Science, a holistic study of all integrated systems operating on the planet Earth. It is designed as a general science elective, using the Earth as a framework for understanding concepts of physics, chemistry, and geology. Emphasis is placed on discussing classic concepts of astronomy, the solar system, and interior earth processes. Students will learn observational techniques in the spirit of the "scientific method", and generally raising our awareness of the natural environment around us. The "lab" portion of the course will provide the student with an opportunity for "inquiry-based" discovery of concepts developed during the lecture period.

COURSE GOALS AND LEARNING OBJECTIVES:

ES104 learning objectives are aligned with select components of the LEAP (Liberal Education and America's Promise; <http://aacu.org/leap>) learning outcomes developed by the Association of American Colleges and Universities. Upon successful completion of ES104 Earth System Science, students will be able to demonstrate minimum competency in the following program areas:

1. Use the history of astronomy and solar system models to examine the nature of science
2. Explain how light and electromagnetic spectrum are used to study stars
3. Summarize plate tectonic theory and illustrate plate boundary interactions
4. Investigate properties of minerals and igneous rocks
5. Examine and analyze data to interpret Earth's interior processes
6. Discuss methods employed to mitigate volcanic and seismic hazards

PRELIMINARY COMMENTS AND COURSE PHILOSOPHY:

This course will be qualitative (conceptual) and quantitative in nature. Basic mathematical skills will be reviewed and utilized to complete the exercises. Creative instructor-student interaction will be faithfully encouraged to provide a truly relaxed educational atmosphere. A user-friendly approach to science will be emphasized by the instructor.

REQUIRED TEXTS:

Tarbuck and Lutgens, 2013, **Earth Science**, 14th ed., Prentice Hall/Pearson

Lab Manual to Accompany ES104 Earth System Science, Earth and Physical Sciences Dept., Western Oregon University (in-house document available at Bookstore; ask at customer service desk)

****Note about textbook materials:** The Tarbuck & Lutgens Textbook Materials will be used for all sections of ES104, ES105, and ES106. **Please note that this is a considerable cost savings compared to buying three different textbooks for each of the ES 100 courses.**

CLASS NOTES:

A comprehensive set of instructor class notes are available for download via the internet. The class web site is at URL <http://www.wou.edu/taylor> ... scroll down the course list and click on the link to the "ES104" home page. The class notes are available as Adobe Acrobat Reader files (*.pdf file). Acrobat Reader is free and is installed on many campus PC's. For home installation, Acrobat Reader is also available for download at <http://www.adobe.com>

Based on prior student suggestions, I have assembled my class notes and made them available. These notes

are required for the class, and may be freely printed at any campus internet station (e.g. ITC Bldg - Student Lab, Library, local department computer labs). YOU ARE REQUIRED to have a copy of the notes by class time during the appropriate week / lecture subject.

I will have the notes on the multimedia projector during lecture. All you have to do is listen, augment notes, and make drawings as I discuss a particular concept. It is imperative that you get a copy of the notes, since I will not be allowing time for students to hand copy them during class. The notes are in outline form and are very comprehensive.

EVALUATIONS AND EXPECTATIONS:

Student performance will be evaluated on the basis of class assignments, homework, quizzes, lab exercises, and one exam. The following is a breakdown of evaluation points and letter grades:

Daily Attendance, Class Participation (5 pts per week x 4 weeks)	20 pts	7%
Online (Moodle) Practice Quizzes (7 x 5 pt each)	35 pts	12%
Labs and Homework	75 pts	25%
Pop Quiz 1	10 pts	3%
Quiz 2	30 pts	10%
Quiz 3	30 pts	10%
Final Exam	100 pts	33%
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	Total 300 pts	100%

Final Grading Scale

Percent Range of Total Points	Letter Grade	Percent Range of Total Points	Letter Grade
94-100%	A	77-79%	C+
90-94%	A-	73-76%	C
87-89%	B+	70-72%	C-
83-86%	B	67-69%	D+
80-82%	B-	63-66%	D
		60-62%	D-
		<60%	F

Homework Assignments, Lab Exercises, In-Class Activities, Practice Quizzes: There are two types of assignments used in this class: (1) "in-class" exercises/labs and (2) "online homework". The in-class exercises will be assigned by the instructor during the class period and may include written exercises, lab exercises pop-quizzes, video review sheets, or other types of assessment tools. In-class work may be assigned to take home or submitted at the end of the period. Online homework assignments are practice quizzes designed as internet-based "take-home" exercises that are submitted electronically via the Moodle system by the prescribed due date. Late assignments will not be accepted after the deadline. Special arrangements for turning in late assignments with administrative excuses should be arranged in advance.

Exams and Quizzes: Exams and quizzes will consist of material covered both in lecture and lab periods; and will generally cover only the material that was most current prior to that test. The final exam will be comprehensive with test material drawn from throughout the term. Tests will generally be objective in nature (multiple choice, matching, true/false, completion) with short-answer essay questions based on the practice quizzes.

Quizzes and practice quizzes are designed to keep the students abreast of their weekly studies, in preparation for the mid-term and final exams. Studying for quizzes is an excellent way to avoid last minute "exam cramming" and poor exam performance.

Exams and Scantron Erasure Mark Policy: Portions of the class exams may involve use of "scantron"

answer sheets. Scantron erasure errors are common in instances where students do not effectively erase all unwanted pencil marks from the answer sheets. Erasure "shadow" marks can result in scantron mistakes with erroneous point subtraction and grade errors. The instructor commonly deals with erasure errors on a case by case basis. One or two erasure errors per exam are no problem and are commonly corrected on the spot. In instances where students claim greater than three scantron erasure errors, the instructor reserves the right to request that the student retake the exam in its entirety.

Outside Class and Lab Assignments: Class and lab assignments will be worked BOTH during class time and outside of class time each week. You will have lab, reading, and homework assignments that may take up to several hours to complete. Please plan your schedule accordingly. Late assignments will not be accepted after the deadline prescribed by the instructor. Special arrangements for turning in late assignments with administrative excuses should be arranged in advance.

Class Assignment Grading: Due to the large number of students and assignments, the instructor will not grade this work in detail. The homework and assignments will be checked for completeness, with questions randomly chosen for content and accuracy. Grade points will be assigned on the basis of these two criteria. With a modicum of effort, you will do well in this portion of the class.

Laboratory Exercises: The labs represent a significant component of the class. For Summer Session classes, the lab will be integrated with the lecture during the afternoon meeting time, as needed.

LEARNING RESOURCES AND GRADE OUTCOMES:

The class knowledge base will be derived from a combination of the following: (1) independent student reading outside of class; (2) independent student engagement of take-home lab exercises and quantitative problem solving; (3) independent student reading of web resources linked from the class web site; (4) systematic review and memorizing of class notes and ancillary reading materials, as directly linked from class web site and handed out in hard copy during class time; and (5) successful attendance, note taking, and engagement of in-class lectures delivered by the instructor. Instructor lectures are designed as interpretive translations to assist students in understanding the class content and to stay on track with the weekly schedule. Lectures are not intended as the primary knowledge transfer mechanism. Independent student engagement of readings, class notes and lab work outside of class time is the most important pathway to success.

MAKE-UP EXAMS AND INCOMPLETES:

Under NO circumstances will make-up exams be administered without prior arrangement (at least five days) and good reason, with a signed administrative excuse. Please show up on exam day! Under NO circumstances will a grade of "incomplete" be issued in the last week of class. If you find yourself in a situation where you can't complete the required course work, please make arrangements with the instructor prior to the last week of class. Contact the Office of Student Affairs (838-8365) for assistance in arranging incompletes.

ATTENDANCE AND ASSIGNMENT POLICY:

There is a direct correlation between attendance and student performance. Attendance is necessary for students to properly digest intellectual concepts presented in a college classroom format. The class assignments are designed to reward students who attend class on a regular basis. Absences with written excuses for medical reasons or university-related functions may be used to arrange make-up work with the instructor. As with incompletes, contact the Office of Student Affairs to arrange for written excuses (838-8365).

STUDENT HONOR POLICY:

Plagiarism and cheating will not be tolerated. Cheating includes copying others work and using cheat sheets on exams. However, students are encouraged to interact in small groups during class assignments, i.e. you can freely discuss concepts in all portions of the class, except exams, and you may not directly copy your colleague's work. Cases of cheating and plagiarism will be referred to the appropriate university administrative office.

OTHER REQUIRED MATERIALS:

Students will also need access to a scientific calculator, colored pencils, ruler, and protractor. You will be required to use these materials during lecture, lab, and exams. Please plan accordingly, or you will have trouble successfully completing the class.

STUDENTS WITH DISABILITIES

Any student who has a disability that requires accommodation, please make an appointment to see me.

A NOTE ABOUT THE LAST WEEK OF CLASS:

Given that the class is operating in a compressed four-week summer format, this course by its very nature is "compressed" with much detailed content to cover in a relatively short period of time. **As such, every day of class is important, with the last week more critical to content coverage as the 1st week.** Students should anticipate a full slate of "normal" activities during the last week of class, including lectures, lab exercises, written reports, etc. The class is not over until after the final exam!

A NOTE ABOUT LOST OR MISSING WORK:

The instructor will only grade work that is received and digitally/physically visible. Any missing work (lab assignments, homework, quiz/test answer sheets) will receive a "0" on the grade sheet. This policy applies to work lost by the student or instructor or technology glitches. If the student demonstrates that the work was turned in, but is missing, then the student will be afforded an opportunity to make up the work and resubmit it for graded credit. Otherwise, the student will not receive credit for lost or missing work.

CHANGE OF SYLLABUS - POP QUIZZES - UNANNOUNCED HOMEWORK ASSIGNMENTS:

The instructor reserves the right to modify the syllabus and class schedule at any time during the term. Students will be notified of such changes in a timely manner. The instructor also reserves the right to administer pop-quizzes and assign unscheduled homework / class assignments at any time. All students will be responsible for completing this work and it will comprise part of the final class grade.

FREQUENTLY-ASKED QUESTIONS ABOUT GRADES, STUDY TECHNIQUES AND TUTORING:

What can I do to pass the class and receive a good grade? If you want to successfully complete this class and maximize your grade standing, the following techniques are recommended: (1) read your notes before coming to class, (2) attend lecture every day, (3) complete all of the in-class exercises, homework, and lab assignments, (4) read the book weekly, and (5) incrementally study your notes weekly (do not wait until the last minute before the exam).

We will be covering a large volume of material throughout the term. The best approach for success is constant and steady interaction with the course materials. The lectures are designed to provide you a simplified explanation of complex scientific concepts, and present contextually-relevant, real-world examples that will help you comprehend the material. Hence, to benefit from the lectures, you will need to attend class on a regular basis. The class assignments provide an opportunity for self-discovery and interaction with the material, this will help you assess your ability to comprehend and understand the concepts. In addition, the class and lab assignments provide critical "effort points" that will raise your exam and quiz averages. Repeat after me: "the homework is my friend, the homework is my friend, the homework is my friend, please give us extra homework". Developing a weekly study schedule and work ethic will enable you to incrementally build a scientific knowledge base and data dictionary from which to successfully answer exam and quiz questions.

Why is reading the book important for successfully completing exams and quizzes? The online class notes are provided in a bulleted, summary format. These were developed by the professor over many years and provide the framework for organizing lecture materials. The lectures are delivered in an informal style with emphasis on contextual relevancy and conceptual visualization. The "disconnection" occurs at exam time, as the questions are written with formal scientific language and terminology. The initial step in correctly answering an exam question, is to first understand the scientific language and what the question is asking. The latter steps involve memory recall, visualization, and interactive comprehension of the scientific concepts. Given that the notes and lectures are organized in a style that differs from the written exam language, reading the book is essential for learning the formal language of science, that which is prerequisite for successful test taking.

I have followed all of your recommendations, and I still score poorly on quizzes and exams, what more can I do?

The Learning Center at WOU is available for students to receive additional help and guidance in successfully completing classes. Services include peer-to-peer tutoring, study skills workshops, testing strategies, study-group organization, and structured facilitation. The Learning Center is located in Room 401 of the Academic Programs and Support Building across the street from Natural Science. Contact them at 838-8428. In addition to the Learning Center, the Office of Disability Services is available to help students who may have learning disabilities. Their number is 838-8250, call to make an appointment for an initial disability assessment.

TENTATIVE COURSE OUTLINE: This outline should be considered tentative at best. The following schedule may be modified as class ideas evolve throughout the term. Text reading assignments are from Tarbuck and Lutgens, 14th Edition "Earth Science" Text.

Learning Module	Class Week	Class Content	Reading Assignment	Lab Topic	Moodle Homework (Practice Quizzes)
1	Week 1	Intro to Earth Systems Earth Overview	Chapter 1	Models & Systems	Practice Quiz 1 Introduction
2	Week 1	Earth-Sun Solar System	Chapter 22	Solar System	Practice Quiz 2 Earth Solar System

Pop Quiz 1 Thursday June 27, 2019

NO CLASS Thursday July 4, 2019

4	Week 2	Plate Tectonic Theory	Chapter 7	Plate Tectonics	Practice Quiz 3 Plate Tectonics
5	Week 2	Plate Dynamics	Chapter 7		

Quiz 2 MONDAY July 8, 2019

6	Week 3	Earthquakes	Chapter 8	Earthquakes	Practice Quiz 4 Earthquakes
7	Week 3	Volcanoes	Chapter 9	Volcanism	Practice Quiz 5 Volcanoes

CYBER THURSDAY July 11, 2019 – NO CLASS MEETING / Out-of-Class Assignment

Quiz 3 MONDAY July 15, 2019

8	Week 4	Minerals	Chapter 2	Minerals	Practice Quiz 6 Minerals
8	Week 4	Igneous Rocks	Chapter 3	Rocks	Practice Quiz 7 Rocks

Final Exam Thursday July 18, 2018

DAILY CLASS SCHEDULE SUMMER 2019

Generally, the daily class schedule will follow a work flow that accommodates multi-media lecture, in-class learning activities, lab exercises and practice quizzes. Class begins at 1:00 PM with ~1.5 hr of lecture / active learning, followed by ~1.5 hr lab period, and conclude with ~0.5 hr lecture review. This daily schedule is tentative, and is subject to modification as needed to accomplish class objectives.

EXAM AND QUIZ SCHEDULE SUMMER 2018

Pop Quiz 1 (10 pts) Thursday **June 27, 2019**
 Quiz 2 (25 pts) Monday **July 8, 2019**
 Quiz 3 (25 pts) Monday **July 15, 2019**
 Final Exam (100 pts) Thursday **July 18, 2019**

Homework Assignments / Practice Quizzes

The homework assignments are designed as online exercises using your textbook, the internet, and campus software called "Moodle". I have prepared a set of online, fill-in-the-blank homework exercises that are keyed to chapter readings in your textbook. By using the Moodle software, your homework exercises are administered and graded online. Individual weekly homeworks/practice quizzes will be available for throughout the term. **You will only be able to complete and submit the assigned online practice quizzes during the availability time. If you miss the deadlines you will receive a "zero" for the homework. Pay attention to the dates listed below!**

The following are procedures for accessing the online homework assignments:

- (1) You will have an individual student account set up on Moodle with a username and password.
- (2) The Moodle website may be accessed in the following ways:
 - (a) from the class homepage (www.wou.taylor ... follow the links to ES104 ... then follow the links to "Moodle" in the Homework Assignments section), or
 - (b) by surfing to **https://moodle.wou.edu**
- (3) Once at the site, log in to the Moodle class management system.
- (4) Enter your WOU network student username and password- **This will be the same as your email and wolfweb login.**
- (7) Weekly practice quizzes are arranged by topic, as presented in the syllabus, with explicit open times and due dates.
- (8) Click on the practice quiz assignment you wish to complete, and begin the online assignment.
- (9) **For each question, type in an answer in the blank box provided and click on the "save answer" radio button. When finished with all questions in the homework, click on "Finish". IF YOU DON'T SEE YOUR "HOMEWORK GRADE" AFTER YOU SUBMIT, THEN YOU DID NOT FOLLOW THE ABOVE INSTRUCTIONS. REMEMBER TO "SAVE ANSWER" FOR EACH QUESTION AND "FINISH" WHEN YOU HAVE COMPLETED THE HOMEWORK.**
- (10) You may stop and begin the assignment as many times as you wish, but only until you click "submit for grading".
- (11) **Make sure you print a hard copy of your homework answers and/or save them as a file on your local drive! The print out will be your hard-copy record that you completed the work. IF YOU DO NOT SAVE A HARD COPY OF YOUR WORK, AND THE COMPUTER RECORDS IT AS "0" THEN YOU WILL RECEIVE A "0"... SAVE A HARD COPY OF ALL YOUR WORK AS A BACK-UP RECORD.**

Note: Pay attention to the availability dates, once the deadline has passed you are out of luck! You have unlimited time and an unlimited number of tries to correctly answer and submit the questions. Your highest score will be recorded as the grade.

Note: Print your questions and answers from the browser icon... this will be your written record of completing the assignment!! **YOU WILL ALSO NEED THE HARD COPY OF YOUR HOMEWORK TO USE AS A QUIZ AND TEST STUDY GUIDE. ONLINE HOMEWORK QUESTIONS WILL APPEAR ON QUIZZES AND EXAMS.**

Tips and Tricks for Completing the Online Homework:

- (1) Read the text chapter in question before you start. The text readings are listed on the schedule above.
- (2) Log-on to Moodle and print out a copy of the homework questions.
- (3) Answer the questions on paper with your textbook, prior to working and submitting them online.
- (4) Log-on to Moodle and finish the online assignment.
- (5) Print a copy of your completed online homework, this is your hard-copy record that you completed the assignment (remember - if there is a way for a computer to make a mistake, it will happen to you!).

ES104 LAB SCHEDULE Summer 2018: This outline should be considered tentative at best. The following schedule may be modified as class ideas evolve throughout the summer session.

Class/Week	Dates	Lab Topics	Exercises / Instructions
Week 1	June 24-June 27, 2019	Models & Systems	Complete Pre-Lab, Complete Part A (skip p. 8), Skip Part B Activity A Complete Part B Activity B Skip Post-Lab Assessment
Week 1	June 24-June 27, 2019	Solar System	Complete Pre-Lab Complete Parts A and B Skip p. 2.8-2.9 Complete Post-Lab Assessment
Note: No class on Thursday July 4 Holiday			
Week 2	July 1-July 4, 2019	Plate Tectonics	Complete Pre-Lab Complete Parts A, B, and C Skip Post-Lab Assessment
Week 3	July 8-July 11, 2019	Earthquakes	Complete Pre-Lab Complete Part A Skip Parts B, C, and D Skip Post-Lab Assessment
Note: No class meeting on Cyber Thursday July 11			
Week 3	July 8-July 11, 2019	Volcanism	Complete Pre-Lab Complete Parts A and B Complete Part C (skip p. 8.8) Skip Post-Lab Assessment
Week 4	July 15-July 18, 2019	Minerals	Complete Pre-Lab Complete Parts A and B Skip Post-Lab Assessment
Week 4	July 15-July 18, 2019	Igneous Rocks	Complete Pre-Lab Complete Parts A and B Complete Post-Lab Assessment