

**GEOTECHNIQUES: QUANTITATIVE APPLICATIONS (G302)
POLICIES AND PROCEDURES**

Winter 2004 Term - Western Oregon University
1 CR F 1:00 - 3:50 PM Natural Sciences Bldg, Rm 218

INSTRUCTOR: Dr. S. Taylor

OFFICE: RM 210 Natural Sciences Bldg

OFFICE HOURS: M T 3-5 P.M.; F 10-11 A.M.
WEB SITE: www.wou.edu/taylor

PHONE: (w) 838-8398 (cell) 541-760-9216
E-MAIL: taylor@s@wou.edu

COURSE DESCRIPTION:

Class focuses on quantitative techniques in geology, applied mathematics, basic statistics, software applications, and field technology. One three-hour lab per week; offered in winter term. Additional field trips outside of scheduled class time may be required. PREREQ: Introductory Geology course, or consent of instructor. May be taken concurrently with introductory geology course.

THE PROFESSOR'S PHILOSOPHY ON UPPER DIVISION EARTH SCIENCE / GEOLOGY COURSES:

The upper division Earth Science / Geology course sequence is designed for mature, serious students who are willing to work hard, play hard, have fun, and learn in-depth skills / concepts in a professional academic setting. By default, our student population is very diverse with a wide array of skills, interests, and career goals. The student population ranges from serious Earth Science majors with focused career objectives, to Geology / Earth Science minors to Science Education majors. As such, the professor is charged with serving a diverse array of student interests and career goals in the most professional manner possible. The problem-solving and technical skills acquired via training in the Earth Sciences are highly valuable (and marketable), regardless of career track. Students are expected to actively participate in the learning process and make a significant contribution to the academic integrity of the Earth Science program at Western Oregon University. The ultimate goal of the program is to provide graduates with the academic skills that will enable them to be highly competitive in graduate school or the career marketplace. *GO TEAM!*

REQUIRED TEXTS:

Waltham, D., 2000, Mathematics – A Simple Tool for Geologists, 2nd Edition: Blackwell Science, 201 p.

ADDITIONAL READING:

Tutorials, journal articles, and text readings to be provided by the instructor.
Downing, D., 1988, Calculus the easy way: Barron's Educational Series, Inc.
Davis, J.C., 1986, Statistics and data analysis in geology, 2nd ed., Wiley,
Grossman, S.I., 1989, Algebra and Trigonometry: Saunders Publishing

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> ... and follow the links to the "G302" 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 the class web site, but you will be responsible for properly installing the software (and will do so at your own risk!).

Based on prior student suggestions, I have assembled my class notes and made them available. These notes may be freely printed at any campus internet station (e.g. ITC Bldg - Student Lab, Library, local department

computer labs). The notes are in outline form and are very comprehensive. "Exam Study Guides" will also be posted on the web site as the term progresses.

EVALUATIONS AND EXPECTATIONS:

Student performance will be evaluated on the basis of 2 quizzes (mid-term, final) and weekly lab exercises. The following is a breakdown of evaluation points, dates, and letter grades:

Quiz 1	25 pts
Quiz 2	50 pts
Class / Lab Exercises	125 pts
<hr/>	
TOTAL:	200 pts

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

Quizzes: Quizzes will largely consist of homework-type problems with an emphasis on practicum-style demonstration of skills developed each week.

Make-Up Quizzes: Under NO circumstances will make-up exams be administered without prior arrangement (at least five days) and good reason. Please show up on quiz day!

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 3 or 4 hours to complete outside of class time, maybe more in some cases, depending on your skill levels and ability. Please plan your schedule accordingly. Due dates for class exercises will be prescribed by the instructor. Late work will be accepted up to 1 week after the due date, but will be automatically assessed a penalty of -20% of the point total.

Due to the volume of students assigned to the instructor each term, he will not be able to grade the lab exercise work in detail. The homework and lab 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. Exercise answer keys will be posted on the class web site by the instructor. **It is your responsibility to: (1) check your work against the lab / homework keys, (2) make sure you understand how to complete the exercises, (3) find help if you have trouble with lab exercises, and (4) study / learn the exercise skills and material for the exams.**

A Note About Incompletes: No incomplete grades will be given during the last week of class. If you have a problem that warrants an incomplete, make arrangements prior to the last week (no exceptions!!).

A NOTE ABOUT LOST OR MISSING WORK

The instructor will only grade work that is received and 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. If the student demonstrates that the work was turned in, but is missing due to the instructor's incompetence, 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.

FIELD TRIP(S):

Local field trips and field exercises may be scheduled during the term as time permits. Please be aware that additional scheduling and personal time may be required as the course develops.

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.

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 Oregon University System employs the "quarter method" of academic scheduling, upper division courses are by nature "compressed" with much detailed information to cover in a relatively short period of time. Please note that most upper division text books are geared for courses at universities with a 16 week semester system (i.e. we are truly trying to pack 10 pounds of equations into a 5 pound calculator). As such, the 10th week of class is as 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! **Plan your schedule accordingly!**

TENTATIVE CLASS SCHEDULE: This outline should be considered tentative at best. The following schedule may be modified as class ideas evolve throughout the term.

<u>Week</u>	<u>Dates</u>	<u>Class Content</u>	<u>Class Exercises</u>	<u>Readings</u>
1	Jan 9	Class Policies, Introduction, Math/Algebra Review, Unit Conversions, Linear Equations	In-Class: Unit Algebra; HW1 – Intro to Geologic Problem Solving	Waltham Chap 1; Chap 2 – p. 17-24
2	Jan 16	Mapping and Surveying; Brunton Compass Surveying	Campus Tape and Compass Survey	Compton's Manual (web reading)
3	Jan 23	Functions and Geologic Variables, Intro to Excel	Excel Tutorial HW2 – Geologic Variables	Waltham Chap 2; Grossman Handouts
4	Jan 30	Intro to Trig./Strike-Dip Manipulating and Simplifying Equations	HW3 – Equation Manipulation In-Class Strike-Dip Exercise	Waltham, Ch 3-4 Compton's Manual (web reading)
5	Feb 6	Graphing Techniques, Grapher Software; Trig. Applications to Geology	In-Class: Grapher Tutorial HW4 – Trig Applications	Waltham Chap 5
Quiz 1 – Feb. 6; Midterm Lab Portfolio Due Wednesday Feb. 11				
6	Feb 13	Grapher (Cont.) Surfer – I	In-Class: More Graphing, Ternary Diagrams	Waltham Chap 6
7	Feb 20	Working with maps and spatial data; Surfer II	In-Class: Surfer Tutorial; Using Surfer to Create Digital Maps	Class Notes
8	Feb 27	Intro to Geostatistics, Excel as a Stat. Tool	In-Class: Excel Statistics HW5: Statistical Analysis of Hillslope Gradients	Waltham Chap 7 Davis Ch 1-2
9	Mar 5	Rockworks Software, Intro to Final Project	In-Class: Rockworks Tutorial	Class Notes
10	Mar 13	Final Project/Take-Home Quiz	Final Project	Class Notes
Final Lab Portfolio Due Friday March 13				
11	Mar 17-21	Final Project Due Wed. March 19		