

Note: Yellow highlight indicates new policies related to the Public Health Emergency.  
Ver. 1.0, updated March 28, 2021

**ES302 QUANTITATIVE METHODS (3 Credits, CRN 30898)**  
**POLICIES AND PROCEDURES**  
**Western Oregon University**  
**Spring Term 2021 – March 29 to June 11 – Hybrid Online**

INSTRUCTOR: Dr. S. Taylor

**VIRTUAL OFFICE HOURS:** R 12-2 PM  
(via Zoom) By Appointment

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

TAYLOR PERSONAL OFFICE ZOOM MEETING URL:

<https://wou-edu.zoom.us/j/8273666289?pwd=bitrNUtBNzNZNUYycFF6NlpzT2ZKUT09>

ES302 WEEKLY VIRTUAL CLASS MEETINGS: Wednesdays 1 – 3 PM via Zoom

<https://wou-edu.zoom.us/j/85166818303?pwd=YkdCZ1hWdjAzZEdET3p4bXZSWUhFUT09>

Meeting ID: 851 6681 8303 Passcode: 788363

ES302 MOODLE SHELL: <https://moodle.wou.edu/>

ES302 CLASS WEB SITE: [https://people.wou.edu/~taylors/g302/ES302\\_home.html](https://people.wou.edu/~taylors/g302/ES302_home.html)

**COURSE DESCRIPTION:**

Class focuses on quantitative techniques in geology, applied mathematics, basic statistics, software applications, technology integration and field mapping techniques. Three hours of active learning per week. PREREQ: Introductory Geology course, or consent of instructor. May be taken concurrently with introductory geology course.

**REMOTE ONLINE MODE:**

This course will be conducted entirely online in a remote learning mode format. Students will engage internet tools including email, class web site, Moodle learning management system, and web conferencing technology.

As a team, we will be using up to 6 possible modes of remote communication for this term, either separately or together in combination, these include: (1) Personal one-on-one mobile device interactions (e.g. voice calls, text messaging, whatsapp), (2) WOU email system ([taylor@s.wou.edu](mailto:taylor@s.wou.edu)), (3) ES302 Class Web Site: [https://people.wou.edu/~taylors/g302/ES302\\_home.html](https://people.wou.edu/~taylors/g302/ES302_home.html)), (4) ES302 Class Moodle Site: (<https://moodle.wou.edu/>), (5) Zoom online conferencing tool and if necessary, (6) U.S. Postal Service and paper mail.

**Virtual Class Meetings:** The class assignments and labs will be conducted mostly online in asynchronous mode, **however we will hold one synchronous real-time virtual class meeting per week via Zoom, on Wednesdays from 1 – 3 PM for Spring Term 2021 via Zoom (see link under contact information above).** Each week, at the listed day and time, I will have a meeting space open for students to attend a virtual class meeting in which I will provide weekly class instructions and lesson overviews; plus answer any questions or assist with assignments. Zoom is a web browser-based tool, click the meeting link posted above to join the meeting; voice, video and text / chat options are available. If you experience difficulty connecting to the Zoom space during meeting time, Plan B give me a call directly on cell phone at 541-760-9216, or email that works as well. I will send out email reminders and virtual meeting links as we progress through the class session. **Alternative options will be provided to students who are not able to attend the virtual class meeting; recordings will be archived and available.**

**Virtual Office Hours:** Standing office hours will be held during the posted days / times above using the Zoom personal meeting tool. The instructor has an account with a virtual room set up that has a static web address with following URL: <https://wou-edu.zoom.us/j/8273666289?pwd=bitrNUtBNzNZNUYycFF6NlpzT2ZKUT09>

Each week, at the listed day and time, I will have a meeting space open for students to drop in as needed. Enter the URL into a web browser, click link to join meeting, enter your full name and email address in the login box to enter virtual meeting room. Voice, video and text / chat options are available. If you experience difficulty connecting to the Zoom space during office hours, Plan B give me a call directly on cell phone at 541-760-9216, or email anytime, that works as well.

### **COURSE GOALS AND LEARNING OBJECTIVES:**

ES302 learning objectives are aligned with WOU Earth Science program outcomes and 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 ES302 Quantitative Methods students will be able to demonstrate minimum competency in the following program areas:

1. Apply algebraic, trigonometric, and statistical principles to geologic data collection and analysis (Q)
2. Utilize surveying equipment, measurement instruments and map principles to collect and organize geologic data (PO2)
3. Use computer hardware and software to collect and analyze geologic data (PO2)
4. Employ 2-D and 3-D visualization techniques to organize geologic data and identify spatial patterns (PO2)

### **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 Geography and 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!*

### **TEXT AND READINGS (to be provided by instructor):**

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

**(\*\*We will be working problems out of this book).** Additional tutorials, journal articles, and text readings to be provided by the instructor.

### **CLASS NOTES:**

A comprehensive set of instructor class notes are available for download via the internet. The class web site is accessed via the following URLs <http://www.wou.edu/taylor> [https://people.wou.edu/~taylors/g302/ES302\\_home.html](https://people.wou.edu/~taylors/g302/ES302_home.html) and follow the links to the "ES302" home page, links will also be posted in Moodle. The class notes are available as Adobe Acrobat Reader files (\*.pdf file), 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 **quizzes / exams** (quizzes, mid-term, final), class/lab exercises, and weekly attendance/class participation. The following is a breakdown of evaluation points, dates, and letter grades:

Quiz 1	20 pts	(5.5%)
Quiz 2	20 pts	(5.5%)
Midterm Exam	50 pts	(13.7%)
Quiz 3	30 pts	(8.2%)
Final Exam	60 pts	(16.4%)
Class / Lab Exercises (Digital Midterm and Final Lab Report)	135 pts	(37.0%)
Weekly Class Participation (5 pts per week x 10 weeks)	50 pts	(13.7%)
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TOTAL:	365 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

**Alternative Grading Method for Spring Term 2021:** Due to the Public Health Emergency, WOU Administration has approved a grading system whereby any student in a course graded on an A - F basis, will have the option to take the class as Satisfactory/No Credit (S\*/NC). This means that each instructor will still grade students using the designated A - F grading mode, and any student that elects this option will have either an S\* or an NC recorded on their transcript. S\*. WOU generally uses a D- or higher as the cut-off for an S\* grade, however this may not apply to all courses in the catalog depending on pre-requisite grade requirements for advancement to higher-level courses. Check with the Registrar's office and your academic advisor for more details and policies regarding this grade option.

**Quizzes and Exams:** Quizzes and Exams will consist of closed-book knowledge demonstration and open-book homework-type problems with an emphasis on practicum-style demonstration of skills developed each week. **For Spring Term 2021, quizzes and exams will be administered in remote online mode using the Moodle learning management system.**

**Make-Up Quizzes:** Under NO circumstances will make-up quizzes be administered without prior arrangement (at least five days) and good reason. Please complete you online quizzes and exams in the time window allotted!

**Weekly Class Participation:** ES302 is a methods course that emphasizes hands-on activities and skill building. Since this course is being offered in an online format, students are expected to engage active learning modules with their peers and instructor on a daily and weekly basis. Successful completion of the course is based on online student participation and collective interaction. As such, student work activities and

progress will be checked via Moodle Login Records at the end of select class periods and each week. Students will be assigned weekly lab activities with a Virtual Class meeting that provides an introduction and overview of required methodology. Assessment will involve one-on-one debriefing with the instructor and clear demonstration of student achievement. Class participation points are available to students who demonstrate adequate weekly progress on their in-class assignments and show up as part of the team.

**Class and Lab Assignments / Time Management:** 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, for reduced credit. 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.**

**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) training videos, (3) independent student engagement of take-home lab exercises and quantitative problem solving; (4) independent student reading of web resources linked from the class web site; (5) 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 (6) successful attendance, note taking, and engagement of online activities delivered by the instructor. Instructor lectures and Virtual Class Meetings 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.

**DIGITAL LAB SUBMISSIONS:** All assignments will be submitted on a rolling weekly basis via the class Moodle Course Shell (<https://moodle.wou.edu>).

**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.

#### **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. Due to the Public Health Emergency, the short-turnaround shift to remote / online education will be a work in progress. Patience and teamwork will be required. The instructor reserves the right to change the syllabus and class structure, as needed, given the dynamic nature of the situation, and the potential for glitches associated with the technology infrastructure. Much time will be provided for students to succeed and adjust to the new learning mode, as the term progresses.

### **FIELD TRIP(S) AND VIRTUAL GUEST LECTURES:**

Due to Public Health Emergency: NO FIELD TRIPS IN SPRING 2021, however there may be opportunities for the class to engage guest lectures through webinars and podcasts. Some of these may be synchronous presentations that require an appointment-based log-in at a specified time and date, outside of the normally scheduled Zoom class time. As such there may be some additional appointment-based time commitments required as the term progresses, please plan your schedule accordingly. The instructor will keep you posted as these opportunities arise, recordings will be made available as possible.

### **STUDENT HONOR POLICY AND CODE OF CONDUCT:**

Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations, including selling/buying and/or uploading/downloading instructors' classroom information without express permission from the instructor. Misconduct also includes copying others work, cutting-and-pasting computer results, 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. To avoid a problem in this regard, students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students' obligation to clarify the question with the instructor before acting. For more information, please see the WOU Code of Student Responsibility at <https://wou.edu/studentconduct/files/2017/10/CSR-09.01.17.pdf>

### **OTHER REQUIRED MATERIALS, SOFTWARE AND HARDWARE:**

Students will also need a scientific calculator, ruler, protractor, colored pencils, and frequent access to a personal computer or compatible device connected to the internet. You will be required to use these materials during labs and exams. Given the online mode of delivery students will need access to computer hardware, software (including MS Office, MS Word, MS Excel or alternative compatible products), and a stable internet connection capable of streaming video. MS Office365, including Excel, is available free to all WOU students, for more information connecting visit the following URL: <https://wou.edu/tech/remote-access/> You will be required to complete and electronically submit worksheets using MS Word and Adobe Acrobat PDF file formats derived from a Windows 10 Operating System. If you are using Apple IOS / MAC software products, you will be required to import and export to Windows-compatible MS word and Adobe PDF file formats. This process may involve scanning hand-written work with your phone or scanner, and / or converting to a windows-compatible image file format including JPG and PDF. 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 chat with me.

### **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 in-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. For more information on how to submit a student absence notification request, please contact the Academic Advising and Learning Center at 503-838-8428 or email: <https://wou.edu/advising/>

**Student Absence Notification:** If for some reason you are absent due to an extenuating circumstance or medical situation, the instructor may ask you to report the incident through official channels before making exceptions to missed or late work. To complete the Student Absence Notification Form, visit <https://wou.edu/advising/> or contact the Student Success and Advising Center at 503-838-8428.

### **STUDENT TECHNOLOGY SUPPORT:**

A website with detailed information about computer requirements and technology support for WOU students is available at the following URL: <https://wou.edu/provost/keep-learning/> In addition, other important phone numbers and web links for WOU technology support are listed below:

Western Oregon University Moodle Support: 1-503-838- 9300 ([moodle@wou.edu](mailto:moodle@wou.edu))

Western Oregon University Computing Solutions (UCS): 1-503-838-8925 ([ucshelpdesk@wou.edu](mailto:ucshelpdesk@wou.edu))

WOU Remote Access Resource Page: <https://wou.edu/tech/remote-access/>

WOU Academic Affairs Resource Page: <https://wou.edu/provost/instructional-resiliency/>

### **ANOTHER NOTE ABOUT LAB EXERCISES:**

Lab exercises will be quantitative in nature with an expectation that students have or will develop skills in the areas of applied algebra and trigonometry. Students will learn computer applications with emphasis on data analysis and problem solving in the Earth sciences. As such, lab exercises will require an additional time commitment outside of the scheduled weekly meeting (i.e. you will have "homework" and "projects" to work on outside of the scheduled class time).

### **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!**

### **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.

### **A NOTE ABOUT COMPUTER-BASED AND ONLINE COURSES:**

This class will use technology, hardware, software, and the internet. As such, there are endless possibilities for software glitches, system failure, and total confusion. Your patience with lab exercises, assignments, course content, and software / hardware glitches will be greatly appreciated. **Our motto for this term: "expect the worst and hope for the best".**

### **INSTRUCTOR TIMELINE FOR ONLINE RESPONSE; GRADING EXAMS AND ASSIGNMENTS:**

The instructor will respond to emails / messages ASAP and within 24 hours (usually much faster, but understand that it could be up to a day before I respond). On weekends and in the evening, it may take a bit longer, but I will make a point of getting back to you as quickly as possible. The instructor's class grades are typically due to registrar's office the week following the class end date. All exams, lab materials, and assignments submitted by students throughout the term will be graded by that time, however the professor will make an effort to return graded materials within two weeks of the assigned due date. Answer keys and other resources will be posted to assist with students evaluating their work on a weekly basis. **Grade Reports: I will not be using the Moodle gradebook tool. I will be personally reviewing your work submitted via Moodle upload, grading it manually, and recording scores in my own spreadsheet / gradebook, outside of Moodle. I will send you individual grade updates via email as the session progresses.**

**ES302 SPRING 2021 CLASS SCHEDULE:** This outline should be considered tentative at best. The following schedule may be modified as the class framework evolves throughout the term. **Note 1:** Given the Public Health Emergency, large measures of patience and flexibility will be required by the team. The Professor will guide you through and give plenty of instructions on how and when to complete your work, with plenty of time to submit. **Note 2:** Readings listed "Waltham" refers to the Geology Mathematics text chapters available on the Moodle site. *(Ver 1.0, Updated March 28, 2010)*

<u>Week</u>	<u>Dates</u>	<u>Class Content</u>	<u>Class Exercises</u>	<u>Readings</u>
1	Mar. 29-Apr. 4	Class Policies, Team Building	Pre-Game Diagnostic Skills Assessment	Instructor Resources
		<b>No Zoom Class Meeting Week 1</b>		
2	Apr. 5-11	Algebraic Problem Solving, Math/Algebra Review, Units	See checklist / class web page	Instructor Resources Waltham Chap. 1
		<b>Zoom Class Meeting Wednesday April 7; 1 PM</b>		
		<b>Week 1 Assignments Due for Moodle Submission Monday April 5; 11 PM</b>		
3	Apr. 12-18	2-D Map Principles, Scale, Location, Bearings, Gradient	See checklist / class web page	Instructor Resources
		<b>Zoom Class Meeting Wednesday April 14; 1 PM</b>		
		<b>Week 2 Assignments Due for Moodle Submission Monday April 12; 11 PM</b>		
		<b>Quiz 1, Friday April 16</b>		
4	Apr. 19-25	Equations, Geologic Variables, Equation Manipulation	See checklist / class web page	Waltham Chap. 2-3 Instructor Resources
		<b>Zoom Class Meeting Wednesday April 21; 1 PM</b>		
		<b>Week 3 Assignments Due for Moodle Submission Monday April 19; 11 PM</b>		
5	Apr. 26-May 2	Map Applications to Geologic Problem Solving (Maps Part 2)	See checklist / class web page	Instructor Resources
		<b>Zoom Class Meeting Wednesday April 28; 1 PM</b>		
		<b>Week 4 Assignments Due for Moodle Submission Monday April 26; 11 PM</b>		
		<b>Quiz 2, Friday April 30</b>		
6	May 3-9	Intro to Trigonometry (Part 1)	See checklist / class web page	Waltham Chap. 5 Instructor Resources
		<b>Zoom Class Meeting Wednesday May 5; 1 PM</b>		
		<b>Week 5 Assignments Due for Moodle Submission Monday May 3; 11 PM</b>		
		<b>Midterm Exam Friday May 7</b>		
7	May 10-16	Trigonometry (Part 2), Geologic Applications	See checklist / class web page	Waltham Chap. 5 Instructor Resources
		<b>Zoom Class Meeting Wednesday May 12; 1 PM</b>		
		<b>Week 6 Assignments Due for Moodle Submission Monday May 10; 11 PM</b>		
8	May 17-23	Intro to Graphing, Rose Plots, Ternary Plots, Stereonets	See checklist / class web page	Waltham Ch. 6 Instructor Resources
		<b>Zoom Class Meeting Wednesday May 19; 1 PM</b>		
		<b>Week 7 Assignments Due for Moodle Submission Monday May 17; 11 PM</b>		
9	May 24-30	Geostatistics, Data Analysis	See checklist / class web page	Waltham Ch. 7 Instructor Resources
		<b>Zoom Class Meeting Wednesday May 26; 1 PM</b>		
		<b>Week 8 Assignments Due for Moodle Submission Tuesday May 25; 11 PM</b>		
		<b>Quiz 3, Friday May 28</b>		
10	May 31-June 6	MS Excel, Spreadsheet Applications to Geoscience	<b>OPEN SCHEDULE TBD</b>	Instructor Resources
		<b>Zoom Class Meeting Wednesday June 2; 1 PM</b>		
		<b>Week 9 Assignments Due for Moodle Submission Monday May 31; 11 PM</b>		
11	June 7-11	<b>Final Exam Wednesday June 9; No Zoom Class Meeting</b>		
		<b>Week 10 Assignments Due for Moodle Submission Monday June 7; 11 PM</b>		