

Reedley College
Online Syllabus
GEOL - 9: Introduction to Earth Science
Fall, 2021

Instructor: Dustin White

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Contact: All material and class-related inquiries must be sent via email or Canvas.

COURSE INFORMATION

Semester Credit Hours:	4
Lecture hours per Day:	1.5
Lab hours per Day:	1
Contact Hours per Semester:	90

Course Description: This course is an introduction to the earth sciences with an emphasis on basic topics and principles in geology. The major concepts of oceanography, hydrology, meteorology, and astronomy are also examined in detail. This course may be used for the transfer degree in Liberal Studies. ADVISORIES: Eligibility for English 1A and Mathematics 201. (A, CSU-GE, UC, I).

Important Deadlines:

Deadline to drop with refund – end of 2nd week (8/20/2021)

Deadline to drop **without** ‘W’ and to add course – end of 3rd week (8/27/2021)

Deadline to drop **with** a “W” - end of 9th week (10/8/2021)

Course Objectives:

1. Explain the scientific method and apply it to earth science studies.
2. Identify the major Earth systems, including plate tectonics, geologic structures, mountain building, seismic activity and volcanoes, and describe their significant interactions.
3. Identify common minerals and igneous, sedimentary and metamorphic rocks that make up the earth’s surface and know the importance of various minerals and rocks to humans.
4. Summarize the rock cycle and explain the major processes involved in rock formation.
5. Describe the major processes that create and modify the Earth's landforms, including erosion and soil formation.
6. Summarize the hydrologic cycle and explain the major processes involved in the movement of water, including surface water, groundwater, glaciers and deserts.
7. Identify the earth’s resources and determine if each of the resources is renewable or nonrenewable.

8. Describe the theory of plate tectonics and the evidence for the theory.
9. Classify the major types of plate interactions and list examples of each type.
10. Describe how volcanoes and earthquakes are formed and identify where they occur relative to plate tectonics.
11. Use triangulation to explain how earthquake epicenters are located and use seismic waves to determine distance from an earthquake.
12. Summarize the major geological principles and be use to determine the geologic history of a landscape.
13. Describe the concept of geologic time and how the geologic time scale was developed.
14. Compare relative and absolute dating, fossils and fossilization.
15. Recognize and explain the topography of the sea floor and describe ocean currents, tides and shorelines
16. Describe the chemistry of seawater.
17. Recognize and explain coastal erosional and depositional processes and the landforms they produce.
18. Summarize the causes of tidal fluctuations.
19. Describe the role of the ocean in the creation and modification of weather and climate.
20. Summarize the difference between weather and climate.
21. Describe the causes of the seasonal weather cycle.
22. Describe the composition of the atmosphere and earth's atmospheric circulation patterns.
23. List and describe the major types of climate.
24. Compare current theories and evidence for the origin of the universe and the solar system.
25. Identify the major planets and explain their motion relative to the sun.
26. Describe the systematic trends in planetary composition, density, size, orbital speed, etc. within our solar system.
27. Describe stars and interstellar matter.

Student Learning Outcomes:

1. Explain and apply the scientific method to problem solving across numerous disciplines.
2. Differentiate among the major Earth systems and describe how the systems are interconnected. Earth's systems include the hydrologic cycle, rock cycle, plate tectonics cycle, solar system, geologic time, weather and climate.
3. Describe basic physical properties of minerals and rocks and use appropriate methods to identify common minerals and rocks.
4. Utilize the plate tectonics theory to explain the distribution of Earth's major topographic features and the distribution of volcanoes and seismic activity.
5. Describe the forces and processes that shape the earth's surface and their affects over geologic time.
6. Describe and explain the controls of Earth's weather and climate.
7. Demonstrate a fundamental understanding of the significant role played by oceans in controlling Earth's weather, climate, and biological systems.

8. Be able to explain and critique theories for the origin of the solar system and the universe.
9. Communicate complex course concepts effectively in writing and diagrams.

Textbooks and PDF reader:

- **(Recommended) *Earth Science***, 15th Edition (14th Ed is okay); by Tarbuck, E. J., Lutgens, F. K., Tasa, D. G., Tasa, D., 2019, from Pearson Education, Inc., ISBN-10: 0-134-54353-X or ISBN-13: 978-0-134-54353-6 (rentals are available)
- **(Required) *Applications and Investigations in Earth Science***, 9th Edition; by Tarbuck, E. J., Lutgens, F. K., Tasa, D. G., Tasa, D., 2019, from Pearson Education, Inc., ISBN 10 : 0-13-474624-4 or ISBN 13: 978-0-13-474624-1 (**rentals are available**)

These books or eTextbooks can be bought or **rented** at: www.amazon.com, www.ecampus.com, www.vitalsource.com, or www.chegg.com as well as others not listed. Browse these sites to find what fits your needs best.

- **Download Adobe Reader** for free by using the following URL (This is a safe and reliable software for pdf files. Many documents will be distributed in a PDF format since it is the most accessible document so make sure you can open and read them. Microsoft Word has the option to save your work as a PDF so make sure to make good use of it. Note that the Adobe Acrobat Reader is the only free software that the company offers: <https://get.adobe.com/reader/otherversions/>
 - Step one: Select your operation system such as windows 10 or Mac OS 10.12-15
 - Step two: Select a language
 - Step three: Select the first most recent option
 - Step four: click the yellow “Download Acrobat Reader” button and allow the app to run on your computer.

Basis for Course Grade:

10% Homework		
10% Participation in class forums	90-100	A
30% Lab Assignments	80-89.9	B
40% Unit Exams	70-79.9	C
<u>10% Comprehensive Final</u>	60-69.9	D
100% Total	0-59.9	F

Methods of Instruction/Course Format/Delivery:

ONLINE:

This is an online course therefore, this includes video/screencast lecture, online discussion and collaboration, lecture activities, reading assignments, homework, quizzes, research, presentation, pre-laboratory activities, laboratory experimentation and laboratory reports. As to be expected, the manner in which material is presented, assignments are assigned and collected, and grading may change or vary from face-to-face class methods.

Homework Assignments:

The main purpose of homework is not to create busy work, yet instead, it is designed to help students focus on core concepts. These assignments can range from questions from the book to assigned readings. Students who complete these assignments usually do better on the tests. Homework will be assigned daily and are due one day after assignment date. All Homework assignments must be completed and turned in using Canvas text entry or file uploads (Word doc or pdf). The assignments will require the textbook in order to complete. See textbook description for details. The tab or menu button to get to this system is located in Canvas on the left side of the screen on the course Homepage. For homework to be most useful in preparing for class work and exams, it must be submitted by the date due. Homework may be assigned at the discretion of the instructor, such as, exercise questions and key terms found at the end of each chapter in the textbook etc., to address special study needs.

Participation in class forums and Lecture Activities:

Exercises/activities performed online as participation in the lesson or quizzes is a requirement. These activities are assigned twice a week, counted as attendance, and are graded as participation. All students are expected to participate in class forums and lecture activities in order to receive credit.

Lab Assignments/Assessments:

Lab is a major portion of this course and is designed to help students evolve from memorized information to actual understanding of the concepts, theory, and practice. Lab will focus on field aspects of Earth Science experimentation, and question sets designed to broaden the understanding of our planet. Contents of labs will follow the lecture. Labs are due the following lab period. At the instructors' discretion, the following components may or may not be used or modified, extra points may be earned and assignment grades may be adjusted, dropped and/or replaced. LATE OR MAKE-UP WORK -to receive a grade, the late work must be turned in within 1 day of the original assignment closure due date and your grade will be reduced by 30 percent. If the reason for the late or make-up assignment is because of your participation in an approved College of the Sequoias activity, your grade will not be reduced by 30 percent; however, the assignment must be turned in within a day of the original assignment due date.

Unit Exams:

The examination will be composed of short questions and major questions with the emphasis on the concepts, theory, and practice. The chapters and content that make up each unit exam will be posted on your Canvas Home page. There will be 3-unit exams (including the final) throughout the semester and are worth 100 points each. Each exam must be taken using Canvas during the date and time permitted. Absences on exam days are not excused for ANY reason other than approved Reedley College activities. Students with excused absences may take a make-up exam similar to the one given at a time convenient to the instructor. The make-up exam may be in a different format than the original exam e.g. comprehensive, all essay/problems etc. The final exam (Exam 3) may be comprehensive; therefore, you should prepare for this exam throughout the semester. Additional information will be posted in Canvas towards the end of the semester.

Application assignments:

These assignments may be assigned periodically and are completed and turned in using Canvas text entry or file uploads (Word doc or pdf). These assignments are designed to help the student see the real world applications of Earth Science and understand how to research/present scientific information from an article.

Online Laboratory Experiments:

Laboratory experiments will be performed in order to apply the general principles, laws and theories of Earth Science learned during lecture. Lab work will be recorded and submitted online. No more than 2 missed labs may be made up. No exceptions! The missed lab must be made up within 1 day of the original lab date. It is the student's responsibility to make arrangements, time and date, with the lab instructor to make up the missed lab. No additional make up lab times will be available. Once the new lab is set up, previous labs will not be offered for make-up. There are 100 points possible for each lab completed and all labs must be completed.

Teaching and Exams Methods:

Lectures and laboratory classes are the major means of teaching. Emphasis will be on the lab exercises. The examination will be composed of short questions and major questions with the emphasis on the concepts, theory, and practice. Late work is NOT accepted and tests and exams cannot be taken at a later date!

Course Generalized Schedule

GEOL-9: Introduction To Earth Science, Tentative Schedule

Week	Date	Unit	Lecture Content	Lab Content	Ch
1	8/9 to 8/25	Unit 1: Rocks & Minerals	Welcome and Introduction to Earth Science	Lab 0: Basic Skills	1
			Geology- Earth's Materials	Lab 1: Minerals	2
2			Geology- Earth's Materials	Lab 2A: Rocks and the Rock Cycle	3
3			Geology- Earth's Materials	Lab 2B: Rocks and the Rock Cycle	
			(8/25) Unit 1 Test - Earth Materials		
4	8/26 to 9/15	Unit 2: Forces Within	Geology- Tectonics	Lab 3: Plate Tectonics	4
			Geology- Earthquakes and Earth's Interior	Lab 4: Earthquakes and Earth's Interior	5
5			Geology- Volcanism	Lab 5: Volcanism and Volcanic Hazards	6
			<i>Labor Day - September 6th</i>		
6			Geology- Crustal Deformation and Mountain Building	Lab 6: Geologic Maps, Block Diagrams, and Rock Structures	7
			(9/15) Unit 2 Test - Forces Within		
7	9/16 to 10/6	Units 3&4: Earth's Surface & History	Geology- Weathering, Soil, and Mass Movement	Lab 7: Aerial Photographs, Satellite Images, and Topographic Maps	8
			Geology- Running Water and Groundwater	Lab 8: Shaping Earth's Surface: Running Water and Groundwater	9
8			Geology- Glaciers, Deserts, and Wind	Lab 9: Shaping Earth's Surface: Arid and Glacial Landscapes	10
			Geology- Geologic Time	Lab 10: Geologic Time	11
9			Geology- Evolution of Earth	Lab 10: Geologic Time	12
			(10/6) Units 3 & 4 Test - Earth's Surface and History		
10	10/7 to 10/20	Unit 5: Oceanography	Oceanography- The Ocean Floor	Lab 11: Introduction to Oceanography	13
			Oceanography- Ocean Water and Ocean Life	Lab 12: Waves, Currents, and Tides	14
11			Oceanography- The Dynamic Ocean	Lab 13: Earth-Sun Relationships	15
			(10/20) Unit 5 Test - Oceanography		
12	10/21 to 11/14	Unit 6: Meteorology	Meteorology- Earth's Atmosphere	Lab 14: Heating the Atmosphere	16
			Meteorology- Moisture, Clouds, and Precipitation	Lab 15: Atmospheric Moisture, Pressure, and Wind	17
13			Meteorology- Air Pressure and Wind	Lab 16: Air Masses, Midlatitude Cyclones, and Weather Maps	18
			Meteorology- Weather Patterns and Severe Storms	Lab 17: Global Climates	19
14			Meteorology- Climates and Global Climate Change	Lab 18: Astronomical Observations	20
			<i>Veterans Day - November 11</i>		
			(11/14) Unit 6 Test - Meteorology		
15	11/15 to 12/5	Unit 7: Astronomy	Astronomy- Origins of Modern Astronomy	Lab 19: Patterns in the Solar System	21
			Astronomy- Our Solar System	Lab 20: Locating the Planets	22
16			Astronomy- Lights, Telescopes, and the Sun	Lab 21: Examining the Terrestrial Planets	23
			<i>Thanksgiving Break - November (25-26)</i>		
17			Astronomy- Beyond Our Solar System	Lab 22: Motions of the Earth-Moon System	24
			Course Review	Lab 22: Motions of the Earth-Moon System cont.	
18	12/6 to 12/10		Finals Week- December (6-10)		
			(12/10) Comprehensive Final Exam		
			Exam is due Wednesday 12/10 - No Exceptions		

ADMINISTRATION:

Attendance:

Students are expected to take part in all class forums meeting during the assigned times. Class forums and quizzes will be used to track attendance. Class attendance is monitored and recorded. However, this level of instruction includes expected personal responsibility that will not always be addressed. YOU are responsible for missed information. Students who are truly interested in learning will read the chapter, watch the lecture, and participate in class forums ON TIME and ask questions, and those who have truly learned will be able to answer questions asked of them during discussions and exams. Attendance WILL affect your grade because you probably missed something you needed to learn how to do. Additionally, attendance is considered when rounding any grade. For Reedley College approved and excused absences, it is your responsibility to contact me about what you missed. I will therefore be grading students on their questions and especially their answers, as well as on their participation in the weekly discussions. Furthermore, any student(s) who misses the first day of class will be dropped from the course.

Withdrawal Policy:

A student may need to withdraw from the course before the semester's end. It is the student's responsibility to complete and submit the appropriate forms (as provided by the admission and registration office) on or before the withdrawal date. The withdrawal date is posted on the college academic calendar. A student who ceases to attend class discussions without formal withdrawal will receive a grade of "F" for the course. The instructor reserves the right to withdraw a student from the course in accordance with college policy.

Internet Etiquette (Netiquette):

No user shall post personal or confidential information concerning another party without their express permission. No student shall copy, alter or share files of course material submitted by another student. All the standards of the academic honesty policy shall apply to all online course material. Students shall be held accountable for posting libelous or obscene material on any electronic forum hosted or expressly regulated by the college under user agreement. The instructor and the college reserve the right to remove said material and hold disciplinary actions in accordance with college policy. The instructor and the college shall have the right to remove a student from the course (resulting in a failing grade) and take appropriate disciplinary actions for violating any of the aforementioned course policies. Please refer to the Reedley College Catalog section titled Administrative Policies for Policy on Cheating and Plagiarism. Students who violate proper internet etiquette in an assignment shall fail the assignment on the first offense and shall fail the class upon the second offense.

In an online classroom, our primary means of communication is written. The written language has many advantages: more opportunity for reasoned thought, more ability to go in-depth, and more time to think through an issue before posting a comment. However, written communication also has certain disadvantages, such as a lack of the face-to-face signaling that occurs through body language, intonation, pausing, facial expressions, and gestures. As a result, please be aware of the possibility of miscommunication and compose your comments in

a positive, supportive, and constructive manner. All online users should take great care in their internet behavior. Students are expected to remain respectful in all electronic communication as any publicly or privately shared media will be viewed by others. This communication includes all written material, submitted assignments, pictures, audio recordings, and video recordings.

Plagiarism Notice:

Again, please refer to the Reedley College Catalog section titled Administrative Policies for Policy on Cheating and Plagiarism. All lab exercises and homework must be completed independently. Copying work from others without putting in any substantial individual effort constitutes plagiarism, which will be subject to disciplinary actions in accordance with policy.

Cheating:

"Cheating" is defined as unauthorized help on an examination or assigned course material. A student must not receive from any other student or give to any other student any information, answers, or help during an exam. A student must not "steal" the answers from an unsuspecting student during an exam. A student must not use any sources for answers during an exam (including, but not limited to: notes, books, or electronic devices) without prior authorization from the professor. A student must not obtain exam questions illegally, tamper with the exam questions, nor change the results of an exam after it has been graded. All cheating infractions will result in a grade of "0" for the assignment. A student will fail the class upon their second cheating offense. This policy shall be adhered to unless mitigating circumstances should prove a lesser penalty should apply.

Privacy Policy:

The instructor reserves the right to pursue disciplinary and legal action against any student who illicitly obtains and reveals private instructional information, including, but not limited to answer keys or class grades. Furthermore, the instructor will uphold the privacy of a student's grades, disability, and all other personal information in accord with school policy, state and federal law. A student perpetually maintains the right to review their course grades.

Disability Policy:

If you have special needs as addressed by the American with Disabilities Act (ADA) and need course materials in alternative formats, notify your course instructor immediately. Reasonable efforts will be made to accommodate your special needs. Students with a learning disability must verify their disability with Reedley college. The student is responsible for presenting proper verification to the instructor at the beginning of the course. Upon verification, the instructor shall make the appropriate accommodations for the student. The instructor shall not implement special accommodations for students whose disability has not been verified by the college. The instructor is not responsible for a student's poor class performance before verification is presented. A disability does not exempt a student from proper classroom etiquette or the student code of conduct. This class will fully comply with state and federal laws in addition to Reedley College policies.

ANTI-RACISM STATEMENT

Reedley College stands in solidarity with those fighting for equality and racial justice and in doing so, we affirm our commitment to identifying, addressing, and eliminating all forms of racism and ethnic biases. We are committed to establishing and sustaining an anti-racism learning and working environment by becoming racially literate and understanding the ways in which our biases (both conscious and unconscious), power and privilege influence our institutional services, policies, and practices.

As educational practitioners, we strive to equitize our college and educational practices, we acknowledge it is not enough to be “not racist.” We also recognize that regardless of one’s own race or ethnicity, every person has an individual perspective of racism, bias, and anti-racism. We will work to develop collective responses that oppose systematic racism and dismantle practices that perpetuate racism at Reedley College. Racially offensive comments, postings, or behaviors made by any Reedley College student or employee do not represent the values of the college and are unacceptable and will not be tolerated.

We stand committed and will hold ourselves accountable to:

Affirm explicitly, and in united solidarity, our identity as an anti-racist educational institution.

Fostering individual and institutional examination of implicit bias and systemic advantage/oppression such that our anti-racism commitment resulting in actions that are reflected in the life and culture of the college through our policies, programs, and practices as we continue to learn about racism and ethnic oppression.

Developing and implementing strategies and best-practices that dismantle racism and ethnic oppression within all aspects of our departments, programs, and the broader communities we serve.

Canvas:

This course is available on the Canvas learning management system and will contain all information necessary for the course. Canvas is also the method in which you will contact me, make any necessary appointments, receive announcements, take quizzes, do your homework, and watch screen casts. Please make sure you know how to use it. Make sure you have the latest free download of adobe flash player. There are Canvas orientations through the distance learning office you may attend for assistance.

Instructor Philosophy:

Organization, time management, and determination are several of the keys to success in this course. We will discuss goal setting, time management, degree plans, and study skills within the first week of class. The instructor really wants you to be successful in this course. Please do not hesitate to ask for help. If the office hours conflict with your schedule, every effort will be made to arrange an alternative time. We cannot fix what we are not aware of so communication is a must. Please know that Canvas Email is the best way to get a quicker response since we don’t access the office phone from home after school hours. Earth Science is an active learning course. Changes to this syllabus, how class is conducted, and how grades are

calculated may occur by the instructor if deemed best by the instructor for student learning and success.

Subject-to-change Notice: This syllabus and the class schedule are subject to change in the events of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements made while you were absent. Any substantive changes to this syllabus will be accompanied by the distribution of a revised syllabus.