Syllabus
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TRINE UNIVERSITY

COURSE SYLLABUS

COURSE TITLE: Geology

YEAR: Fall 2021

COURSE & SECTION NUMBER: EAS & GLY 273 3-0-3
Non-lab science only. (Same as EAS 273 GEOLOGY)

TIME & PLACE: Online Course

NUMBER OF CREDIT HOURS: 3

OFFICE HOURS: Monday 8-11
(Prefer Online by Appt)

COURSE DESCRIPTION: An introduction to the field of geology. Study of minerals and rocks and their formation within the context of the earth's geologic history. Emphasis on soils, running water, and groundwater. Plate tectonics, glaciers, volcanoes, erosion, and weathering are also covered. Non-lab science only (same as EAS 273).

PREREQUISITES: None

REQUIRED TEXT: Physical Geology, 15th Edition (2016); Plummer, Charles C.; Carlson, Diane H.; and Hammersley, Lisa, California State University at Sacramento; McGraw-Hill Publishing Company.

All textbooks are available through the Trine University Bookstore (required) to ensure that you purchase the correct version/edition of the textbook your instructor requires. Purchasing your textbook through the Trine University Bookstore will also ensure that you have the opportunity to utilize financial aid for the purchase of textbooks and supplies. These Textbooks may be purchased online at: http://www.bkstr.com/CategoryDisplay/10001-9604-10249-1?demoKey=d

REFERENCES:

- Annenberg Learner "The Earth Revealed" is an excellent video instructional series on geology for adult learners; 26 half-hour video programs and coordinated books Video Series for college students

OTHER MATERIALS:

- Download for free: Google Earth lets you view satellite imagery, maps, terrain, 3D buildings, from galaxies in outer space to the canyons of the ocean. You can explore rich geographical content, study geological structures, and share with others.
- United States Geological Society (USGS) Resources:
  - ✦ Earthquake Hazards Program
  - ✦ Science Resources for Undergraduate Education
  - ✦ Scientific American Magazine

LEARNING OUTCOMES: Upon completion of this course, the student should be able to:

- Explain the basic concepts of earth's processes
- Discuss the importance of natural resources.

COURSE REQUIREMENTS:

General Geology, EAS/GLY 273

Students are expected to have basic computer skills and sufficient experience with computer applications to use the Moodle course management/learning system for accessing and submitting assignments.

Additionally:

- Word processing skill with capability of using Microsoft Word.
- Ability to navigate and search the World Wide Web (www).
- Ability to send and receive e-mail, and to send files and/or images as attachments.
- Ability to upload/download PDF files. Students will need *Adobe Acrobat Reader* installed on their computer.
- Students are also expected to:
    (a) Read all Learning Modules and Textbook assignments.
    (b) Complete any/all Moodle Training Box Assignments.
    (c) Complete initial and final song assignment
    (d) Participate in Discussion Forums (include references for Main Posts).
    (e) Complete Unit Tests and Research and Submit Papers (use APA Style Format).

- All assigned work should be completed in this course. Assignments and due dates are listed on the Course Assignment Schedule which is located in Moodle under Course Information. Students are required to complete and submit assignments by the due date as listed on the course assignment Schedule. The written assignments are to be submitted through Trine University Moodle using the designated link.

- Discussion Forum posts will not be accepted after the due date because the forum counts for your participation/attendance grade for the week. Please do not post early to the Discussion Forum, post the week it is due.

- Acceptance of late assignments without penalty will be considered only for documented medical reasons and/or or emergency circumstances only. Approval of instructor is required (in advance) for any late assignments. No late assignments will be accepted after the last Sunday of the term.

ATTENDANCE/PARTICIPATION: Weekly class attendance is required. Students must substantively participate in the online classroom at least 3 out of 7 days each week. Attendance is recorded from the dates of assignment submission, substantive participation, and interaction in discussion board forums, and the completion of quizzes/exams. For a student to be counted "Present" (P) in a given week, s/he needs to complete at least one of the following three activities in the current week BEFORE SATURDAY, or let the instructor know the status of when you plan to participate:

1. Complete a quiz
2. Submit an assignment
3. Post at least once to the Discussion Forum

If a student fails to complete at least one of these activities, s/he will be marked "Absent" (A). If student has three absences, s/he will automatically be dropped from the course. Fall and Spring sessions are eight weeks in length, summer sessions are six weeks in length. To be successful in the course, plan to work approximately 8-10 hours per week in the course.

Please do not post early to the Discussion Forum prior to the week it is due as this is your Participation/Attendance for the current week. Instructor encourages working ahead, but for the Discussion Forum, you may prepare and save the file, and then post the week it is due.

GRADING/EVALUATION: REMEMBER, the course ends on Saturday, not Sunday – don't forget to make a note of this in your calendar as no exceptions will be given. Substantive participation in the Discussion Forums, reading course material, and completing assignments on time is encouraged to receive maximum points for the course grade. If an assignment deadline cannot be met on time, let the instructor know BEFORE the assignment is due. The evaluation process described below is subject to change at the discretion of the instructor. Students will be notified of any changes in the grading/evaluation process. Assessment will include:

Grade Weight

Training Box Quiz 10 points

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Attendance and class discussion posts on Moodle (8 x15)	120 points
Initial Song Assignment	20 points
Final Song Submission	100 points
Written Papers – Completed (2 x 100)	200 points
Unit Quizzes (2 x100)	200 points
	650 total points

Letter grades will be based on the percentage of total points received:

A	Excellent	90-100
B+	Very Good	88-89
B	Good	80-87
C+	Above Average	78-79
C	Average	70-77
D+	Below Average	68-69
D	Poor (lowest passing grade)	60-67
F	Failure	below 60

OTHER POLICIES:

ACADEMIC MISCONDUCT

The University prohibits all forms of academic misconduct. Academic misconduct refers to dishonesty in examinations (cheating), presenting the ideas or the writing of someone else as one's own (plagiarism) or knowingly furnishing false information to the University by forgery, alteration, or misuse of University documents, records, or identification. Academic dishonesty includes, but is not limited to, the following examples: permitting another student to plagiarize or cheat from one's own work, submitting an academic exercise (written work, printing, design, computer program) that has been prepared totally or in part by another, acquiring improper knowledge of the contents of an exam, using unauthorized material during an exam, submitting the same paper in two different courses without knowledge and consent of professors, or submitting a forged grade change slip or computer tampering. The faculty member has the authority to grant a failing grade in cases of academic misconduct as well as referring the case to Student Life.

PLAGIARISM

You are expected to submit your own work and to identify any portion of work that has been borrowed from others in any form. An ignorant act of plagiarism on final versions and minor projects, such as attributing or citing inadequately, will be considered a failure to master an essential course skill and will result in an F for that assignment. A deliberate act of plagiarism, such as having someone else do your work, or submitting someone else's work as your own (e.g., from the Internet, fraternity file, etc., including homework and in-class exercises), will at least result in an F for that assignment and could result in an F for the course.

ELECTRONIC DEVICES POLICY

Use of electronic devices including smart watches and cell phones is prohibited during exams or quizzes unless directly allowed by the instructor.

TURNITIN – Used for Course Papers

Turnitin is used to review course papers and evaluate the similarity of resources used within the report. This assists the student in learning how to be an effective writer and can be used as a tool to detect plagiarism as well. Review how to interpret a Similarity Report within Turnitin. For more information, cut and paste the link below in your browser, and search for Similarity Report, or other topic you wish to learn about: https://guides.turnitin.com/. Similarity Scores must be below 35% on course papers.

COURSE CALENDAR/SCHEDULE: Please always keep a copy of the course Schedule with you. The course Schedule (including any/all assignments) is subject to change by, and at the discretion of, the instructor. Please refer to the course Schedule document under the Course Information tab for further information. Please also refer daily to the "Announcements" section of Moodle for any/all updates, amendments, and/or changes.

ADDITIONAL INFORMATION (for online courses):

A. Technology Tools:

1. Web Access: this course is taught in asynchronous mode, using Moodle. Students will need daily access to a web-accessible computer with a minimum of 56.6k modem speed. Weekly participation, via Discussion Board postings, is required.
2. Software: Microsoft Word, PowerPoint, and Adobe Reader.

B. Instructor Expectations:

1. The instructor reserves the right to require proctoring or validation of student's academic work at the instructor's discretion.
2. The instructor reserves the right to change or modify course materials or deadline in response to student feedback or unforeseen circumstances.
3. The instructor requests that students allow 24 hours to respond to student emails or other forms of contact. Note: Instructor is in the Central Standard/Daylight Time Zone.
4. The instructor will attempt to be available during weekdays; however, as balance between family and work is important in everyone's lives, the instructor reserves the right to be unavailable on weekends.
5. The instructor requests that the students allow 48 hours from the date the assignments are due, or if late, from the date of submission, to post a grade, or provide feedback. Note: the instructor will make every effort to provide faster turnaround time; however, sometimes this is not possible.
6. The instructor may sometimes be unavailable. The instructor will always attempt to email and/or post an announcement to the class about any such inconveniences.

C. Student Guidelines (Expectations):

1. Refer to the assignment Schedule, under course information, in Moodle for all due dates.
2. Late assignments will lose points per the assignment schedule.
3. Must know how to access their Trine University email account and will use this account for this course unless other arrangements have been made. Check your Trine University email periodically.
   Note: If you need assistance with your Trine University email account or with Moodle please call the Trine University Help Desk at 260-665-4275.
4. Keep a copy of all assignments until the end of the course. Check your gradebook regularly for grades on assignments.
5. Review and refer to the Syllabus, assignment Schedule, and the course Announcements for all pertinent information.
6. Participate on a weekly basis in this course via discussion board (threaded discussion area) postings.
7. Log in on a regular access via Internet accessible capabilities for this course.
8. Assume more responsibility (than in a regular face-to-face course) for your learning.
9. Understand that there are not any "lectures" in this course and students are responsible to read ALL course materials, including emails and announcements from the instructor.

D. Participation Policy (also see Other Information on page 2):

1. Students are rewarded with substantive discussion participation with 15 points each week.
2. The threaded discussion group activities are seen as an appropriate means to gather formal and informal feedback on class activities, assignments, grading issues, etc.
3. Option: “The Student Introduction/News Forum” threaded discussion group is provided for student issues or concerns. Please provide your comments! Comments can also be made via email.

E. Discussion Board Guidelines and Tips:

1. Participation in the discussion board is expected. Post a substantive – meaning an informed response that shows evidence of having read and drawn on course materials or other accepted resources and include all resources. When/if possible, contributing examples from your personal experiences are encouraged. This is the Main Post (due on Tuesdays). At least two, additional Response Posts are required, responding to other posts and providing value to the discussion.
2. A helpful Student Guide to using the My Trine Course Discussion Board (this resource requires that you have Adobe Reader installed on your computer), can be found at (cut and paste into browser): http://www.kaltura.com/index.php/extwidget/preview/partner_id/1701591/uiconf_id/31373081/entry_id/1_ocw7lx5w/embed/auto?&flashvars[streamerType]=auto
3. Create your discussion postings off-line in a simple text editor such as WordPad and paste your post into the Discussion Board the week due. You can save a copy of your posting and if you lose your connection to Moodle you will not have to start over.
4. Spell check all postings and written assignments.

TRINEONLINE

Course Mapping

EAS/GLY 273 Geology

Week and Title	Weekly Learning Outcome Alignment	Learning Activities and Materials (LO alignment)	Assessments (LO alignment)

Week One: Introduction; Igneous Rocks and Processes - Chapters 1-3	Explain the basic concepts of earth's processes (LO1). Discuss the importance of natural resources (LO2).	Read: • Learning Module 1 (LO1) Review: • Chapters 1-3 in your textbook (LO1) • Lecture Outlines for Chapters 1-3 in Moodle (LO1) Watch: • Earth's Structures (LO1) • Earthquakes (LO1) (Source: Earth Revealed Instructional Series Videos; Annenberg Learning; 2020 Annenberg Foundation) at https://www.learner.org/series/earth-revealed/)	1. Class Introductions: Please introduce yourself to the class. Let's get to know each other. Tell your peers: • Your name • Where you are from • Your major • What you do (or want to do after college) • What you would like to learn from this course. 2. Discussion Forum Week #1: 1) Post responses to the following discussion questions in Moodle: ain how the various rock types are related to one another 2) ugh processes occurring at or near the Earth's surface. (LO1). uss the definition of geology and the range of career paths that a ogist can take. (LO1) Assignments: nplete the Training Box Quiz to understand how to take a quiz in Moodle.

Course Description: An introduction to the field of geology. Study of minerals and rocks and their formation within the context of the earth's geologic history. Emphasis on soils, running water, and groundwater. Plate tectonics, glaciers, volcanoes, erosion, and weathering are also covered. Non-lab science only.

Learning Outcomes:

1. Explain the basic concepts of earth's processes (LO1).
2. Discuss the importance of natural resources (LO2).

Week Two: Volcanism and Extrusive Rocks; Weathering, Soil - Chapters 4-5	Explain the basic concepts of earth's processes (LO1).	Read: • Learning Module 2 (LO1) Review: • Chapters 4-5 in your textbook (LO1). • Lecture Outlines for Chapters 4-5 in Moodle (LO1) Watch: • Volcanism (LO1) • Weathering and Soil (LO1) (Source: Earth Revealed Instructional Series Videos; Annenberg Learning; 2020 Annenberg Foundation) at https://www.learner.org/series/earth-revealed/)	1. Discussion Forum Week #2: Post responses to the following discussion questions in Moodle: 1) What is the relationship between Plate Tectonic boundaries and igneous rock formation? (LO1) 2) How can aa and pahoehoe be produced by the same volcanic eruption? (LO1) Assignments: 1. Rock Identification Exercise (LO1)
Week Three: Sedimentary, Metamorphic Rocks; Time and Geology - Chapters 6-8	Explain the basic concepts of earth's processes (LO1).	Read: • Learning Module 3 (including review of APA Style Format and How to Interpret the Similarity Report using Turnitin Process (Turnitin Scores should be below 35%) (LO1) Review: • Chapters 6-8 in your textbook (LO1). • Lecture Outlines for Chapters 6-8 in Moodle (LO1) Watch: • Geologic Time (LO1) • Sedimentary Rocks (LO1) • Metamorphic Rocks (LO1) (Source: Earth Revealed Instructional Series Videos; Annenberg Learning; 2020 Annenberg Foundation) at https://www.learner.org/series/earth-revealed/)	1. Discussion Forum Week #3: Post responses to the following discussion questions in Moodle: 1) Why are most beds of sedimentary rock formed horizontally (LO1)? 2) Why are metamorphic rocks so limited in their distribution at the Earth's surface (LO1)? Assignments: 1. Perform adequate research of at least three credible sources and use critical thinking to prepare a 1,000-word professional paper using APA Style Format 7th Edition. Submit your original file (Word document) through Moodle. Use your own words as much as possible as the Similarity Score needs to be less than 35% and include in-text citations and quotation marks as appropriate. The topic for the paper is: **"What are some of the technical difficulties you would expect to encounter if you tried to drill a hole to the center of the Earth?" (LO1)**

Week Four: Mass Wasting, Streams and Floods, and Groundwater Chapters 9-11	Explain the basic concepts of earth's processes (LO1). Discuss the importance of natural resources (LO2).	Read: • Learning Module 4 (LO1) Review: • Chapters 9-11 in your textbook (LO1) • Lecture Outlines for Chapters 9-11 in Moodle (LO1) Watch: • Mass Wasting (LO1) • Groundwater (LO1) (Source: Earth Revealed Instructional Series Videos; Annenberg Learning; 2020 Annenberg Foundation) at https://www.learner.org/series/earth-revealed/)	Discussion Forum Week #4: Post responses to the following discussion questions in Moodle: 1) If you were building a house on a cliff, what would you look for to ensure that your house would not be destroyed through mass wasting? (LO1) 2) Discuss the hydrothermal significance of Old Faithful in Yellowstone. What distinguishes a geyser from a hot spring? Why does a geyser erupt? How does the Morning Glory Pool at Yellowstone get its unique colors? (LO1) (LO2) Assignments: 1. Unit Quiz #1 covering Chapters 1-11 (LO1)

Week Five: Glaciers and Glaciation; Deserts and Wind Action; Waves, Beaches, and Coasts - Chapters 12-14	Explain the basic concepts of earth's processes (LO1)	Read: • Learning Module 5 (LO1) Review: • Chapters 12-14 in your textbook (LO1). • Lecture Outlines for Chapters 12-14 in Moodle (LO1) Watch: • Wind, Dust, and Deserts (LO1) • Glaciers (LO1) • Waves, Beaches, and Coasts (LO1) (Source: Earth Revealed Instructional Series Videos; Annenberg Learning; 2020 Annenberg Foundation) at https://www.learner.org/series/earth-revealed/)	Discussion Forum Week #5: Post responses to the following discussion questions in Moodle: 1) How does material deposited by glaciers differ from material deposited by streams? (LO1) 2) How do wind and water combine to shape the desert environment and its landscape? (LO1) Assignments: 1. Complete the initial creative song writing assignment (LO1): • Select your well-known melody/song to use • Select your process/topic that you will use to write your lyrics (i.e.: rock cycle, cross-cutting relationships, geologic time scale, Plate Tectonic Theory, Mountain Building Formation, Ocean Sea Floor Spreading, Radiometric Dating of a rock) (LO1) • Select your references that you will use to create your song and create reference page using APA Style Format 7th edition. Song Exercise Instructions: Websters Dictionary defines a mnemonic as: "assisting or intended to assist memory" (https://www.merriamwebster.com/dictionary/mnemonic). A mnemonic is a tool that helps us remember certain facts or large amounts of information by using a song, rhyme, acronym, image, phrase, or sentence. According to the University of Melbourne, "Music helps us remember things better because of a process called "chunking". By separating disparate individual elements into larger blocks, information becomes

			easier to retain and recall. Music allows us to chunk lyrics together by linking words and phrases in a tune. The melody and rhythm act as a great framework that we can attach the text to, making it easier to recall later. In this way, the musical structures enhance our ability to learn and retrieve the text of the song" (Source: https://blogs.unimelb.edu.au/sciencecommunication/2017/10/20/want-to-remember-something-better-put-it-in-a-song/) **ASSIGNMENT:** For this assignment, create a rhyming mnemonic to the tune of your favorite melody (song). You may choose your topic from one of the examples below: a. The Rock Cycle b. Crosscutting Relationships c. Geologic Time Scale d. Plate Tectonics Theory e. Mountain Building f. Radiometric Dating of a rock Required components to your song include: a. Research to find familiar/well-known song and scientific topic. Provide credible reference list using at least four sources and use APA Style Format (7th Edition). b. Familiar/well-known song chosen (that you will write lyrics to). c. Create Lyrics to the tune of your song chosen in 'b' above. Lyrics should be approximately 30-40 lines long (approximately 250-300 words): Intro (catch listener's attention, topic covered), verse (tell your story, get the message across), chorus (same lyrics each time, culmination of all the big ideas in your song. This is often why the title of the song also appears in the chorus. It's a summary of what the entire song is about), outro (conclusion, summarize main point, the end of the song. During Week #5, you will submit the song you plan to use and the topic you will use to create your mnemonic. The final song/mnemonic will be due on Week #6. Please see the grading rubric below that covers the requirements and grading scale for this assignment. Helpful sources are shown at the end of this document.

			(See samples in sources below and Grading Rubric in Announcements)

			Sources: Lyrical Learning, Songs for Teaching. (2003). *Introduction to Geology: Teaching About the Study of Geology*. https://www.songsforteaching.com/lyricallifesciencelearning/introtogeology.htm MasterClass staff. (2020, November 8). Songwriting 101: Learn Common Song Structures. https://www.masterclass.com/articles/songwriting-101-learncommon-song-structures#what-makes-a-song Yoon, Melissa. (2017, October 20). *Want To Remember Something Better? Put It In A Song.* University of Melbourne. https://blogs.unimelb.edu.au/sciencecommunication/2017/10/20/wantto-remember-something-better-put-it-in-a-song/
Week Six: Geologic Structures; Earthquakes and Earth's Properties Chapters 15-17	Explain the basic concepts of earth's processes (LO1). Discuss the importance of natural resources (LO2)	Read: • Learning Module 6 (LO1) (LO2) Review: • Chapters 15-17 in your textbook (LO1) (LO2) • Lecture Outlines for Chapters 15-17 in Moodle (LO1) (LO2) Watch: • Earth's Structures (LO1) • Earthquakes LO1) (Source: Earth Revealed Instructional Series Videos; Annenberg Learning; 2020 Annenberg Foundation) at https://www.learner.org/series/earth-revealed/)	Discussion Forum Week #6: Post responses to the following discussion questions in Moodle: 1) Can earthquakes be predicted? (LO1) 2) Discuss the importance of petroleum resources and explain why anticlines are such good traps. (LO2) Assignments: Complete and submit your creative song assignment with lyrics (LO1)

Week Seven: Sea Floor, Plate Tectonics, Mountain Belts, and Continental Crust Chapters 18-20	Explain the basic concepts of earth's processes (LO1). Discuss the importance of natural resources (LO2)	Read: • Learning Module 7 (LO1) Review: • Chapters 18-20 in your textbook (LO1). • Lecture Outlines for Chapters 18-20 (LO1) Watch: • Plate Dynamics (LO1) • Mountain Building (LO1)	Discussion Forum Week #7: Post responses to the following discussion questions in Moodle: 1) Discuss the geologic evidence for the case of continental drift. Why the skepticism about continental drift? How did this theory pave the way for plate tectonics theory? (LO1) 2) What changes do rocks undergo during formation of an orogenic belt such as the Alps? (LO1) Assignments:

		(Source: Earth Revealed Instructional Series Videos; Annenberg Learning; 2020 Annenberg Foundation) at https://www.learner.org/series/earth-revealed/)	1. Perform adequate research of at least three credible sources and use critical thinking to prepare a 2,000-word professional paper using APA Style Format. Submit your original file (Word document) through Moodle. Use your own words as much as possible as the Similarity Score needs to be less than 35% and include in-text citations and quotation marks as appropriate. The topic for the paper is: **"Describe the Geology and the Geologic Significance of your Favorite National Park" (LO1) (LO2)** If you have not been to a National Park, are having difficulty which your selection, or would like to find out more about parks, research various resources from the National park Service, USGS, National Geographic, and others, to gain a general understanding of the park system. After you select your favorite, record the various references you use as you research your park. You should answer the topics below when developing your paper. These tasks/questions will assist in guiding you through an outline for the paper and what topics to address/develop. A. Prepare an abstract discussing the main points/focus of the paper. Begin paper with an introductory paragraph discussing why you selected the park and why it is important to you. B. Describe how and when the park was formed. Describe the geology of the area. What geologic forces took place to create the park? Why is it considered a National Park? C. What type of geologic or environmental challenges currently exist in the National Park and how is the park addressing some of these? D. Describe the geologic significance of your park. Why would you want to go see it? Why is it important? Are there natural resources in the park? If so, what is their importance?

			E. End your paper with a conclusion providing a summary of why your paper is important and answering the question, "So what?" For more information on conclusions, see the website below: http://leo.stcloudstate.edu/acadwrite/conclude.html (Randa Holewa and Mathison for the Write Place, St. Cloud State University; Techniques and examples are adapted from *Basic Writing: A First Course*, by Peter Carino, Harper Collins, 1991; Last update: 19 February 2004)

Week Eight: Global Climate Change and Resources Chapters 21-23	Explain the basic concepts of earth's processes (LO1). Discuss the importance of natural resources (LO2).	Read: 1. Learning Module 8 (LO1) (LO2) Review: 2. Chapters 21-23 in your textbook (LO1) (LO2) 3. Lecture Outlines for Chapters 21-23 in Moodle (LO1) (LO2) Watch: • Living with Earth LO1) (Source: Earth Revealed Instructional Series Videos; Annenberg Learning; 2020 Annenberg Foundation) at https://www.learner.org/series/earth-revealed/)	Discussion Forum Week #8: Post responses to the following discussion questions in Moodle: 1) If global warming produces a significant rise in sea level as polar ice melts, how will the longitudinal profiles of the world's rivers be affected? (LO1) 2) Which energy sources show the most potential for replacing nonrenewable fossil fuels? Which source is most environmentally friendly? Which source is most economically viable? (LO1) (LO2) Assignments: 1. Complete Unit Quiz #1 covering Chapters 12-22 (LO1) (LO2) 2. Complete the online course evaluation so that the instructor can continue to provide a more meaningful course expectation and experience.