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Geology 202: Physical Geology II (4 credits) (CRNs 31600, 31601) Winter 2021

Instructor: Deron Carter (*he/him/his*)

Email: carterd@linnbenton.edu

Office hours: M 1-2, W 11-12, F 9-10. Zoom link posted on Moodle.

Class meeting times: T 10-11:50 am on Zoom. (CRN 31600), W 1-2:50 pm (CRN 31601)

Link will be available on Moodle.

Prerequisite: Completion of Math 75 or Math 78

Course Description

A study of the Earth, fundamental geologic principles, and physical processes acting within and upon the Earth. Topics focus on surficial processes related to mass wasting, erosion, streams, groundwater, coasts, deserts, glaciers and climate. Laboratory component highlights use of topographic maps and imagery. Field trips highlight topics. Geology courses do not need to be taken in sequence.

Course Learning Outcomes

Students who successfully complete this course will be able to:

- Solve quantitative problems resulting from Earth surface processes.
- Explain how Earth surface processes pose hazards to humans.
- Describe landforms related Earth surface processes. Explain geological processes that produce landforms.

Course goals

- To better understand the natural world. The knowledge you build in this course will encourage you to become more curious about how the Earth works and appreciate it.
- To have a general knowledge of science so you can make more informed decisions as a contributing member to society.
- To develop and improve study skills, and other life-long skills such as problem solving, critical thinking, oral communication, and group work. I hope that the skills you learn and refine in this class will carry over into your other classes and your personal life.

Course Materials and Learning Resources

- Textbook: Physical Geology, by Steven Earle, 2nd edition, BC Open Textbooks. This is a free, open-educational resource. View and download at: <https://opentextbc.ca/physicalgeology2ed/>
- Geoscience Videos by McConnell and Wiggen.
<https://www.youtube.com/c/GeoScienceVideos/featured>
- EarthRocks! Videos by Wiese.
<https://www.youtube.com/channel/UCBEwiHo718rNAekZrqjjDjQ>
- Calculator (phone is OK)
- Access to Moodle and the Moodle Mobile App
- **Moodle.** This is our learning hub where you will submit assignments, check grades, locate readings, review syllabus, etc. All readings and videos are posted on Moodle.

Course structure

Work before our Zoom class.

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Much of class is devoted to discussion and **active learning, where you take part in the learning process**. To make this work everyone must be prepared when coming to class, so it is important that everyone complete the pre class assignments.

- Before class you will complete a module guide assignment.
 - Please answer the questions on the Module Guide while you watch assigned videos and readings. They help you focus on key terms and concepts.
 - Module guides are only graded on completion. A key is posted after they are do, and you should check your answers against the key.
- You always submit assignments in Moodle.
- **Assignments are due before class (10 am on Tuesday or 1 pm on Wednesday)**

Work in class--Tuesday at 10 am or Wednesday at 1 pm on Zoom.

Your instructor's role in this class is to **facilitate the learning process through active learning**. A typical class might consist of:

- Small group discussion in Zoom breakout rooms about the scientist highlighted in the scientist spotlight, followed by a report out to the class,
- A deeper dive into a case study, using evidence-based active learning techniques, such as jigsaws, gallery walks, or think-pair-share questions,
- A short lecture followed by ungraded questions to test your knowledge and understanding of material using polling software like Wooclap.
- A **road check** is a short survey you will take during class time at the end of class. These allow you to provide me feedback on the class and give you a chance to reflect on your learning. You will receive 1 point for completing a road check. The link is given at the end of class, so if you cannot attend class, please email me beforehand to get the link.

Work after Zoom class

- **Application Question.** Each week, at the end of class, your instructor will provide you with an application question that ties together the week's topic. These questions will ask you to analyze, synthesize, and evaluate topics from the class. You will write your answer and upload it to Moodle as a submission. You may discuss your answer with your peers, but you must answer in your own words.
 - You will receive a score of 10, 6, or 3 points to start with, but you can revise your answer directly on Moodle for up to 8 points. The revision is due always one week after it is graded. This gives you an opportunity to make mistakes and confront confusions, an important part of learning.
 - **Application Questions are submitted on Moodle and due Sunday at 11:59 p.m.**
- **Scientist Spotlights.** Some weeks instead of an application question you are assigned a scientist spotlight. These assignments highlight a non-stereotypical geoscientist and will provide you insight into how these individuals got into sciences, geoscience careers, and how their research relates to the weekly topic.
 - **Scientist spotlights are submitted on Moodle and due Sunday at 11:59 pm.**
- **Module Quizzes.** You will take a module quiz each week that covers all material in the module. These are short multiple choice quizzes with a time limit.
- **Lab Assignments.** Each week you will complete a lab assignment that allows you to practice new skills, make observations, and engage in the scientific process.
 - **Labs are submitted on Moodle and are due Sunday at 11:59 p.m.**

Final Exam.

- The final exam is the only exam in this course.

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- It is 50 multiple choice questions, and you will have 2 hours to complete it and one attempt.
- It is comprehensive and you may take it anytime during finals week (March 15-17).

Grading (subject to change)

Module Guides (10 at 10 points) = 100 points (23%)

Scientist Spotlights or Application Questions 10 at 10 points) = 100 points (23%)

Labs (9 at 10 points) = 90 points (20%)

Module Quizzes (9 at 10 points) = 90 points (20%)

Road Checks = 10 points (2%)

Final Exam = 50 points (12%)

Total = 430 points

Grade Calculations

A = 100-90%

B = 89-80%

C = 79-70%

D = 69-60%

F = 59% or below

An **incomplete grade (IN)** will only be considered if a student has talked to me in advance, and a signed agreement between the student and myself is completed. I will only consider an IN grade if the student has a good reason for making the request, has only the minority of coursework to complete, and has a course grade of a C or better when the request is made.

Late Work. Please contact me if you need an extension of **up to one week** on a due date before the assignment is due. Generally, extensions are not granted for pre class work.

Campus Resources

If you have any questions relating to COVID-19 and the college, financial aid, accessing the library, or need help meeting basic needs (like food and rent), please contact me, or visit:

<https://www.linnbenton.edu/about-lbcc/college-services/safety/covid19/faq-students.php>.

LBCC is committed to inclusiveness and equal access to higher education. If you have approved accommodations through the **Center for Accessibility Resources (CFAR)** and would like to use your accommodations in this class, please talk to your instructor as soon as possible to discuss your needs. If you believe you may need accommodation but are not yet registered with CFAR, please visit the CFAR website at www.linnbenton.edu/cfar for steps on how to apply for services or call 541-917-4789.

Statement of Inclusion

To promote academic excellence and learning environments that encourage multiple perspectives and the free exchange of ideas, all courses at LBCC will provide students the opportunity to interact with values, opinions, and/or beliefs different than their own in safe, positive and nurturing learning environments. LBCC is committed to producing culturally literate individuals capable of interacting, collaborating and problem-solving in an ever-changing community and diverse workforce. LBCC is an equal opportunity educator and employer.

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Honor Code Considerations: This class is highly collaborative; however, there are expectations for individual work as well. If it is ever unclear to you, please ask. Any cheating, plagiarism, etc., may result in a zero and possible recommendation to the administration for further consequences.

A Final Note:

I am here to help you learn. I want *all* students to succeed in this class. Only you can do the learning, but expect me to be available for help during class and office hours and to facilitate the learning process.

Thanks, Deron

G209 Course Schedule. Subject to Change.

Module	Topic	Reading and viewing	Work Due
1	Intro to Geology: rocks, tectonics, landscapes	Syllabus Read Earle: Chapter 1 Watch Defining Geology Video	Su: Introduce Yourself Discussion Forum Su: Topographic Maps Lab Su: Scientist Spotlight #1 Su: Quiz
2	Mass Wasting and Landslides	Read Earle: Chapter 15 Watch Mass Movements Video	Preclass: Module Guide Su: Application Question 1 Su: Oso Landslide Lab Su: Quiz
3	Hydrologic Cycle, Streams, and Flooding	Rivers Video Streamflow Video Read Earle: Chapter 13	Preclass: Module Guide Su: Application Question 2 Su: Streams Lab Su: Quiz
4	Groundwater and groundwater contamination	Where's the Water Table Video What's an Aquifer Video Porosity and Permeability Video Read Earle: Chapter 14	Preclass: Module Guide Su: Application Question 3 Su: Groundwater Lab Su: Quiz
5	Oceans, beaches, and coastal erosion	Coastlines Video Beaches and Migrating Sand Video Read Earle: Chapter 17	Preclass: Module Guide Su: Application Question 4 Su: Sea-level rise lab Su: Quiz
6	Deserts, wind, and desertification	Read: Deserts--Geology and Resources, USGS	Preclass: Module Guide Su: Scientist Spotlight #2 Su: Desert Landforms Lab Su: Quiz

7	Glaciers and the Climate System	Classifying Glaciers Video Glacial Landforms Video Read Earle: Chapter 16	Preclass: Module Guide Su: Scientist Spotlight #3 Su: Glacier and Climate Simulation Lab Su: Quiz
8	Climate Change Evidence	Climate Change Evidence Video Read: Climate Forecasting and Adaptation Through the Ages Ice Ages and Climate Cycles Read Earle: Chapter 19	Preclass: Module Guide Su: Application Question 5 Su: Reflecting on Greenland Lab Su: Quiz
9	Energy Resources	Coal, Oil, Natural Gas Video Read: Energy notes Read: Chapter 20, Fossil Fuels section in Earle	Preclass: Energy resources module guide Su: Application Question 6 Su: Energy resources Lab Su: Quiz
10	Climate Change Adaptations	Read: Climate Change Adaptation Case Studies	Preclass: Climate Adaptation Discussion Forum
11	Finals Week		Final Exam Due by Wednesday, March 17, at 11:59 pm