**General Science 106: Principles of Phy. Sci.: Earth Science (4 credits), Fall 2019**

Instructor: Deron Carter

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Office hours: M 11:20-12, W 11:30-1:00, T and Th 3:20-4:00, or by appointment

CRN: 26636

Class meeting times: Tuesday and Thursday, 10:00 a.m.-12:20 p.m. in MH 108

**Welcome to Earth Science!**

In this course we will explore how the various Earth “systems” made up of rocks, gases, and water interact to form our beautiful Earth, provide us with resources, and create disasters. This class is not about memorizing the names of 100 different rocks and how to distinguish them. Instead, it’s about a way of looking at the world around you and learning how to be confident in your observations and interpretations of that world.

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.
* To have a general knowledge of science so you can make more informed decisions as a contributing member to society.
* To develop and improve 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 Description**

Introduces non-science majors to the Earth Sciences, including geology, meteorology, and astronomy. Includes a laboratory component. No previous science background required. No prerequisite. Counts as Physical Science Perspective for AS/OSU degrees and Science with Lab for AAOT degree.

**Course Learning Outcomes**

**At the end of the course, a student will be able to:**

* Identify and classify igneous, sedimentary, and metamorphic rocks.
* Describe the formation of landforms in the context of plate tectonic theory.
* Describe the components and processes of the hydrologic system.
* Describe the components and processes of the atmospheric system, including weather and climate.
* Describe objects that make up the solar system and universe, and explain the effects of the relative positions of the earth, sun, and moon.

**Learning Resources**

* **Textbook:** Foundations of Earth Science, by Lutgens, 8th Edition, ISBN: 9780134184814.
* **GS106 Course packet**, by Deron Carter. Please bring to lab days.
* **Moodle.** This is our online class hub: you will check grades, review syllabus and powerpoints, and submit homework assignments. Textbook and video links are also posted here.
* **Calculator.** Any type will do for this class, but only non-graphing calculators (no phones) can be used on exams. I will provide a set for exams.

**Grading (subject to change)**

* 3 comprehensive exams = 300 points
* Labs = 80 points
* Online Homework = 90 points
* In-class quizzes = 60 points

**Total = 530 points**

**Grading Scale**

A = 100-90% (530-475 points)

B = 89-80% (474-421 points)

C = 79-70% (420-368 points)

D = 69-60% (367-315 points)

F = 59% and below (315 points and below)

**Exams:** The two exams will be administered as a 2-stage “pyramid” tests. You will have a set period of time to take the exam, turn it in, then retake the exam with a group of students in the class (graded 90% for the "solo" effort and 10% for the "group" effort). Your group score cannot lower your grade. If you know you will be absent on an exam day let me know ahead of time to schedule a make up. Once exams are returned they cannot be made up.

**Final Exam**: This exam is comprehensive and will be completed individually; no “pyramid” format.

**Lab exercises:** Labs occur each week. You will generally have enough time to complete the exercises on lab due; however, you may always turn it in at the beginning of the next class. Late labs are not accepted. Labs cannot be made up, but I drop your lowest score.

**Online Homework:** Open note/Open book homework quizzes (taken online) are due by 9:00 a.m. each week. The quiz is designed to demonstrate your completion of text reading. Completing the reading will enable you to take part in class activities with the baseline knowledge needed. You have two tries for every quiz and unlimited time, but the deadline is firm. Quizzes will not be made up or reopened; take your quiz early!

**In-class quizzes.** Most weeks we will have a short in-class quiz on Tuesday, covering previous material in class. These “low stakes” quizzes are designed to help you practice and prepare for the “higher stakes” exams. Your lowest quiz in dropped. If you know you will be absent on a quiz day, please let me know before taking the quiz to schedule a make up.

### Campus Resources

Many resources such as the Library, Student Help Desk (for computers and software) Learning Center, the Writing Desk, and Family Connections, are available to you as a student. They are described on the LBCC website.

Any student who has difficulty affording groceries or food, or who lacks a safe and stable place to live, is urged to contact the **Roadrunner Resource Center (T-112):** [www.linnbenton.edu/rcc](http://www.linnbenton.edu/rcc). Furthermore, please talk with your instructor if you are comfortable doing so. This will enable them to provide any resources that they may have.

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.

**Your responsibilities:**

1. **Be prepared** for class by completing the reading and taking the quiz.

2. In class, **take notes by hand. Please, no electronics during lecture.** This means you must put away phones, laptops, and tablets. Numerous studies show that students learn more when taking notes by hand (i.e. Mueller and Oppenhiemer, 2014). If you have accommodations or concerns please see me. **If you miss lecture, please get notes from another student**, and do not just rely on lecture slides posted on Moodle.

3. **Actively participate** in class. Long lectures are rare occurrences in this class. Instead, class time will focus on evidence based active learning that requires you to interact with others.

4. **Check the Moodle** website regularly to stay updated with current class information and due dates.

5. **Be on time**, stay for the entire class, listen, and contribute. If you are absent, please let me know.

6. **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.

**My responsibility:**

I am here to help you learn. I want each and every student 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***

COURSE SCHEDULE (subject to change):

**Due dates or holidays in bold face**

|  |  |  |  |
| --- | --- | --- | --- |
| Week | Reading | Tuesday | Thursday |
| 1 | Intro. to Earth Sci. | Class introduction  Earth Systems  Process of Science | **Lab: Scientific Inquiry and Volcanic Eruptions** |
| 2 | Ch. 1 | **Ch. 1 Homework due\***  **Quiz 1**  Minerals and Resources | Mineral Identification  **Lab: Minerals** |
| 3 | Ch. 2 | **Ch. 2 Homework due**  **Quiz 2**  Rock Types | Rock cycle  **Lab: Rock Types** |
| 4 | 5.3-5.9 | **Ch. 5 Homework due**  **EXAM 1**  Earth’s interior, tectonics | Plate boundary types  **Lab: Plate Tectonics** |
| 5 | 6.1-6.5 | **Ch. 6 Homework due**  **Quiz 3**  Seismology  Earthquakes and tectonics | Earthquake hazards  The “Big One”  **Lab: Seismic-Eruption** |
| 6 | 3.1, 3.3-3.10 | **Ch. 3 Homework due**  **Quiz 4**  Hydrologic Cycle  Erosion by Streams | Flooding  **Lab: Stream Tables** |
| 7 | 9.1-9.7 | **Ch. 9 Homework due**  **EXAM 2**  Seafloor Features | Seawater composition  **Lab: Oceanography** |
| 8 | 11.1-11.9 | **Ch. 11 Homeworkdue**  **Quiz 5**  Atmospheric composition, structure, and heating | Past climate records  Human-caused global warming  **Lab: Climate Change** |
| 9 | 12.1-12.4 | **Ch. 12 Homework due**  **Quiz 6**  Cloud Formation  Rain-Shadow Effect | **NO CLASS**  **LBCC Closed**  **Thanksgiving Holiday** |
| 10 | 15.3, 16.1, 16.3, 16.4 | **Ch. 15-16 Homework due**  **Quiz 7**  The Solar System  Life cycles of Stars | **Lab: Astronomy** |
| Final |  | **FINAL EXAM**  **9:30-11:20**  **MH 108** |  |

**\*Homework are submitted on Moodle by 9:00 am on the due date.\***