GEOLOGY 3310
Geology and Astronomy

FALL 2023
Time: 6:00-7:20 PM
Day: Monday and Wednesday (Hybrid Canvas)
Final: Ratliffe South (RBS 2024) Wednesday December 6th, 2023

Instructor Information:

Michael Odell, Ph.D.
Office: HPR 263A
Office Hours: Office Hours: Zoom or Phone by appointment.
Telephone: office (903) 566-7132
Email: *modell@uttyler.edu* (best way to contact)

Course Description:

This course consists of an introduction to astronomy (25%) and physical geology (75%). Astronomy is the study of the universe, and how the Earth relates to other objects in space. Observations of stars, asteroids, and other astronomical bodies help scientists develop an understanding of the Earth's formation. Geology is the study of the Earth, as well as its history. This course will explore Earth processes, natural resources, and how the Earth has changed throughout geologic time. There are no prerequisites. **Hybrid Schedule** (**See Schedule in Canvas)**

Materials:

The recommended textbook for this course is **Earth Science (15th edition)** by Edward J. Tarbuck and Frederick K. Lutgens, ISBN-10: 0-134-54353-X, ISBN-13: 978-0-134-54353- 6. The textbook is NOT REQUIRED, but some students might find it provides useful reinforcement to the topics discussed in class. PowerPoint slides, papers, videos, and other materials will be distributed throughout the semester via Canvas.

Student Learning Outcomes:

After successful completion of this course, students will be able to:
1) Discuss the history of modern astronomy and how scientists study space. (Critical Thinking, Communication Skills, Empirical and Quantitative Skills)
2) Differentiate between various astronomical bodies and how they form. (Critical Thinking)
3) Classify different types of natural resources, including minerals, rocks, and energy resources. (Critical Thinking, Empirical and Quantitative Skills)
4) Collaborate with classmates on geologic problem-solving activities. (Critical Thinking, Communication, Empirical and Quantitative Skills, Teamwork)
5) Describe changes to the Earth System throughout geologic history. (Critical Thinking, Communication)
6) Differentiate between processes sculpting Earth's surface, including plate tectonics, weathering, gravity, etc. (Critical Thinking, Empirical and Quantitative Skills)

Attendance: Attendance is required. Some nights will be in person. Some will be synchronously online via zoom. All course materials and assignments will be housed in Canvas.

Grading: All grades will be updated throughout the semester in Canvas. If you would like to meet with me to discuss your grade in detail, I am always happy to do so! Final grades will be calculated as follows:

- 3 Exams (45%) (Includes Final)
- 10 Quizzes (15%) (Canvas)
- Canvas Discussions (10%)
- In-class activities (10%)
- Project (20% total)

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Project **(20% of final grade):** Each student will complete an individual project that will consist of a 5-10 minute recorded lecture, including a slide presentation and audio, over a geology or astronomy topic of the students' choosing. Each student should create their presentation, content should be written in their own words. Copying and pasting from preexisting sources is considered plagiarism and will earn a 0 for the presentation portion of the grade. Topics must be approved by the instructor. Deadline for topic approval and submission of the final project can be found in Canvas.

General Course Policies:

- All students may make up a missed exam with instructor permission.
- Officially excused absences include university -related travel, illness, death in the family, or other situations that will be considered on a case-by-case basis.
- Class assignments should be completed by the assigned deadlines. No late work will be submitted without approved documentation.

Resources

FREE Open Resource Texts:

Introduction to Earth Science: https://open.umn.edu/opentextbooks/textbooks/introduction-to-earth-science

Open Stax Astronomy: https://openstax.org/details/books/astronomy-2e

Videos: The Earth Revealed: https://www.learner.org/series/earth-revealed/

Websites:

NASA Guide to the Solar System: https://solarsystem.nasa.gov/solar-system/our-solar-system/overview/

NASA Guide to the 2023 Eclipse: https://solarsystem.nasa.gov/eclipses/2023/oct-14-annular/where-when/

PBS Crash Course Astronomy: https://opb.pbslearningmedia.org/collection/crash-course/t/crash-course-astronomy/

Geology for Engineers:

https://www.geologypage.com/2019/04/engineering-geology.html

https://www.colorado.edu/faculty/amadei/sites/default/files/attached-files/intro_0.pdf

https://serc.carleton.edu/integrate/workshops/engineering2013/essays/ferriz.html

Earth Science for Teachers:

https://www.khanacademy.org/science/middle-school-earth-and-space-science

TEKS: https://tea.texas.gov/academics/curriculum-standards/teks-review/science-teks-review

UNIVERSITY POLICIES: University Guidelines, Links and Policies

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UT Tyler Honor Code

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

For a full list of university policies including information related to the topics listed below, click here.

- Students Rights and Responsibilities
- Campus Carry
- Tobacco-Free University
- Grade Replacement/Forgiveness and Census Date Policies
- State-Mandated Course Drop Policy
- Disability Services
- Student Absence due to Religious Observance
- Student Absence for University-Sponsored Events and Activities
- Social Security and FERPA Statement
- Emergency Exits and Evacuation
- Student Standards of Academic Conduct

UT Tyler Resources for Students:

- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu, http://www.uttyler.edu/writingcenter/
- UT Tyler Tutoring Center (903.565.5964), tutoring@uttyler.edu, https://www.uttyler.edu/tutoring/
- The Mathematics Learning Center, RBN 4021, This is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- UT Tyler Counseling Center (903.566.7254) https://www.uttyler.edu/counseling/