Earth Science

GEL-109-I51

Winter 2020

Number of Credits: 4

Days Class Meets: Online

Meeting Times: Online TBD

Location: JM107

Instructor: Professor Steven Albee-Scott, PhD

Office: JM111

Contact Phone: 517-796-8568

Contact Email: albeescsteven@jccmi.edu

Office Hours: Big Blue Button

Online: jetnet.jccmi.edu

Course Description

This course serves as a foundation for the Earth sciences and Earth science majors. Emphasis is placed on laboratory experience and class discussions to reinforce scientific principles. Earth science case studies are covered in detail. In laboratory, the students will learn how to apply basic scientific principles through active learning and application.

Prerequisite(s)

Currently Prereq free

Course Goals

Students will develop an earth science skill-set to understand the four strands of scientific investigation: content, process, communication, and the nature of science. Students will use the critical thinking to evaluate scientific information, data, and current earth science issues. The foundation for earth science will be constructed using the four strands as they pertain to the atmosphere, biosphere, lithosphere, and hydrosphere. The fundamental concepts in earth science, like cycles, geological timeline, geology, geochemistry, geophysics, and biosphere interactions, are presented in context with current issues. The students will compare and contrast the content and process through communications with their peers and the instructor ultimately understanding the nature of science. This course is designed for people interested in earth issues using their computational skills and includes a strong laboratory component.

Upon completing this course students will retain a skill-set derived from critical thinking and environmental scientific methodology. This skill-set can be used in science classes following earth science, and in problem solving needs throughout their lives. Although this course is an introductory class, introductory does not translate into easy. This course does not require background knowledge in earth science. It will require effort to build the scientific foundation and the philosophical underpinnings of critical thinking and scientific thought. Students will have to spend time studying the material to succeed. To receive a 4.0 in this course, you should expect to study 16 hours a week (4 credit hours x 4.0 grade = 16 hours of study), and depending on your study skill-set, this time commitment may increase or decrease. You are responsible for the resulting grade that you shall receive.

Course Objectives

Think in systems.
Read and interpret scientific graphs and tables.
Communicate scientific information.
Connect the nature of science to content, process, and communication.
Link the scientific method to peer review and self-correcting mechanisms.
Articulate the big ideas in scientific discourse.
Integrate information of natural processes that govern the natural world.
Critically evaluate data drawn from natural phenomena.
Establish a scientific baseline.
Understand the connection between physical and chemical cycles within Earth’s domains.
Interpret results of Earth science studies.
Connect the mechanisms of geology, physics, chemistry, and biology to emergent properties.
Understand sustainability as it relates to the earth sciences and evolution.
Articulate the factors affecting global climate change and human impact on the environment.

General Education Outcomes:

All JC graduates should develop or enhance certain essential skills while enrolled in college.

Essential Competencies

1. Think critically and act responsibly
2. Work productively with others, recognizing individual contributions to group success
3. Exhibit technological literacy

The General Education Outcomes addressed in this class are:

GEO 4: Demonstrate scientific reasoning

Textbook

- Text: The Changing Earth: Exploring Geology and Evolution, 7th Ed. Monroe and Wicander; ISBN10: 1-285-73341-X; ISBN13: 978-1-285-73341-8
- TBZ: ISBN-10: 1305153332 ISBN-13: 9781305153332 All students have a digital copy.
- Lab Manual: Handouts: JetNet.

Text Book Zero! *This text is available in a digital format. Please see the links posted on our class JetNet site. This text is available through include ed and all students have access on the first day. Contact the bookstore if you do not receive an email to register your copy of the online text.*

Extras

List of equipment, supplies that students are required to purchase, including uniforms or safety apparel.

Grading Procedure and Attendance

Lecture, exams and discussion account for 70% of the overall grade, and laboratory accounts for 30% of the overall grade, and is described here. The class has a total of 1000 points of assessment which is a weighted average of the overall point distribution. There will be approximately five exams in the course, which may include multiple choice, fill-in, short answer, problem solving, and essay. The lowest exam score is dropped to account for eventualities. A missed exam will be considered the dropped exam. The final cannot be dropped. Laboratory should not be missed due to the integrated active learning exercises using inquiry-based methods. The labs take a significant amount of time to understand and master, therefore, please recognize the required time and review for mastery of the skillset. If a student misses three laboratories, then that student will have to repeat the course and receive a failing grade for the current semester.

In compliance with Federal Title IV funding requirements, as well as college initiatives, reporting of student participation in classes will occur through recording of attendance.

If you do not participate as expected for a college student, then you will be dropped from the class (meaning you are no longer attending and/or participating in class). There are several reasons you may be dropped, which I will address in a moment, but it is important to note that once you have been dropped from a class by an instructor you cannot be put back into the class without the instructor's signature.

Possible Reasons for Being Assigned a drop

- Failure to attend class or log into JetNet within the first week without contacting the instructor.
- Failure to attend class for greater than three (3) sessions without contacting the instructor.
- Failure to take two (2) Unit Exams
- Failure to take five (5) Daily Quizzes
- Failure to complete three (3) Laboratory Exercises

These conditions will result in an automatic withdrawal during the next week and your dismissal from the course. If you fail to participate after the last withdrawal date (1 week after midterm) you will not be automatically dropped from the course but will receive a grade of 0.0 (E) for failing to participate in the course.

Grading Scale

GPA	GRADE RANGE
4.0	90-100%
3.5	85-89%
3.0	80-84%
2.5	75-79%
2.0	70-74%
1.5	65-69%
1.0	60-64%
0.5	55-59%
0.0	0-54%

Academic Honesty Policy

Academic Honesty is defined as ethical behavior that includes student production of their own work and not representing others' work as their own, by cheating or by helping others to do so.

Plagiarism is defined as the failure to give credit for the use of material from outside sources. Plagiarism includes but is not limited to:

- Submitting other's work as your own
- Using data, illustrations, pictures, quotations, or paraphrases from other sources without adequate documentation
- Reusing significant, identical or nearly identical portions of one's own prior work without acknowledging that one is doing so or without citing this original work (self-plagiarism)

Cheating is defined as obtaining answers/material from an outside source without authorization. Cheating includes, but is not limited to:

- Plagiarizing in any form
- Using notes/books/electronic material without authorization

- Copying
- Submitting others' work as your own or submitting your work for others
- Altering graded work
- Falsifying data
- Exhibiting other behaviors generally considered unethical
- Allowing your work to be submitted by others

Course Management

Course Help and Special Needs - if you have special needs that I should be aware of in order to help you to best learn course material, please let me know as soon as possible. Students requiring special assistance (including those affected by the Americans with Disabilities Act) should contact the **Center for Student Success** in **Bert Walker Hall**, **796-8415**. Tutoring services are free at JC - if at any point in the course you feel that you would benefit from a tutor, contact me and/or the CSS.

Computer Resources – reliable computer access is necessary for this course, as some course materials can be accessed only through the course webpage. I will post announcements and grades, as well as many other course materials like discussion papers through this system. Simply type in the URL http://jetnet.jccmi.edu/.

Collaboration – While JC encourages students to collaborate in study groups, work teams, and with lab groups, each student should take responsibility for accurately representing their own contribution.

Communication with Instructors – Your student email will be the official communication format for any grade requests or participation questions. Please take the time to familiarize yourself with your JC email.

Makeup Policy

Incompletes - Consistent with JC policy, incompletes are granted with instructor permission only in situations where a student is **passing** the course with 90% of the curriculum covered and encounters an unusual emergency that prevents them from completing coursework.

Help

Available learning services or opportunities for students seeking help with their course work. May include information about tutors, learning centers, reserved library materials, open labs, counseling services.

It is important to contact a Center for Student Success professional prior to the start of the semester in order to receive accommodations in a timely manner. While we will make every effort to coordinate accommodations in a timely manner, failure to self-identify prior to the start of the semester may delay notification to instructors and timeliness of acquiring accommodations. Accommodations do not automatically carry over to the next semester.

https://www.jccmi.edu/center-for-student-success/accommodations-for-students-with-disabilities/

Calendar

A partial or complete list of dates or class periods for the course. Within the calendar on specific days are: Assignments, readings, homework, exercised, performances, quizzes, topics, subject matter, skills, chapter titles, discussion topics, tests, comprehensive exams, due dates for major papers or performances. Add or remove columns as necessary to suit your course.

**Schedule is tentative and subject to change given unforeseen events*

Section	Session Week	Topic	Ch.	Lab Schedule	
Introduction to Geology and Minerals	06-Jul	Introduction, Plate Tectonics, Rocks and Minerals	1, 2, 3	Lab: Graphing, Scientific Measurement	Exam1
Rocks and Minerals	13-Jul	Igneous Rocks, Sedimentary Rocks, Metamorphic Rocks, Volcanoes and Mountains	4, 5, 7, 8	Lab: Mineral ID, Igneous Rock ID	Exam 2
Mountains, Weathering, and Erosion	20-Jul	Mountain Building, Erosion, Earth's Interior	10, 6, 9	Sedimentary Rock ID, Metamorphic Rock ID, Practical 1	Exam 3
Mountains, Sea, and Interior	27-Jul	Water: Running, Ground, and Glacier	12, 13, 14	Basketball Earth, Geological Time	Exam 4
Action of Water, Geologic Time and Evolution	03-Jul	Geological Time, Evolution	12, 13, 14	Evolution, Practical 2	Exam 5

Exam schedule for 5 weeks

The exams will be open for the week that it is posted in the calendar and will close the following Monday except for the final which closes on the Friday of the final week. The exam will remain open for eight days giving you the opportunity to work around your schedule. Do not miss an exam because you will not be able to make them up. Your lowest of the first four exams will be dropped. Exam 5 cannot be dropped.

Communication with your Professor

Your student email will be the official communication format for any grade requests or participation questions. Please take the time to familiarize yourself with your JC email. Be aware when you send a message to me on JetNet, the email goes to my school email. The reply will go to your school email. If you think I didn't see it, please send me an official email through your my.jccmi.edu account.

First Assignment

Please post your understanding of the following statement to the syllabus recognition discussion in JetNet:

I have read the GEL 109 course information packet (course information, course calendar and academic honesty policy). I understand the information they contain.