

Course Outline of Record

1. Course Code: G-010
2.
 - a. Long Course Title: The Earth Sciences
 - b. Short Course Title: THE EARTH SCIENCES
3.
 - a. Catalog Course Description:

This course is intended for students with a strong science background. This rigorous, fast-paced course is a survey of astronomy, meteorology, climatology, oceanography, and geology. The Earth Sciences provides a general understanding and appreciation of the physical, chemical, and historical evolution of our planet and the universe. Explore the interrelationship of the Earth Sciences and the influences of humanity upon the Earth's systems. The laboratory portion studies aspects of each area on a practical and applied basis. Potential field trips emphasize the study and interaction of local Earth systems.
 - b. Class Schedule Course Description:

This course is intended for students with a strong science background. This rigorous, fast-paced course is a survey of astronomy, meteorology, climatology, oceanography, and geology. Due to the demanding course load of The Earth Sciences (G-010), Physical Geology (G-001) may be the best option unless G-010 is needed for program completion.
 - c. Semester Cycle (*if applicable*): This course is offered fall and spring and usually in the summer.
 - d. Name of Approved Program(s):
 - GEOLOGY Associate in Science for Transfer Degree (AS-T)
4. Total Units: 4.00 Total Semester Hrs: 108.00
 Lecture Units: 3 Semester Lecture Hrs: 54.00
 Lab Units: 1 Semester Lab Hrs: 54.00
 Class Size Maximum: 28 Allow Audit: No
 Repeatability No Repeats Allowed
 Justification 0
5. Prerequisite or Corequisite Courses or Advisories:

Course with requisite(s) and/or advisory is required to complete Content Review Matrix (CCForm1-A)

 Advisory: ENG 001A and
 Advisory: MATH 040
6. Textbooks, Required Reading or Software: (*List in APA or MLA format.*)
 - a. Tarback, E., Lutgens, F, and Tasa, D. (2017). *Earth Science* (15th /e). Upper Saddle River, NJ Pearson/Prentice Hall.
 College Level: Yes
 Flesch-Kincaid reading level: 12.3
7. Entrance Skills: *Before entering the course students must be able:*
 - a.
Interpret slope as a rate of change.
 - MATH 040 - Interpret slope as a rate of change.
 - b.
Recognize when a table, graph or equation is linear.
 - MATH 040 - Recognize when a table, graph, or equation is linear.
 - c.
Create a linear model in the form of a graph, table or equation.

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- MATH 040 - Create a linear model in the form of a table, graph, or equation.

d.

Comprehend that the key characteristic of an exponential function is its constant growth (decay) factor.

- MATH 040 - Comprehend that the key characteristic of an exponential function is its constant growth (decay) factor.

e.

Find, read, analyze, evaluate, interpret and synthesize outside sources, including online information.

- ENG 001A - Find, read, analyze, evaluate, interpret, and synthesize outside sources, including online information.

f.

Develop ideas coherently in writing through the drafting process.

- ENG 001A - Develop ideas coherently in writing through the drafting process.

g.

Write thesis statements, topic sentences, and ideas in an organized way in multi-page essays.

- ENG 001A - Write thesis statements, topic sentences, and ideas in an organized way in multi-page essays.

h.

Identify and evaluate appropriate sources, incorporating appropriately quotations, summaries, paraphrases and appropriate facts.

- ENG 001A - Identify and evaluate appropriate source, incorporating them appropriately quotations, summaries, paraphrases and appropriate facts.

8. Course Content and Scope:

Lecture:

1. Earth systems.
2. Minerals.
3. Rocks.
4. Geologic time.
5. Plate tectonics.
6. Earthquakes and the Earth's structure.
7. Volcanoes and plutons.
8. Geologic structures, mountain ranges, and continents.
9. Weathering, soil, and erosion.
10. Streams, lakes, ground water, and wetlands.
11. Glaciers and ice ages.
12. Deserts and wind.
13. Ocean basins.
14. Oceans and coastlines.
15. The Earth's atmosphere.
16. Weather.
17. Climate.
18. Climate change.
19. Air pollution.
20. Water resources.
21. Geologic resources.
22. Motions in the Universe.
23. Planets and their moons.
24. Stars, space, and galaxies.

Lab: (if the "Lab Hours" is greater than zero this is required)

a. Identification of common minerals and rocks. b. Topographic maps. c. Aerial photographs. d. Streams and stream-eroded landscapes. e. Groundwater, glaciation, work of wind, and shorelines. f. Structural geology, plate tectonics, and relative time. g. Global atmospheric circulation patterns and surface oceanic currents. h. Weather maps. i. Climates of the world. j. The solar system. k. Stars and stellar evolution. l. Galaxies.

9. Course Student Learning Outcomes:

1. Describe the current scientific understanding of the origin of the universe and our solar system.

2.

Describe processes that operate in and on the earth that create hazards and how losses to human life and property can be prevented or minimized.

3. Describe how human use of the earth's resources impacts earth.

4. Evaluate and explain applications of the scientific method in astronomy, geology, and meteorology/climatology.

10. Course Objectives: *Upon completion of this course, students will be able to:*

LECTURE

b. Describe various Earth processes, such as mineral and rock formation, weathering, and erosion, and how they relate to the rock, hydrologic, and tectonic cycles.

c. Relate plate tectonics to earthquakes, volcanoes, mountain building, continental placement, and biotic distributions.

d. Formulate causes for weather patterns and climatic zonations as functions of solar intensity, atmospheric and marine circulation, and distribution of land and sea.

e. Demonstrate an understanding of the dynamic interactions amongst biosphere, lithosphere, hydrosphere, and atmosphere throughout geologic time.

f. Discuss the reasons for characteristics of the marine realm: temperature and salinity variations with latitude and depth, waves, tides, and shallow and deep currents.

g. Outline the origin and evolution of the universe.

LABORATORY:

i. Identify common minerals and rocks.

j. Construct topographic maps.

k. Recognize geologic features on topographic maps, such as streams and stream valleys, sand dunes, glacial features, shoreline features, volcanoes, and faulty topography.

l. Understand local geology and how it relates to laboratory work and that is the lecture.

m. Chart ocean currents as they relate to global atmospheric circulation patterns.

n. Predict trends in weather patterns using weather maps.

o. Trace stellar evolution using H-R diagrams.

11. Methods of Instruction: (*Integration: Elements should validate parallel course outline elements*)

a. Laboratory

b. Lecture

12. Assignments: (*List samples of specific activities/assignments students are expected to complete both in and outside of class.*)

In Class Hours: 108.00

Outside Class Hours: 108.00

a. In-class Assignments

Lab Exercises

b. Out-of-class Assignments

Lecture: a. Analysis of textbook materials to summarize salient data on earth sciences for study guide questions and in-class discussion and testing. b. Gather information on in-depth aspects of the earth sciences to organize and interpret in research papers/class oral reports. c. Application of (a) above, to

additional assigned materials. d. Student research projects/oral reports on selected aspects of the earth sciences to promote a deeper understanding of these aspects and to become familiar with the methodology of library/internet research, writing, and speaking on earth sciences topics. Laboratory: a. Preparation for in-lab work on exercises by review of lab materials. b. Completion of assigned laboratory exercises.

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*

- College level or pre-collegiate essays
- Written homework
- Reading reports
- Laboratory projects
- Group activity participation/observation
- True/false/multiple choice examinations
- Mid-term and final evaluations

14. Methods of Evaluating: Additional Assessment Information:

15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*

IGETC Area 5: Physical and Biological Sciences (mark all that apply)

A: Physical Science with Lab

CSU GE Area B: Physical and its Life Forms(mark all that apply)

B1 - Physical Science

PO-GE C1-Natural Sciences

Explain concepts and theories related to physical, chemical, and biological natural phenomena.

Draw a connection between natural sciences and their own lives.

IO - Scientific Inquiry

Analyze quantitative and qualitative information to make decisions, judgments, and pose questions.

Recognize the utility of the scientific method and its application to real life situations and natural phenomena.

IO - Critical Thinking and Communication

Utilizing various communication modalities, display creative expression, original thinking, and symbolic discourse.

16. Comparable Transfer Course

University System	Campus	Course Number	Course Title	Catalog Year
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17. Special Materials and/or Equipment Required of Students:

18. Materials Fees: Required Material?

Material or Item	Cost Per Unit	Total Cost
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19. Provide Reasons for the Substantial Modifications or New Course:

Modify catalog description.

20. a. Cross-Listed Course (*Enter Course Code*): G-010
 b. Replacement Course (*Enter original Course Code*): G-010

21. Grading Method (*choose one*): Letter Grade Only

22. MIS Course Data Elements

a. Course Control Number [CB00]: CCC000268584

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- b. T.O.P. Code [CB03]: 193000.00 - Earth Science
- c. Credit Status [CB04]: D - Credit - Degree Applicable
- d. Course Transfer Status [CB05]: A = Transfer to UC, CSU
- e. Basic Skills Status [CB08]: 2N = Not basic skills course
- f. Vocational Status [CB09]: Not Occupational
- g. Course Classification [CB11]: Y - Credit Course
- h. Special Class Status [CB13]: N - Not Special
- i. Course CAN Code [CB14]: N/A
- j. Course Prior to College Level [CB21]: Y = Not Applicable
- k. Course Noncredit Category [CB22]: Y - Not Applicable
- l. Funding Agency Category [CB23]: Y = Not Applicable
- m. Program Status [CB24]: 1 = Program Applicable

Name of Approved Program (if program-applicable): GEOLOGY

Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)

23. Enrollment - Estimate Enrollment

First Year: 0

Third Year: 0

24. Resources - Faculty - Discipline and Other Qualifications:

a. Sufficient Faculty Resources: Yes

b. If No, list number of FTE needed to offer this course: N/A

25. Additional Equipment and/or Supplies Needed and Source of Funding.

N/A

26. Additional Construction or Modification of Existing Classroom Space Needed. (Explain:)

N/A

27. FOR NEW OR SUBSTANTIALLY MODIFIED COURSES

Library and/or Learning Resources Present in the Collection are Sufficient to Meet the Need of the Students Enrolled in the Course: Yes

28. Originator Alexa Sawa Origination Date 03/13/18