COLLEGE OF THE DESERT

Course Code G-002

Course Outline of Record

1. Course Code: G-002
2. a. Long Course Title: Historical Geology with Laboratory
   b. Short Course Title: HISTORICAL GEOLOGY
3. a. Catalog Course Description:
   An Introduction to Earth's history and the life it supports with a laboratory. Subjects include geologic dating, plate tectonics, stratigraphy, fossils, biological evolution, the planet's origin and the processes that have influenced paleogeography during the past 4.6 billion years.
   b. Class Schedule Course Description:
   An Introduction to Earth's history and the life it supports with a laboratory. includeing plate tectonics, fossils, biological evolution, the planet's origin and the processes that have influenced it during the past 4.6 billion years.
   c. Semester Cycle (*if applicable*): *N/A*
   d. Name of Approved Program(s):
   - GEOLOGY AS Degree and Transfer Preparation
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: BI 004
   Advisory: G 001
6. Textbooks, Required Reading or Software: *(List in APA or MLA format.)*
   a. Levin, H. (2016). *Earth Through Time* (11th/e). John Wiley & Sons.
   College Level: Yes
   Flesch-Kincaid reading level: 12
   b. Levin, H. and Smith, M.. Laboratory Studies in Earth History. WCB/ McGraw-Hill , 09-17-2013.
7. Entrance Skills: *Before entering the course students must be able:*

   a.
   Demonstrate an understanding of the concepts and principles of basic biology.

   - BI 004 - Demonstrate an understanding of the concepts and principles of basic biology.

   b.
   Identify and explain basic anatomical and physiological characteristics of life systems.

   - BI 004 - Identify and explain basic anatomical and physiological characteristics of life systems.

   c.
   Identify rocks and minerals, understand how they are formed, and relate their formation to major Earth environments.

   - G 001 - Identify rocks and minerals, understand how they are formed, and relate their formation to major Earth environments.

   d.
   Explain diverse weathering and erosional processes and how they relate to particular climates, rock types, and tectonic settings.

- G 001 - Explain diverse weathering and erosional processes and how they relate to particular climates, rock types, and tectonic settings.

e.
Interpret structure and stratigraphy from geologic cross-sections.

- G 001 - Interpret structure and stratigraphy from geologic cross-sections.

8. Course Content and Scope:

Lecture:

Plate Tectonics
- Formation and Origin of the Earth
- Driving Mechanisms
- Plate Boundaries
- Hot Spots
- Crustal Evolution and Deformation
- Supercontinent Cycle

Earth's Materials
- Minerals
- Igneous, Sedimentary and Metamorphic Rocks
- Rock Cycle

Fossils
- Modes of Formation
- Classification
- Ecology, Evolution and Extinction

Dating Methods
- Geologic Time
- Relative Dating
- Absolute Dating

Stratigraphy
- Catastrophism and Uniformitarianism
- Interpretation of sedimentary rock sequences

Paleogeography
- Archaean, Proterozoic and Ediacaran geologic and tectonic events
- Paleozoic geologic and tectonic events
- Mesozoic geologic and tectonic events
- Cenozoic geologic and tectonic events
- Recent geologic and tectonic events

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

A. Basic introduction to identifying rocks and minerals
   1. Identify major groups of fossil organisms
   2. Examine modes of fossil preservation
   3. Constructing and interpreting cladograms
   4. Interpret geologic maps
   5. Interpret geologic cross sections
   6. Interpret stratigraphic columns
   7. Relative dating and interpreting sequences of geologic events
   8. Introduction to absolute dating
   9. Paleogeographic reconstruction
B. Field Trips

9. Course Student Learning Outcomes:

1.
Describe how geologists reconstruct the history of earth's surface

2.

Describe how life has evolved, based on the current understanding of the fossil record.

3.
Explain how geologists used the scientific method to constuct the theory of plate tectonics.

10. Course Objectives: *Upon completion of this course, students will be able to:*
    a. Explain and practically apply the principles of the scientific method.
    b. Practically apply concepts and principles of Historical Geology including: • Fossilization • Ecology, Evolution, Extinction and the Fossil Record • Plate Tectonics • Geologic Time and Dating Methods • The Supercontinent Cycle and Paleoclimate
    c. Interpret geologic maps, cross sections and stratigraphic columns
    d. Identify representative samples of fossils and rocks
    e. Explain and practically apply knowledge of tectonic processes to interpret geologic events throughout geologic time.
    f. Practically apply principles of relative dating to interpret sequences of geologic events
    g. Communicate complex course concepts effectively in writing and diagrams

11. Methods of Instruction: *(Integration: Elements should validate parallel course outline elements)*
    a. Collaborative/Team
    b. Demonstration, Repetition/Practice
    c. Discussion
    d. Individualized Study
    e. Laboratory
    f. Lecture
    g. Observation
    h. Participation
    i. Technology-based instruction

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: 54.00
    a. In-class Assignments
        1. Mineral and rock identification
        2. Map interpretation
        3. Video write-ups
        4. Discussion
        5. Stratigraphy and ordering of geologic events
        6. Introduction to paleontology
            a. Bias in the fossil
            b. Preservation of fossils
            c. Paleonenvironments
            d. Fossil symmetry
        7. Paleontology and identification of major phyla
    b. Out-of-class Assignments
        1. Analysis of textbook materials to summarize salient data for study-guide questions and in-class discussion and testing.
        2. Gather information on in-depth aspects of physical geology to organize and interpret in research papers/class oral reports.
        3. Preparation of in-lab work on exercises by review of lab materials.
        4. Completion of assigned laboratory exercises.
        5. Student research projects/oral reports on selected aspects of geology to promote a deeper understanding of these aspects and to become familiar with the methodology of library/internet research and writing and

speaking on geology topics.

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*
    - College level or pre-collegiate essays
      Required on homework, laboratory write-ups and tests
    - Written homework
      Weekly assignments from the textbook
    - Term or research papers
    - Reading reports
    - Laboratory projects
      Rock and mineral ID, map interpretation, stratigraphy, applied paleontology
    - Presentations/student demonstration observations
    - Group activity participation/observation
    - True/false/multiple choice examinations
      On multiple chapter tests
    - Mid-term and final evaluations
    - Student participation/contribution
    - Student preparation
    - Oral and practical examination
      Practical laboratory exams

14. Methods of Evaluating: Additional Assessment Information:

15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*
    CSU/UC Transfer Course
    F. Transfers to CSU; UC, pending review
    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
    B3 - Laboratory Sciences
    PO-GE C1-Natural Sciences
    Explain concepts and theories related to physical, chemical, and biological natural phenomena.
    Apply the scientific process and its use and limitations in the solution of problems.
    Draw a connection between natural sciences and their own lives.
    Make critical judgments about the validity of scientific evidence and the applicability of scientific theories.
    Demonstrate knowledge of the use of technology in scientific investigation and human endeavors, and the advantages and disadvantage of that technology.
    IO - Scientific Inquiry
    Identify components of the scientific method.
    Collect and analyze data. Skills of data collection include an understanding of the notion of hypothesis testing and specific methods of inquiry such as experimentation and systematic observation.
    Predict outcomes utilizing scientific inquiry: using evidence and assertions determine which conclusions logically follow from a body of quantitative and qualitative data.
    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
    Apply principles of logic to problem solve and reason with a fair and open mind.
    Conduct research, gather and evaluate appropriate information, organize evidence into oral and written presentation, using proper MLA, APA, and other discipline-specific formats to cite sources.

Summarize, analyze, and interpret oral and written texts, with the ability to identify assumptions and differentiate fact from opinion.

16. Comparable Transfer Course

University System	Campus	Course Number	Course Title	Catalog Year
CSU	CSU San Bernardino	G 250	Historical Geology	2016

17. Special Materials and/or Equipment Required of Students:

18. Materials Fees: ☐ Required Material?

Material or Item	Cost Per Unit	Total Cost

19. Provide Reasons for the Substantial Modifications or New Course:
New Edition of textbook

20. a. Cross-Listed Course *(Enter Course Code)*: *N/A*
b. Replacement Course *(Enter original Course Code)*: *N/A*

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

22. MIS Course Data Elements
a. Course Control Number [CB00]: CCC000574824
b. T.O.P. Code [CB03]: 191400.00 - Geology
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)*: *N/A*
Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)

23. Enrollment - Estimate Enrollment
First Year: 28
Third Year: 48

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 Nancy Moll Origination Date 04/27/17