# Lassen Community College Course Outline

## GEOL-5 Historical Geology & Paleontology 4.0 Units

## I. Catalog Description

This course is designed to provide a descriptive geological history of the earth using the principles and methods of interpretation and reconstruction of the changes that have occurred on the earth in the fossil record. This course has been approved for online and hybrid delivery.

### Diversity Statement

Our commitment to diversity requires that we strive to eliminate barriers to equity and that we act deliberately to create a safe and inclusive environment where individual and group differences are valued and leveraged for the growth and understanding as an educational community.

Recommended Preparation: Successful completion of ENGL105 or equivalent multiple measures placement.

### Additional Course Information

*Transfer Status:*

- CSU/UC
- Local GE Area: A
- Cal-GETC Area: 5
- C-ID GEOL-111
- 51 Hours Lecture, 51 Hours Laboratory, 102 Out of Class Hours, 204 total student learning hours
- Scheduled: Spring

## II. Coding Information

- Repeatability: Not repeatable, take one time
- Grading Option: Graded or Pass/No Pass
- Credit Type: Credit - Degree Applicable/Credit
- TOP Code: 1914.00
- CIP Code: 400601
- SAM Code:
  ☐ A-Apprenticeship
  ☐ B-Advanced Occupational
  ☐ C-Clearly Occupational
  ☐ D-Possibly Occupational
  ☒ E-Non-Occupational

# III. Course Objectives

## Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. Outline the earth's history through construction of a geological time scale and evolution of organisms.
2. Apply proper lab techniques and knowledge of theoretical concepts in geology to acquire and interpret geologic data and formulate new questions in a laboratory setting.

## Course Objectives

Upon completion of this course the student will be able to:

1. Explain and practically apply the principles of the scientific method.
2. Discuss earth's origin and evolution.
3. Identify the basic physical features of the earth.
4. Describe how the record of the past is expressed in the sedimentary rocks of the earth.
5. Examine and interpret evidence of geologic activity and the presence of life in the major areas of geologic time.
6. Discuss how the past is the key to the present.
7. Through field trips and laboratory experience, identify basic elements of historical geology and stratigraphy.
8. Read a geological map for interpretive purposes.
9. Identify the major groups of preserved life forms found in the fossil record and become aware of the limitations of the fossil record.
10. Explain the tectonic processes that shape the Earth over geologic time.
11. Demonstrate and apply an understanding of the supercontinent cycle and paleoclimate
12. Practically apply the principles of relative dating to interpret sequences of geologic events
13. Communicate complex course concepts effectively in writings and diagrams

# IV. Course Content

## A. Outline of Topics

1. Prologue
   a. Beginnings
   b. Background
   c. Concepts and Principles
      i. Earth’s materials
   d. Birth and Development of a Geologic Time Scale
   e. Dating Methods
      i. Geologic time
      ii. Relative dating
      iii. Absolute dating
   f. The Fossil Record
      i. Modes of formation
   g. Classification and Use of Fossils
   h. Ancient Sedimentary Environments

i. Evolutions and Extinction

2. Plate Tectonics
   a. Driving mechanisms
   b. Plate Boundaries
   c. Hot spots
   d. Crustal Evolution and Deformation
   e. Supercontinent cycle
3. Stratigraphy
   a. Catastrophism and Uniformitarianism
   b. Interpretation of sedimentary rock sequences
4. Paleozoic World
   a. Cryptozoic Life
   b. Paleozoic Life, Cambrian to Permian
5. Mesozoic World
   a. Triassic
   b. Jurassic
   c. Cretaceous
6. Cenozoic World
   a. Glacial and Pleistocene Geology
   b. Emergence of Man
7. Recent geologic events

## B. Laboratory Content

1. Principles of Historic Geology
2. Introduction to identifying rocks and minerals
3. Sedimentary Rocks
4. Geologic Maps, Part I
5. Geologic Maps, Part II
6. Fossils
7. Examine methods of fossil preservation
8. Ediacaran Fossils
9. Trilobites, Part I
10. Trilobites, Part II
11. Graptolites
12. Brachiopods
13. Mollusks, Part I
14. Mollusks, Part II
15. Echinoderms
16. Corals
17. Microfossils
18. Vertebrates
19. Plants
20. Interpret geologic cross sections
21. Interpret stratigraphic columns
22. Relative dating and interpreting sequences of geologic events
23. Introduction to absolute dating
24. Paleogeographic reconstruction
25. Practicum

# V. Assignments

## Appropriate Readings

Reading assignments which will be used to enhance the learning process may include, but are not limited to:

- Text on invertebrate paleontology

## Writing Assignments

In order to successfully complete this course, students must demonstrate understanding of course content through writing assignments which may include, but are not limited to:

- Students are expected to write an interpretive analysis of field observations.

## Expected Outside Assignments

Examples of outside assignments may include, but are not limited to:

- Field trip analysis reports

## Specific Assignments that Demonstrate Critical Thinking

Examples of assignments that demonstrate critical thinking may include, but are not limited to:

- Field trip analysis reports

# VI. Universal Design for Learning Principles

Definitions and/or examples of UDL methods can be found in the Curriculum Handbook.

☒ Multiple Means of Engagement
☐ Multiple Means of Representation
☒ Multiple Means of Action and Expression

# VII. Representative Texts and Supplies

1. Levin, Earth Through Time, 11th edition, 2017, Wiley, ISBN 9781119228349 *(classic text)*

   ☐Zero Textbook Cost/Open Educational Resource
   ☐Textbook Cost is $0.01 to $30.00
   ☐Textbook Cost is $30.01 to $40.00
   ☒Textbook Cost is over $40.00

2. Lab Manual: Historical Geology: Interpretations and Applications, 6th Edition 2004, Poort and Carlson, ISBN 9780131447868 *(classic text)*

# VIII. Disciplines

Earth Science

# IX. Course Status

1. Current Status: Active
2. Original Approval Date: 21-MAY-2001
3. Course Originator: Unknown
4. Board Approval Date: 11/12/2026
5. Chancellor's Office Approval Date: Unknown
6. Revised By: Lynn Fuller
7. Curriculum/Academic Standards Committee Revision Date: 10/21/2026
8. See the following page for Methods of Evaluation and Methods of Delivery.

# X. Methods of Evaluation

List general evaluation methods. Handbook Descriptions
***Only include the appropriate evaluation modalities***

☒ Traditional Evaluation
☐ Correspondence Evaluation
☒ Hybrid Evaluation
☐ Online Evaluation
☐ Other (Please List):

**Traditional Evaluation**
Term paper (topic choice, thesis statement, outline, bibliography, rough draft, final draft), homework, classroom discussion, essay, journals, lab demonstrations and activities, multiple choice quizzes, and participation.
**Hybrid Evaluation**
Quizzes and exams could be administered in person and/ or online. Students will be expected to complete online assignments and activities equivalent to in-class assignments and activities for the online portion of the course. Electronic communication, both synchronous and asynchronous (chat/forum) will be evaluated for participation and to maintain effective communication between instructor and students.

# XI. Methods of Delivery

Check those delivery methods for which this course has been separately approved by the Curriculum/Academic Standards Committee. Handbook Descriptions

☒ Traditional Classroom Delivery
☐ Correspondence Delivery
☐ Hybrid Delivery
☒ Hybrid With Lab Delivery
☐ Online Delivery

**Traditional Classroom Delivery**
Lecture, discussion, audio/visual aids, demonstration, group exercises, guest speakers, lab, individualized programs and other as needed.
**Hybrid Delivery for Courses with a Lab**
Hybrid modality may involve face to face instruction mixed with online instruction. A minimum of 1/3 of instruction, including 100% labs, will be provided face to face. The remaining hours will be taught online through a technology platform as adopted by the district.