GAVILAN COLLEGE
5055 Santa Teresa Blvd
Gilroy, CA 95023

Course Outline

COURSE: GEOL 1 DIVISION: 10 ALSO LISTED AS:

TERM EFFECTIVE: Spring 2022 CURRICULUM APPROVAL DATE: 04/12/2022

SHORT TITLE: INTRO GEOLOGY L/L

LONG TITLE: Introduction to Geology

Units	Number of Weeks	Type	Contact Hours/Week	Total Contact Hours
4	18	Lecture:	3	54
		Lab:	3	54
		Other:	0	0
		Total:	6	108

Out of Class Hrs:	108.00
Total Learning Hrs:	216.00

COURSE DESCRIPTION:

A study of the earth and the physical properties which modify the earth; minerals, rocks, geologic structures and processes. ADVISORY: College level reading and writing skills.

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES
- L - Standard Letter Grade

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:
- 02 - Lecture and/or discussion
- 03 - Lecture/Laboratory
- 04 - Laboratory/Studio/Activity
- 047 - Laboratory - LEH 0.7
- 05 - Hybrid
- 71 - Dist. Ed Internet Simultaneous
- 72 - Dist. Ed Internet Delayed
- 73 - Dist. Ed Internet Delayed LAB
- 737 - Dist. Ed Internet LAB-LEH 0.7

STUDENT LEARNING OUTCOMES:

By the end of this course, a student should:

1. Explain the scientific method.

2. Identify, describe, compare and contrast basic rocks and minerals, plate tectonics, earthquakes and vulcanism.

3. Interpret landforms from topographic maps and aerial photos.

4. Identify, describe, compare and contrast the concepts of Geologic Time, physical and chemical weathering processes, mass wasting processes and controls, and renewable and non-renewable resources.

5. Identify, describe, compare and contrast river, coastal, desert and glacial processes and landforms.

COURSE OBJECTIVES:

By the end of this course, a student should:

1. Explain and apply the principles of the scientific method

2. Communicate complex course concepts effectively in writing and diagrams and apply critical thinking and problem-solving skills to make informed life decisions

3. Read and interpret topographic and geologic maps and answer questions pertaining to geologic processes

4. Identify and evaluate the mineral composition of the Earth

5. Identify and evaluate the igneous, sedimentary, and metamorphic rocks on Earth

6. Describe the rock cycle and identify and describe the basic properties of rocks and minerals

7. Explain the internal and external processes that shape and form the Earth

8. Explain fundamental concepts, principles, and interactions of Earth?s systems applicable to the geological sciences

COURSE CONTENT:

Curriculum Approval Date: 04/12/2022

LECTURE CONTENT:

3 Hours

CONTENT: Introduction to Geology

Topics:

1. The scientific method

2. The nature of minerals and major rock forming minerals

3 Hours

CONTENT: Igneous Rocks and Processes

Topics:

1. The major igneous rocks and processes

3 Hours

CONTENT: Sedimentary Processes & Rock Identification

Topics:

1. Sedimentary rocks and processes

3 Hours

CONTENT: Metamorphic Rocks & Processes

Topics:

1. Metamorphic rocks and processes

2 Hours

Midterm Exam

COURSE CONTENT(CONTINUED):
LECTURE CONTENT(CONTINUED):
3 Hours
CONTENT: Topographic Maps & Aerial Photos. The Solar System
Topics:
1. General mapping techniques using topographic maps and aerial photos
2. Identify and describe various physical features using maps and aerial photos
3. The solar system
3 Hours
CONTENT: Physical & Chemical Weathering
Topics:
1. Weathering processes and products
2. Contrast the different landscapes that result from physical and chemical weathering
3 Hours
CONTENT: Plate Tectonics Theory
Topics:
1. The basic elements of Plate Tectonics Theory
2. The global distribution of earthquakes and volcanism
3 Hours
CONTENT: Volcanic Processes & Landforms
Topics:
1. Different types of volcanic landforms and processes
2. Variables that control volcanic eruptions
3 Hours
CONTENT: Seismicity & Earthquakes
Topics:
1. The basic elements of faulting and earthquake activity
2. General patterns of global seismicity as it relates to plate tectonics
2 Hours
Midterm Exam
3 Hours
CONTENT: River Systems & Processes; Renewable and Non-renewable Resources
Topics:
1. The various elements of river systems, drainage basins, and groundwater movement
2. The processes of erosion and sediment transport by running water
3 Hours
CONTENT: Coastlines & Coastal Processes
Topics:
1. The basic types of coastlines and the processes of erosion and sediment transport by waves
2. Erosional and depositional coastal landforms
3 Hours
CONTENT: Desert Landforms & Processes
Topics:
1. Different types of desert landforms
2. Development of desert landforms by the forces of wind and water erosion and deposition

COURSE CONTENT(CONTINUED):
LECTURE CONTENT(CONTINUED):
3 Hours
CONTENT: Glacial Landforms & Processes
Topics:
1. Different types of glaciers
2. Glacial processes and how they produce erosional and depositional glacial landforms
3. Controls for global ice ages
3 Hours
CONTENT: Mass Wasting Processes
Topics:
1. Different types of mass wasting
2. Controls for mass wasting
3 Hours
CONTENT: Geologic Time
Topics:
1. The concepts of geologic time as it relates to the Relative and Absolute Geologic Time Scales
3 Hours
CONTENT: Geologic Field Exercise
Topics:
1. Identify and describe various landforms and geologic processes on a geologic field trip
2 Hours
Final Exam

COURSE CONTENT(CONTINUED):

LAB CONTENT:

3 Hours

Minerals & Mineral Identification

Topics:

1. Working with specimens in the classroom to understand the major rock forming minerals

3 Hours

Igneous Rock Identification

Topics:

1. Working with specimens in the classroom to understand the major igneous rock types

3 Hours

Sedimentary Rock Identification

Topics:

1. Working with specimens in the classroom to understand the major sedimentary rock types

3 Hours

Metamorphic Rock ID

Topics:

1. Working with specimens in the classroom

3 Hours

Mapping Techniques

Topics:

1. Working with specimens in the classroom to understand the major metamorphic rock types

3 Hours

Lab Exam

3 Hours

Weathering Processes

Topics:

1. Different landscapes resulting from physical and chemical weathering

3 Hours

Plate Tectonics

Topics:

1. Different types of major tectonic plates.

3 Hours

Seismicity & Earthquakes

Topics:

1. Drawing offset strike slip fault lines with right lateral motion

3 Hours

River Processes & Landforms

Topics:

1. Drawing examples of the different drainage patterns

3 Hours

Coastal Processes & Landforms

Topics:

1. Contrasting types of coastlines with their plate tectonic history

COURSE CONTENT(CONTINUED):

LAB CONTENT(CONTINUED):

3 Hours

Desert Processes & Landforms

Topics:

1. Comparing desert landscape evolution, plate tectonic history, and global ice ages

3 Hours

Glacial Processes & Landforms

Topics:

1. Global ice ages

3 Hours

Mass Wasting

Topics:

1. Different types of mass wasting, controls for mass wasting

3 Hours

Geologic Time

Topics:

1. Contrasting the relative and absolute time scales

6 Hours

Geologic Field Exercise

Topics:

1. Review reading topographic maps in lab exercise workbook
2. Identify and describe various landforms and geologic processes

3 Hours

Lab Exam

METHODS OF INSTRUCTION:

Lecture The instructor lectures on geological topics and guides students using demonstrations. Laboratory The instructor prepares and guides students through weekly laboratory assignments that focus on hands-on learning experience in geology. Field Experience The instructor coordinates a one-day field trip to a local area of geologic interest. Distance Education The instructor uses the college's Learning Management System to engage students in regular and substantive interaction with activities such as posting regular announcements, uploading course materials, moderating discussion forums, and providing frequent feedback to students on assessments and assignments.

OUT OF CLASS ASSIGNMENTS:

Required Outside Hours: 108

Assignment Description:

1. Regularly assigned homework that requires students to analyze and study pertinent text material, solved examples and lecture notes.

2. Regularly assigned homework that requires students to apply the principles and skills covered in class by solving related problems.

METHODS OF EVALUATION:

Problem-solving assignments

Evaluation Percent 30

Evaluation Description

Percent range of total grade: 20-40% Quizzes Exams

Skill demonstrations

Evaluation Percent 10

Evaluation Description

Percent range of total grade: 10-20% Class Performance/s

Objective examinations

Evaluation Percent 20

Evaluation Description

Percent range of total grade: 20-40% Multiple Choice

REPRESENTATIVE TEXTBOOKS:

Essentials of Geology, Marshak, Norton Publishing, 2021.

ISBN: 978-0-393-88309-1

Rationale: The textbook is required for out-of-class homework assignments and readings.

12 Grade Verified by: Robert Lopez

Recommended Representative Textbooks

Allan Ludman, Stephen Marshak. Laboratory Manual for Physical Geology, 4e. 2018. Norton Publishing. ISBN 978-0-393-66762-2

ARTICULATION and CERTIFICATE INFORMATION

Associate Degree:

GAV B1, effective 202550

GAV B3, effective 201070

GAV B4, effective 202550

GAV Area 5 = Natural Sci, effective 202550

CSU GE:

CSU B1, effective 202550

CSU B3, effective 201070

CSU B4, effective 202550

IGETC:

IGETC 5A, effective 202550

IGETC 5C, effective 202550

CSU TRANSFER:

Transferable CSU, effective 202550

Not Transferable

UC TRANSFER:

Transferable UC, effective 202550

Not Transferable

SUPPLEMENTAL DATA:

Basic Skills: N
Classification: Y
Noncredit Category: Y
Cooperative Education:
Program Status: 1 Program Applicable
Special Class Status: N
CAN: GEOL2
CAN Sequence: XXXXXXXX
CSU Crosswalk Course Department: GEOL
CSU Crosswalk Course Number: 101
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N
Occupational Course: E
Maximum Hours:
Minimum Hours:
Course Control Number: CCC000166363
Sports/Physical Education Course: N
Taxonomy of Program: 191400