

### Course Outline

**COURSE:** GEOL 1                      **DIVISION:** 10                      **ALSO LISTED AS:**

**TERM EFFECTIVE:** Summer 2020                      **CURRICULUM APPROVAL DATE:** 06/09/2020

**SHORT TITLE:** INTRO GEOLOGY L/L

**LONG TITLE:** Introduction to Geology

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

**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.

**PREREQUISITES:**

**COREQUISITES:**

**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. Students will explain the scientific method.
2. Identify, describe, compare and contrast basic rocks and minerals
3. Identify, describe, compare and contrast the elements of plate tectonics, earthquakes and vulcanism
4. Demonstrate ability at interpreting landforms from topographic maps and aerial photos
5. Identify, describe, compare and contrast the concepts of physical and chemical weathering processes. Identify and describe the mass wasting processes and controls. Differentiate between renewable and non-renewable resources.
6. Identify, describe, compare and contrast river, coastal, desert and glacial processes and landforms
7. Identify and describe the concepts of Geologic Time; identify and describe the fundamental concepts, principles, and interactions of Earth's systems applicable to the Geological Sciences.
8. Demonstrate the ability to identify and describe examples of landforms and processes in diagrams and in a written report
9. Demonstrate knowledge of the solar system by describing its parts and their relationship.

**CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS**

Curriculum Approval Date: 06/09/2020

3 Lec/3 Lab Hours

CONTENT: Introduction to Geology; Minerals & Mineral Identification

STUDENT PERFORMANCE OBJECTIVES (SPO): Students will describe

the scientific method and identify, compare & contrast the nature of minerals. Students will demonstrate an understanding of the major rock forming minerals by working with specimens in the classroom.

Lab#1/Mineral ID

OUT OF CLASS ASSIGNMENTS:

Reading text chapter/ Minerals & Mineral ID. Create list of minerals.

3 Lec/3 Lab Hours

CONTENT: Igneous Processes & Rock Identification

SPO:

Students will identify, describe, compare & contrast the nature of igneous rocks & processes.

Students will demonstrate an understanding of the major igneous rock types by working with specimens in the classroom.

Lab#2 Igneous Rock ID

OUT OF CLASS ASSIGNMENTS: Reading text/chapter/Igneous Rock ID

Create list of igneous rock types.

3 Lec/3 Lab Hours

CONTENT: Sedimentary Processes & Rock Identification

SPO: Students will identify, describe, compare & contrast the nature of sedimentary rocks & processes. Students will demonstrate an understanding of the major sedimentary rock types by working with specimens in the classroom.

Lab#3/Sedimentary Rock ID

OUT OF CLASS ASSIGNMENTS:

Reading text chapter/Sedimentary Rocks & Structures. Create list of sedimentary rock types.

3 Lec/3 Lab

Hours

CONTENT: Metamorphic Rocks & Processes

SPO: Students will identify, describe, compare & contrast the nature of metamorphic rocks & processes. Students will demonstrate an understanding of the major metamorphic rock types by working with specimens in the classroom.

Lab#4/Metamorphic Rock ID

OUT OF CLASS ASSIGNMENTS: Reading text chapter/Metamorphic Rock ID. Create list of metamorphic rock types.

3 Lec/3 Lab Hours

CONTENT: Topographic Maps & Aerial Photos. The Solar System

Lab Exam

SPO: Students will learn general mapping techniques using topographic maps & aerial photos. Students will identify & describe various physical features & landforms using the maps & photos. Students will describe the solar system.

Lab#5/Mapping Techniques

LAB EXAM/Hand specimen identification of mineral & rock samples.

OUT OF CLASS ASSIGNMENTS: Reading lab exercises workbook chapter/Topographic Mapping Techniques.

3 Lec/3 Lab Hours

CONTENT: Physical & Chemical Weathering

SPO: Students will identify, describe & compare weathering processes & products. Students will contrast the different landscapes that result from physical & chemical weathering.

Lab#6/Weathering Processes

OUT OF CLASS

ASSIGNMENTS: Reading text chapter/Weathering Processes. Create a table comparing the resulting landforms.

3 Lec/3 Lab Hours

CONTENT: Plate Tectonics

SPO: Students will identify, describe, compare & contrast the basic elements of Plate Tectonics Theory. Students will demonstrate an understanding of how the theory is used to understand the global distribution of earthquakes & volcanism.

Lab#7/Plate Tectonics

OUT OF CLASS ASSIGNMENTS: Reading text chapter/Plate Tectonics .Create a list of the major tectonic plates & resulting volcanic landforms.

3 Lec/3 Lab Hours

CONTENT:

Volcanic Processes & Landforms

SPO: Students will identify, describe, compare & contrast the different types of volcanic landforms & processes. Students will demonstrate an understanding of the variables that control volcanic eruptions.

OUT OF CLASS ASSIGNMENTS: Reading text chapter/Vulcanism. Create a table correlating volcanic igneous rock types with the volcanoes that produce them

3 Lec/3

Lab Hours

CONTENT: Seismicity & Earthquakes

SPO: Students will identify, describe compare & contrast the basic elements of faulting & earthquake activity. Students will demonstrate an understanding of the general pattern of global seismicity as it relates to plate tectonics.

9/11/2014

4

Lab#8/Seismicity & Earthquakes.

OUT OF CLASS ASSIGNMENTS: Reading text chapter/Earthquakes & Seismicity. Draw 4 offset strike slip fault lines with right lateral motion.

3 Lec/3 Lab Hours

CONTENT: River Systems & Processes; Renewable and Non-renewable Resources

SPO: Students will identify, compare & contrast the various elements of river systems, drainage basins & groundwater movement. Students will describe the processes of erosion & sediment transport by running water & the landforms created by it.

Student will identify renewable and non-renewable resources

Lab#9/River Processes & Landforms

OUT OF CLASS ASSIGNMENTS: Reading text chapter/Stream Processes.

Draw examples of the different drainage patterns

3 Lec/3 Lab Hours

CONTENT: Coastlines & Coastal Processes

SPO: Students will identify & describe the basic types of coastlines & the processes of erosion & sediment transport by waves.

Students will identify, compare & contrast erosional & depositional coastal landforms.

Lab#10/Coastal Processes & Landforms

OUT OF CLASS ASSIGNMENTS: Reading text chapter/Coastal Processes.

Create a table contrasting types of coastlines with their plate tectonic history.

3 Lec/3 Lab Hours

CONTENT: Desert Landforms & Processes

SPO: Students will identify, contrast & compare the different types of deserts. Students will describe the development of desert landforms by the forces of wind & water erosion & deposition.

6/1/2020

Lab#11/Desert Processes & Landforms

OUT OF CLASS ASSIGNMENTS: Reading

text chapter/Deserts. Create a table comparing desert landscape evolution, plate tectonic history & global ice ages.

3 Lec/3 Lab Hours

CONTENT: Glacial Landforms & Processes

SPO: Students will

identify & describe the different types of glaciers. Students will compare & contrast the glacial processes & how they produce erosional & depositional glacial landforms. Students will identify & describe the controls for global ice ages.

Lab#12/Glacial Processes & Landforms

OUT OF CLASS ASSIGNMENTS: Reading text chapter/Glacial Landforms & Processes. Create a list of global ice ages.

3 Lec/3

Lab Hours

CONTENT: Mass Wasting Processes

SPO: Students will identify, compare & contrast the different types of mass wasting. Students will describe the controls for mass wasting.

Lab#13/Mass Wasting

Processes

OUT OF CLASS ASSIGNMENTS: Reading text chapter/Mass Wasting Processes. Create a list of the variables that control mass wasting.

3 Lec/3 Lab Hours

CONTENT: Geologic Time

SPO: Students will

identify & describe the concepts of geologic time as it relates to the Relative & Absolute Geologic Time Scales.

Lab#14/Geologic Time

OUT OF CLASS ASSIGNMENTS: Reading text chapter/Geologic Time.

Create a table contrasting the relative &

absolute time scales.

3 Lec/3 Lab Hours

CONTENT: Geologic Field Exercise

9/11/2014

5

SPO: Students will demonstrate the ability to identify & describe various landforms & geologic processes on a geologic field trip.

OUT OF CLASS ASSIGNMENTS: Review reading topo graphic maps in lab exercise workbook before field exercise.

2 Hours

Final

**METHODS OF INSTRUCTION:**

Lecture/discussion. Laboratory Exercises.

**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:**

Writing assignments

Percent of total grade: 30.00 %

Percent range of total grade: 30 % to 50 % Essay Exams

Problem-solving assignments

Percent of total grade: 20.00 %

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

Skill demonstrations

Percent of total grade: 10.00 %

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

Objective examinations

Percent of total grade: 20.00 %

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

**REPRESENTATIVE TEXTBOOKS:**

Tarbuck, Lutgens, Tasa. Earth: An Introduction to Physical Geology, 12th edition. Pearson,2016.

ISBN: ISBN-13: 978-0134074252 ISBN-10: 0134074254

Reading Level of Text, Grade: 12 Verified by: Jennifer Nari

Recommended Representative Textbooks

Hamblin, Howard. Exercises in Physical Geology, 12th edition. Pearson,2004.

ISBN: ISBN-13: 978-0131447707 ISBN-10: 9780131447707

Reading Level of Text, Grade: 12 Verified by: Jennifer Nari

## **ARTICULATION and CERTIFICATE INFORMATION**

### Associate Degree:

GAV B1, effective 202050

GAV B3, effective 201070

GAV B4, effective 202050

### CSU GE:

CSU B1, effective 202050

CSU B3, effective 201070

CSU B4, effective 202050

### IGETC:

IGETC 5A, effective 202050

IGETC 5C, effective 202050

### CSU TRANSFER:

Transferable CSU, effective 202050

### UC TRANSFER:

Transferable UC, effective 202050

## **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: 1

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