

Clackamas Community College

Online Course/Outline Submission System

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Section #1 General Course Information**Department:**Sciences**Submitter**

First Name: Sarah

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Course Prefix and Number:G - 201

Credits:4**Contact hours**

Lecture (# of hours): 33

Lec/lab (# of hours):

Lab (# of hours): 33

Total course hours: 66

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

Course Title:General Geology**Course Description:**

For science majors. A lab course introducing geologic principles and concepts; weathering, soils, Earth structure, igneous, sedimentary, metamorphic rocks, volcanic activity, and landforms. Lab requires students to identify ore minerals, rock forming minerals, igneous, metamorphic and sedimentary rocks.

Type of Course:Lower Division Collegiate

Is this class challengeable?

Yes

Can this course be repeated for credit in a degree?

No

Is general education certification being sought at this time?

Yes

Check which General Education requirement:

✓ Science & Computer Science

Is this course part of an AAS or related certificate of completion?

No

Are there prerequisites to this course?

No

Are there corequisites to this course?

Yes

Co-reqs:G-201L

Are there any requirements or recommendations for students taken this course?

Yes

Recommendations:Pass RD-090 or placement in RD-115; pass MTH-065 or placement in MTH-095

Requirements:None

Are there similar courses existing in other programs or disciplines at CCC?

No

Will this class use library resources?

Yes

Have you talked with a librarian regarding that impact?

Yes (A 'Yes' certifies you have talked with the librarian and have received approval.)*

Is there any other potential impact on another department?

No

Does this course belong on the Related Instruction list?

No

GRADING METHOD:

A-F or Pass/No Pass

Audit:Yes

When do you plan to offer this course?

✓ Fall

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

No

Will this course appear in the college catalog?

Yes

Will this course appear in the schedule?

Yes

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. predict rock types (igneous, sedimentary and metamorphic) that would form at different plate boundaries or environments and explain why these types of rocks form there, based on scientific information gathered from these different geological systems; (SC1)
2. gather GPS data from NW plate boundaries, analyze the data and create a hypothesis concerning plate motion in the NW; (SC1)(SC2)(WR1)
3. apply information gathered about tectonic plate interactions in the Northwest United States to hypothesis about volcanic activity and volcanic hazards that affect Oregon and Washington, (SC1) (SC3)
4. discuss weathering processes on Earth and how these processes control sedimentary rock formation and soil formation, (SC1)
5. predict, using the uniformitarianism model, past geological surface conditions based on the sedimentary rocks and structures found in a region; (SC1)
6. explain how the interior of the Earth is structured and know what the physical and chemical properties are for each region, (SC1)
7. explain the theory of plate tectonics and why this model of plate interaction is a underlying foundation for the science of geology, (SC1)
8. explain how the Earth's plates interact at different plate boundaries, what geological features are found at each type of boundary and how the structures produced affect society with regards to mineral resources and geological hazards; (SC1) (SC3)
9. apply scientific methods to gather information about the properties and attributes of rocks in order to correctly identify unknown samples, (SC2)
10. scientifically gather information about the properties and attributes of minerals in order to correctly identify unknown samples, (SC2)
11. use the scientific method to observe natural settings, identify the rocks and minerals in these settings and use the evidence gathered to hypothesis about the geological system that formed the observed lithology; (SC2)
12. explain how the geological sciences interact with society and how those interactions relate, both positively and negatively to environmental sustainability; (SC3) (SC1)
13. discuss the various uses and importance of minerals in society and know which mineral provides which ore,

(SC3)

14. critically evaluate scientific data concerning rock and mineral formation and use the data to assess the validity of a proposed hypothesis, (SC3)

15. explain how soils form, where and why different types of soils form, and the importance of soil to society. (SC3)

**AAOT/ASOT GENERAL EDUCATION OUTCOMES
COURSE OUTLINE MAPPING CHART**

Mark outcomes addressed by the course:

- Mark "C" if this course completely addresses the outcome. Students who successfully complete this course are likely to have attained this learning outcome.
- Mark "S" if this course substantially addresses the outcome. More than one course is required for the outcome to be completely addressed. Students who successfully complete all of the required courses are likely to have attained this learning outcome.
- Mark "P" if this course partially addresses the outcome. Students will have been exposed to the outcome as part of the class, but the class is not a primary means for attaining the outcome and assessment for general education purposes may not be necessary.

As a result of completing the AAOT/ASOT general education requirements, students will be able to:

WR: Writing Outcomes

- P**
1. Read actively, think critically, and write purposefully and capably for academic and, in some cases, professional audiences.
 2. Locate, evaluate, and ethically utilize information to communicate effectively.
 3. Demonstrate appropriate reasoning in response to complex issues.

SP: Speech/Oral Communication Outcomes

1. Engage in ethical communication processes that accomplish goals.
2. Respond to the needs of diverse audiences and contexts.
3. Build and manage relationships.

MA: Mathematics Outcomes:

1. Use appropriate mathematics to solve problems.
2. Recognize which mathematical concepts are applicable to a scenario, apply appropriate mathematics and technology in its analysis, and then accurately interpret, validate, and communicate the results.

AL: Arts and Letters Outcomes

1. Interpret and engage in the Arts & Letters, making use of the creative process to enrich the quality of life.
2. Critically analyze values and ethics within range of human experience and expression to engage more fully in local and global issues.

SS: Social Science Outcomes

1. Apply analytical skills to social phenomena in order to understand human behavior.
2. Apply knowledge and experience to foster personal growth and better appreciate the diverse social world in which we live.

SC: Science or Computer Science Outcomes

- S**
1. Gather, comprehend, and communicate scientific and technical information in order to explore ideas, models, and solutions and generate further questions.
- S**
2. Apply scientific and technical modes of inquiry, individually, and collaboratively, to critically examine the influence of scientific and technical knowledge on human society and the environment.

- S** 3. Assess the strengths and weaknesses of scientific studies and critically examine the influence of scientific and technical knowledge on human society and the environment.

CL: Cultural Literacy Outcome

1. Identify and analyze complex practices, values, and beliefs and the culturally and historically defined meanings of difference.

Outcomes Assessment Strategies:

- ✓ **General Examination**
- ✓ **Projects**
- ✓ **Writing Assignments**
- ✓ **Multiple Choice Test**

- ✓ **Other Assessment Tools:** Practical lab exams and laboratory work

Major Topic Outline:

1. Introduction:
 - a. The scientific method and geology.
 - b. Geology's role in society and sustainability.
 - c. Rock cycle.
2. Earth's formation/structure and plate tectonic overview:
 - a. Regions of the Earth and their physical/chemical characteristics.
 - b. Plate boundaries, interaction, structures that form, and hazards to society.
 - c. Scientific methods and mechanisms of plate motion.
3. Introduction to chemistry and minerals:
 - a. Atomic structure and chemical bonding.
 - b. Chemical formulas.
 - c. Mineral properties and Crystal structures.
 - d. Silicate & non- silicate minerals.
4. Igneous Processes and Rocks:
 - a. Classification of igneous rocks.
 - b. Igneous activity and plate tectonics.
 - c. Magma differentiation processes.
 - e. Plutonic structures.
5. Volcanoes:
 - a. Volcanic systems and structures.
 - b. Plate tectonics and volcanoes.
 - c. Volcanic hazards, society and the Northwest.
 - d. Distribution and causes of volcanoes.
 - e. Classification of volcanic rocks.
6. Weathering Processes:
 - a. Chemical and physical weathering processes of rocks.
 - b. Environments associated with weathering.
 - c. Products of weathering, soil formation and soil types.
7. Sedimentation and Sedimentary Rocks:
 - a. Properties of sediments, transport and deposition, and lithification.
 - b. Sedimentary rocks and environments that form sedimentary rocks.

- c. Classification of clastic and non-clastic rocks.
- d. Sedimentary structures and historical significance.
- e. Mineral resources of sedimentary rock environments and society.

8. Metamorphism and Metamorphic Rocks:

- a. Metamorphic processes and types of Metamorphism.
- b. Classification of metamorphic rocks.
- c. Geographic distribution of metamorphic environments.
- d. Metamorphism and mountain building.

G-201L Lab—Major Topic Outline

- 1. Scientific methods use to determine mineral properties.
- 2. Using scientific methods to determine the properties for and the identification of ore forming minerals.
- 3. Using scientific methods for the identification and classification of the framework silicates.
- 4. Using scientific methods for the identification and classification of the remaining silicate minerals.
- 5. Introduction to igneous rock compositions, textures and classification.
- 6. Identification of igneous rocks through composition and textures.
- 7. Introduction and identification of sedimentary rocks using sediment classification techniques.
- 8. Introduction and identification of metamorphic rocks using index minerals and textures.

Does the content of this class relate to job skills in any of the following areas:

- | | |
|--------------------------------------|-----------|
| 1. Increased energy efficiency | No |
| 2. Produce renewable energy | No |
| 3. Prevent environmental degradation | No |
| 4. Clean up natural environment | No |
| 5. Supports green services | No |

Percent of course:0%

Section #2 Course Transferability

Concern over students taking many courses that do not have a high transfer value has led to increasing attention to the transferability of LDC courses. The state currently requires us to certify that at least one OUS school will accept a new LDC course in transfer. Faculty should communicate with colleagues at one or more OUS schools to ascertain how the course will transfer by answering these questions.

- 1. Is there an equivalent lower division course at the University?
- 2. Will a department accept the course for its major or minor requirements?
- 3. Will the course be accepted as part of the University's distribution requirements?

If a course transfers as an elective only, it may still be accepted or approved as an LDC course, depending on the nature of the course, though it will likely not be eligible for Gen Ed status.

Which OUS schools will the course transfer to? (Check all that apply)

- | | |
|--|--|
| <input checked="" type="checkbox"/> EOU (Eastern Oregon University) | <input checked="" type="checkbox"/> PSU (Portland State University) |
| <input checked="" type="checkbox"/> OIT (Oregon Institute of Technology) | <input checked="" type="checkbox"/> SOU (Southern Oregon University) |
| <input checked="" type="checkbox"/> OSU (Oregon State University) | <input checked="" type="checkbox"/> UO (University of Oregon) |
| <input checked="" type="checkbox"/> OSU-Cascade | <input checked="" type="checkbox"/> WOU (Western Oregon University) |

Identify comparable course(s) at OUS school(s)

G201 and Lab

How does it transfer? (Check all that apply)

- required or support for major
- general education or distribution requirement

✓ **general elective**

:

Provide evidence of transferability: (minimum one, more preferred)

✓ **Correspondence with receiving institution (mail, fax, email, etc.)**

✓ **Other. Please explain.**

course catalogs

First term to be offered:

Next available term after approval

:
