Clackamas Community College

Online Course/Outline Submission System

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Section #1 General Course Information

Department: Sciences

Submitter

First Name: Sarah
Last Name: Hoover
Phone: 3354
Email: sarahh

Course Prefix and Number: G - 203

 # 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 that examines the geological development of the North American continent through topics such as geologic time, plate tectonics, mountain building earthquakes/faults, and fossils. Examines important events in each geologic era and includes fossil ID, compass use, field techniques and GPS.

Type of Course: Lower Division Collegiate

Is this class challengeable?

No

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-203L

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?

No

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?

✓ **Spring**

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. use the theory of plate tectonics and the processes involved in this model to explain the development of continents and mountain ranges on Earth, (SC1)
2. explain how the interior of the Earth is structured and know what the physical and chemical properties are for each region, (SC1)
3. assess the strength of the continental drift argument compared to the theory of plate tectonics and discuss why plate tectonics is the theory used by science today, (SC3)
4. apply scientific seismic data to evaluate how the interior structure of the Earth was determined and recognize the many discontinuities within the Earth and what causes them to occur, (SC2)
5. evaluate research on oceanic crust to explain the evolution of the current theory of plate tectonics, (SC1)
6. explain how the Earth's plates interact at different plate boundaries and what geological features are found at each type of boundary, (SC1)
7. critically evaluate fossils and the current explanations on fossil formation to determine the fossilization method of organisms preserved in the geologic record, (SC2)
8. use the scientific process to identify key fossils found in the rock record, (SC2)
9. apply mapping and fossil data to stratigraphy in order to correlate the rock units and reconstruct the geological history for a region, (SC2)
10. gather field data on faults and use the data to explain the stresses that created the faults and the tectonic processes involved in their formation, (SC1)
11. evaluate and assess studies on seismic hazards and how these hazards potentially affect society, (SC3)
12. gather information and data concerning plate boundaries and earthquakes and evaluate the potential for earthquakes and consequences of those earthquakes in the Northwest United States, (SC1) (SC3)
13. apply scientific observation to geological structures found in a region to explain the general tectonic events that occurred in that region to form the structure, (SC2)
14. gather data and make observations to reconstruct the geological history of a region, (SC2)
15. collect and analyze data using a geological compass to identify a geological structure and hypothesize about the forces that created it, (SC2)
16. reconstruct and explain key geological events that occurred to shape the Earth in each of the geologic Eras, (SC1)
17. critically analyze scientific papers for knowledge on geological processes and evaluate the paper for strengths and weaknesses. (SC3)(WR1)

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**

✓ **Writing Assignments**

✓ **Multiple Choice Test**

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

Major Topic Outline:

1. Geologic time:
a. Formation of the geologic time table.
b. Stratigraphy.
c. Relative dating techniques.
d. Radiometric dating techniques.
e. Fossil formation and uses.

2. Earth's Interior and Structure:
a. General structure.
b. Internal regions and composition.
c. Seismic evidence on how we know the structure.
d. Evidence for composition of Earth's various regions.

3. Plate Tectonics:
a. The development of continental drift hypothesis.
b. The development of the theory of plate tectonics.
c. The theory of plate tectonics.
d. Lithosphere boundaries and plate collisions.
e. Features found at plate boundaries.
f. Mechanisms of plate motion.

4. Earthquakes:
a. Elastic strain hypothesis.
b. Measuring strength of earthquakes (Richter and Moment magnitude).
c. World distribution of earthquakes.
d. Earthquakes and society (Mercalli scale).
e. Prediction and forecasting.
f. Building structures and reinforcement.
g. Northwest and earthquakes.

5. Mountains and Mountain Building:
a. Types of mountains.
b. Mountain forming environments.
c. World distribution of mountains.
d. Plate tectonics and mountain building.
e. Continental accretion and NW mountains.

6. Continental Development:

a. Precambrian Earth history.
b. Cooling of the Earth.
c. Formation of atmosphere, oceans and crust.
d. Formation of continents.

7. Earth History:
a. Key Paleozoic events (tectonic, biological, atmosphere/climate and extinctions).
b. Mesozoic events (tectonic, biological, atmosphere/climate and extinctions).
c. Cenozoic events(tectonic, biological, atmosphere/climate and extinctions).
d. Climate variations in Earth's history and Global Climate change today.

G-203L Lab—Major Topic Outline
1. Geologic time.
2. Correlation and relative dating.
3. Radiometric dating.
4. Fossils formation, identification and use.
5. Dip and Strike.
6. Structural Geology.
7. Geologic maps and N. America's geologic structures.
8. GPS Waypoints and Routes.

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)

✓ **EOU (Eastern Oregon University)**	✓ **PSU (Portland State University)**
✓ **OIT (Oregon Institute of Technology)**	✓ **SOU (Southern Oregon University)**
✓ **OSU (Oregon State University)**	✓ **UO (University of Oregon)**
✓ **OSU-Cascade**	✓ **WOU (Western Oregon University)**

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

G203 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.**

Catalogs

First term to be offered:

Next available term after approval
: