

Clackamas Community College

Online Course/Outline Submission System

 Show changes since last approval in red[Print](#)[Edit](#)[Delete](#)[Back](#)[Reject](#)[Publish](#)

Section #1 General Course Information

Department: Sciences

Submitter

First Name: Sarah

Last Name: Hoover

Phone: 3354

Email: sarahh

Course Prefix and Number: GS - 104

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: Earth System Science

Course Description:

A lab course designed to give an overview of the physical sciences by examining the relationship between physics, chemistry and geology in the natural world. Topics include plate tectonics, the Earth's structure, earthquakes/hazards, mineral chemistry, igneous rocks, and volcanoes/hazards.

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?

No

Does this course map to any general education outcome(s)?

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?

No

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

Yes

Recommendations: Pass MTH-065 or placement in MTH-095

Requirements:

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?

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?

✓ **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. gather data to calculate density, slope and velocity and plot data to problem solve; (SC2)
 2. use models and the scientific method to interpret physical systems and explain the scientific limitations of models; (SC1)(SC3)
 3. perform wave theory experiments and apply data to calculate the composition of unknown systems, explain the scientific methods used to determine the interior structure of the Earth, and determine earthquake locations; (SC1)(SC2)
 4. explain how the Earth's plates interact at different plate boundaries, what geologic features and igneous rocks types are created at each boundary and how these plate interactions affect society with regards to seismicity and volcanism; (SC1)(SC2)(SC3)
 5. gather data through maps and experimentation to explain earthquakes/volcanic processes and hazards in the NW; (SC2)(SC3)
 6. use scientific methods to evaluate and classify igneous rocks and minerals;
 7. apply chemistry to explain chemical bonding and structure of minerals. (SC2)
-

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

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:

- P** 1. Use appropriate mathematics to solve problems.
- P** 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**

✓ **Multiple Choice Test**

✓ **Other Assessment Tools:** Laboratory activities and practical laboratory quizzes

Major Topic Outline:

1. Introduction to the metric system, modeling, the scientific method, cycles, and systems.
2. Origin and history of solar system exploration, Kepler's laws, and gravity.
3. Physics of light, the Sun and Stars electromagnetic spectrum.
4. Interior of the Earth, seismic waves and wave theory, heat transfer.
5. Plate tectonics.
6. Earthquakes and hazards.
7. Introduction to minerals, atoms and atomic structure, chemical bonding and crystal structures.
8. Igneous rock (intrusive).
9. Volcanoes and hazards.

Lab:

10. Basic math skills, models and systems.
11. Investigating the Solar System.
12. Light and energy.
13. Plate tectonics.
14. Earthquakes.
15. Introduction to minerals.
16. Minerals and rocks.
17. Igneous rocks and identification.
18. Volcanism, structures and hazards.

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)

- OSU (Oregon State University) UO (University of Oregon)
 OSU-Cascade

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

OSU: GS LDT UO: GS120T

How does it transfer? (Check all that apply)

- general education or distribution requirement
 general elective

:

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

Other. Please explain.

Information Per UO and OSU transferable classes website

First term to be offered:

Next available term after approval

:
