

GEOG 0001 - PHYSICAL GEOGRAPHY

Catalog Description

Advisory: Eligibility for ENGL 1A

Hours: 54 lecture

Description: Explore Earth's landscape and environmental processes, including the Earth's atmosphere, weather, climate regions, hydrosphere, oceans, clouds, rivers, biosphere, and the Earth landforms, such as mountain building and river systems. Emphasis on the holistic understanding landscape patterns and environmental systems as they relate to location. Also examines human influence on the natural world. (C-ID GEOG 110) (combined with GEOG 1L, C-ID GEOG 115) (CSU, UC)

Course Student Learning Outcomes

- CSLO #1: Evaluate effects of gradient upon stream velocity characteristics, which in turn affect a stream's ability to either erode or deposit its load. Likewise evaluate lower reaches stream landform features, but in this case, relating velocity to meandering stream characteristics, such as point bars and cut banks. Apply to delta landforms as well.
- CSLO #2: Compare and contrast differing tectonic plate motions and boundaries to common landforms that result (E.g. violent composite volcanoes at convergent plate boundaries with oceanic-continental plates).
- CSLO #3: Distinguish earth's movements as they relate to causes of seasons, changes in daylight, and global insolation budget.
- CSLO #4: Predict primary climatic controls of a place on earth based on several broad categories (e.g. latitude, ocean proximity, wind and ocean currents, etc.).
- CSLO #5: Identify common map families and use an example of a specific map projections that describes their application and limitations.
- CSLO #6: Identify the unique characteristics of the earth's interior layers from the core to the crust.

Effective Term

Fall 2021

Course Type

Credit - Degree-applicable

Contact Hours

54

Outside of Class Hours

108

Total Student Learning Hours

162

Course Objectives

1. Evaluate the relationship of a streamflow gradient (e.g. steep to flat) to a river's landforms and distinct features, such as "V" shaped canyons in the upper reaches or meandering streams with flood plains in the lower reaches.
2. Describe converging plate boundary landforms using the following three (3) plate combinations: oceanic-oceanic convergence, oceanic-continental convergence and finally continental-continental convergence.
3. Describe the 2 major processes for the "march of the seasons" on the planet Earth, such as inclination / polarity and the angle of the Sun's rays change throughout the year.
4. Describe a geographic place's temperature and precipitation, then explain the primary climate controls as related to the lecture, such as latitude, proximity to the ocean, ocean currents, wind currents, etc.
5. Describe common map projections pros and cons as they relate to: direction, distance and shape or size. For example, students should know that the famous Mercator projection is best used for compass direction but not used to show size or shape of Greenland, which is greatly increased in size (in some cases double what it should be).
6. Illustrate layers of the earth, including material, approximate depth, and rigidity. For example, the inner core is completely solid and made of iron, while the mantle is 1800 miles thick and plastic-like nearing the crust.
7. Distinguish earth's various movements as they relate to the causes of seasons, changes in daylight, global insolation, and changing climate patterns caused by human influences.
8. Assess basic processes in heating/cooling the atmosphere as a whole (heat budget), vertical temperature patterns including inversions and adiabatic forces, as well as mechanisms for heat transfer.
9. Explain koppen climate zones.

General Education Information

- Approved College Associate Degree GE Applicability
 - AA/AS - Physical Sciences
- CSU GE Applicability (Recommended-requires CSU approval)
 - CSUGE - B1 Physical Science
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)
 - IGETC - 5A Physical Science

Articulation Information

- CSU Transferable
- UC Transferable

Methods of Evaluation

- Classroom Discussions
 - Example: In-class assignments and subsequent exams require ability to identify percentages of incoming & outgoing solar energy and cause of transfer (e.g., latent heat of condensation) as well as calculate vertical temperature changes using various lapse rates.
- Objective Examinations
 - Example: Exams require identifying various terms to characterize stream flow (e.g., CFS), transportation methods (dissolved load, saltation, etc.), natural sorting processes (such as attrition) and lower-reach meandering stream floodplain characteristics (cutbanks, point bars, bluffs, oxbow lakes, etc.). Location-based questions on the exams require students to identify major landforms and their associated geologic process. For example, the Sierra Nevada Mountains are associated with a major plutonic

process (creating a batholith) and are characterized as fault-block mountains vs. the Appalachian – a folded mountain range, or the Cascades – a volcanic mountain range.

- Projects
 - Example: Students will be evaluated on presenting a classroom project on a given topic. Example: Tropical Rain Forest.
- Reports
 - Example: Written assignments evaluate if students can graphically describe climatic characteristics and their causes based on 5 or 6 major controls, such as latitude, proximity to oceans, prevailing winds, pressure belts, etc. Also, student must be able to identify these controls on written exams.

Repeatable

No

Methods of Instruction

- Lecture/Discussion
- Distance Learning

Lecture:

1. Complex subjects, such as air pressure, require instructor to elaborate in a lecture/discussion on abstract concepts such as the origin and evolution of earth's atmosphere using models, measuring equipment, and animations to illustrate thermal and dynamic air movement. Students will then be required to illustrate the global pressure belts.

Distance Learning

1. The instructor will introduce, support, and evaluate online lectures on climate and ecosystems in conjunction with textbook reading and review. Students are then expected to outline the vegetation types within a assigned climate zone and post their outlines for other students to review and comment.

Typical Out of Class Assignments Reading Assignments

1. Read Chapter - Atmospheric Pressure and Winds - to answer preliminary questions and study guide worksheet. Apply information in a weekly quiz. 2. Read Chapter - Climate and Climate Change - to gather fundamental information on climate sub-types, such as their characteristics like temperature and precipitation, flora and fauna distributions, and the main causes for these distinct characteristics and be prepared to discuss in class.

Writing, Problem Solving or Performance

1. Find climatic data (monthly temperature & rainfall for one year) to graph and describe different climates for various places world-wide. This is known as a climograph. Now that you understand a place's climatic description, you will also explain the climate controls or causes based on lecture and textbook information. 2. In-class Global Pressure Exercise: Why are 2 of the 3 major wind systems created by the Subtropical High Pressure (STH) cells? How do landforms affect their development? Why are the west coasts so dry and east coast wet? 3. Read assigned maps/atlas to find locations of various physical geography features world-wide, such as mountains, oceans and rivers. Apply in a map quiz.

Other (Term projects, research papers, portfolios, etc.)

Each group must present the characteristics of one major climate zone (such as Tropical climates) from the Koppen Climate list. You have 10 minutes to give your presentation and each member of the team must participate in the class presentation. You must use additional sources other than the book. Each team will be graded as a whole. As part of the assignment, each team is responsible to create a hand-drawn poster to be displayed during class.

Required Materials

- Physical Geography: A Landscape Appreciation
 - Author: D. Hess
 - Publisher: Pearson
 - Publication Date: 2017
 - Text Edition: 12th
 - Classic Textbook?:
 - OER Link:
 - OER:
- Physical Geography Course Pack
 - Author: S. Booth
 - Publisher: Print Shop
 - Publication Date: 2019
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:

Other materials and-or supplies required of students that contribute to the cost of the course.

Access to Internet