

# GLOBAL ENVIRONMENTAL SYSTEMS, CERTIFICATE

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Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

## Program Description

Global environmental systems students characterize and analyze Earth's physical environment across time and space through the study of physical geography. This 12-credit certificate helps to prepare students for a variety of careers in resource management, ecological restoration, and climate change mitigation where an understanding of geographic patterns and physical processes associated with water, landforms, soils, vegetation, and climate are critical for the survival of life on planet Earth. Learning Objectives: Identify, describe, and analyze the processes that lead to spatial variation on Earth's surface, and the current and historical, physical and biotic processes that shape specific landscapes.

## What is Global Environmental Systems?

Physical geographers seek to understand Earth's environmental systems and processes and their interactions with human activities across spatial and temporal scales. Geographers in this concentration conduct field and laboratory work and use geospatial technologies to explore and model environmental phenomena such as vegetation and wildlife, wetlands ecology and management, landscape dynamics, climate systems, and global environmental change. Some topics of study include the burning of fossil fuels and emissions of greenhouse gasses and particulates into the atmosphere, natural gas fracking and earthquakes, river diversion and dam construction, groundwater withdrawal and land subsidence, urbanization and the "heat island" effect, land clearance and deforestation, irrigated agriculture, wildland fire, the introduction of invasive species, and coastal overdevelopment.

## You Might Like This Program If...

- You are interested in the integrated ways in which Earth's near-surface atmosphere, hydrosphere, lithosphere, and biosphere interact.
- You would like to address real-world issues of how human activities impact and are impacted by the physical landscape at many scales, from local to international.