



# NORTHWEST FLORIDA STATE COLLEGE

## Course Syllabus

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**Course Name: Earth Science**

**Course Number: ESC1000**

**Section: 10419**

**Credit Hours: 3**

**Instructor Name: Dr. Jonathan Bryan**

**Instructor Office Location: 350/217 Niceville Campus**

**Instructor Email: [bryanj@nwfsc.edu](mailto:bryanj@nwfsc.edu)**

### Course Curriculum

Using the scientific method, critical thinking skills, data analysis, this course will examine the fundamental processes of the Earth system, composed of an atmosphere, hydrosphere, lithosphere, biosphere, and exosphere, through time. The course will also explore interactions between these spheres, including critical analysis of scientific theories and emphasize Earth's connections with humans.

### Goals

- Students will become familiar with the major, interacting planetary systems of the Earth—the lithosphere (solid, rocky Earth), hydrosphere/cryosphere (primarily the ocean and glacial ice), atmosphere (gaseous Earth), and biosphere/ecosphere (living Earth).
- Students will survey the galactic and solar context of the Earth, comparing Earth to other planets and understanding why the Earth is uniquely a habitable planet.
- Students will become familiar with the composition and structure of Earth's atmosphere and ocean, and the dynamic processes of each, including atmospheric circulation and major controls on Earth's climate, atmospheric moisture, ocean circulation, waves and tides, ocean-atmosphere interactions, and coastal processes.
- Students will learn the basic types of Earth materials—major mineral and rock types and their origins, including plutonic and volcanic processes.
- Students will review the structure of the Earth's interior, including crustal deformation and seismological processes.
- Students will understand the Theory of Plate Tectonics and its importance in the origin of continents and ocean basins.
- Students will review the methods of determining relative and absolute geological time and review the major physical and biological events of geologic time.
- Students will examine geomorphological environments and processes, including weathering, soil formation, erosion/mass wasting, fluvial (river) systems, groundwater, glacial and desert systems.

## **Objectives**

*Student Learning Outcomes:*

- *Students will use critical thinking to recognize the rigorous standards of scientific theories.*
- *Students will analyze and synthesize Earth science data to draw scientifically valid conclusions.*
- *Students will recognize the different time scales associated with different Earth processes.*
- *Students will effectively communicate the importance of the interactions between humans and the Earth's spheres.*
- *Students will apply their understanding of these Earth science principles to complex global and local issues.*

## **Student Expectations of the Course**

In this course, student may expect:

- To work with a qualified professor with graduate degrees in relevant fields in the Earth sciences, who is committed to undergraduate education and hands-on experience.
- To be fully and clearly informed of all course requirements and expectations (due dates, study guides for exams, etc.)
- To have an on-campus professor, readily available in-person, by phone, or e-mail, for consultation and review of any aspect of the course.
- To be motivated, challenged, and proficient in the broadly interdisciplinary field of Earth Science

## **How Student Performance will be Measured**

Student performance will be assessed by:

- Up to 5,100-point, in-class exams. Exams are multiple choice and short answer format, and cover each major section of the course (no exams, including the final exam, are comprehensive)