

**NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
ENV 121 - GENERAL ENVIRONMENTAL SCIENCE I (4 CR.)**

Course Description

Explores fundamental components and interactions that make up the natural systems of the earth. Introduces the basic science concepts in the disciplines of biological, chemical, and earth sciences that are necessary to understand and address environmental issues. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

General Course Purpose

This course provides students with an opportunity to acquire fundamental knowledge of the principles of biological systems and their interactions with the non-living components of the environment. It is designed for both science and non-science majors. The course may serve as a prerequisite for advanced science courses, a laboratory science to fulfill graduation requirement, or as transfer credit for a four-year institution.

Course Prerequisites/Co-requisites

Satisfactory placement score for ENG 111.

Course Objectives

Upon completion of this course, the student will be able to:

- Understand the basic components of the natural world, the basic laws of natural systems, and how they interact to produce the natural phenomena of planet Earth.
- Gain an appreciation of the complexity of natural systems and linkages between the components of these system
- Demonstrate an understanding of the ways of scientific knowing, including inductive and deductive, empirical and theoretical.
- Develop and test a hypothesis.
- Read and interpret data.
- Interpret both primary and secondary sources.
- Demonstrate their knowledge of both quantitative and qualitative methods.
- Demonstrate an awareness of communication as an integral part of the scientific way of knowing, both between and among scientists, and between scientists and the rest of society.
- Distinguish between issues subject to scientific analysis and those appropriate to other modes of inquiry.

Major Topics to be Included

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| <ul style="list-style-type: none"> • Scientific method • Structure of matter • Chemical bonds and reactions • Basic thermodynamics • Diffusion and osmosis • Origin and characteristics of life • Organization and classification of life • Major characteristics of the kingdoms of life • Major processes of life (cellular respiration and photosynthesis) • Earth origin, age, structure • Plate tectonics theory development • Plate tectonics, earthquakes, volcanoes | <ul style="list-style-type: none"> • Atmosphere structure, composition and function • Atmosphere and ocean circulation • Climate and biomes • Population ecology • Evolution and natural selection • Principles of communities • Species interactions (competition, symbiosis) • Principles of ecosystems (flow of energy, trophic structure, productivity, ecological pyramids) • Biogeochemical cycles • Terrestrial ecosystems • Aquatic ecosystems |
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