

**NVCC COLLEGE-WIDE COURSE CONTENT SUMMARY
NAS 145 – INTRODUCTION TO NATURAL HISTORY (3 CR.)**

Course Description

Introduces developmental concepts and principles of natural history. Lecture 3 hours per week.

General Course Purpose

This is a one semester introduction to Natural Science from an integrated, multidisciplinary historical perspective. The course will examine the biological, geological, and cosmological processes that drive major developments in Earth history with a particular focus on historical figures, scientific breakthroughs, and philosophical underpinnings.

Course Prerequisites/Co-requisites

The student should be able to read and express him/herself both orally and in writing on a college freshman level as measured by a college English competency examination. The student should be able to utilize library resources to locate primary periodical literature, understand and internalize the scientific content from these sources, and integrate scientific findings from disparate fields of study.

Course Objectives

Upon completing the course, the student will be able to:

- identify the major biological, geological, and cosmological events in the natural history of Earth.
- identify the major contributors to modern scientific thinking and the use of the scientific method as a hypothesis-testing tool.
- name the major components of the geological time scale and understand how this scale was constructed.
- explain the theory of plate tectonics, as well as the geological processes that drive it, and relate this theory to our understanding of biogeography and ecological distributions.
- explain the theory of evolution via natural selection and compare it to other historical theories of biological diversity.
- understand the processes by which we determine evolutionary relationships among living and fossil organisms, and be able perform basic phylogenetic analyses.
- identify the major trends in human biological and cultural evolution and evaluate their interplay with historical scientific thinking.
- use library resources to identify, locate, and obtain primary scientific literature efficiently.

Major Topics to be Included

- a. Cultural and scientific perspectives on the origin of the natural world.
- b. The geological history of the Earth, Moon, and solar system.
- c. General theory of plate tectonics and the laws of stratigraphy.
- d. Mechanistic theories of biological evolution including Darwin's theory of natural selection.
- e. The history of classification and systematics as an organizing principle of natural diversity.
- f. Cladistics and molecular phylogenetics as modern systematic tools.
- g. Micro- and macroevolution in the fossil record.
- h. Patterns of species origination, extinction, and mass extinctions in Earth history.
- i. Milankovitch cycles, greenhouse gases, long and short-term environmental change.