

Course Objectives/Course Outline
Spokane Community College

Course Title: The Earth Through Time
Prefix and Course Number: GEOL 201

Course Learning Outcomes:

By the end of this course, a student should be able to:

- Develop a working knowledge of the various Earth materials and processes
- Develop critical thinking methods with regard to ancient and present day ecosystems and the governing geologic factors
- Understand the concepts of scientific methodology and geologic time and the relationships of past and present geologic and biologic processes
- Develop identification skills of geologic materials and processes
- Develop the ability to interpret graphical geologic information
- Develop skills of technical description through verbal and written communication

Course Outline:

- I. Introduction to Earth History
 - A. Geology: Physical and Historical Components
 - B. Time and Geology
 - C. Age and Origin of Earth
- II. Earth materials
 - A. Minerals
 - B. Rocks
- III. Sedimentary Sequences and Importance to Earth's History
 - A. Environments of Deposition
 - B. Tectonic Settings
 - C. Sedimentary Structures
 - D. Interpretation of Sands and Sandstones
 - E. Interpretation of Carbonate Rocks
 - F. Interpretation of Clays and Shales
 - G. Sedimentary Rock Record and Tectonic Cycles
- IV. The Fossil Record
 - A. Fossil Preservation
 - B. The Rank Order of Life
 - C. Organic Evolution
 - D. Fossils and Stratigraphy
 - E. Overview of the History of Life
- V. Plate Tectonics and Crustal Structures
 - A. Earth's Zonation
 - B. The crust
 - C. Crustal Structures
 - D. Plate Tectonics
- VI. Earliest Earth: The First Two Billion years
 - A. Origin of the Solar System
 - B. Differentiation of the Earth
 - C. Atmospheric Development
 - D. Archean Tectonics

- E. Archean Lifeforms
- F. Mineral Deposits of the Archean
- VII. The Proterozoic Eon
 - A. Proterozoic Record of North America and the Canadian Shield
 - B. Proterozoic Rocks South of the Canadian Shield
 - C. Precambrian Events Outside North America
 - D. Fossil Record of the Proterozoic
 - E. Mineral Deposits of Proterozoic
- VIII. The Early Paleozoic
 - A. Continents, oceans, and Orogenic Belts
 - B. The Precambrian-Paleozoic Transition
 - C. Early Paleozoic Paleogeography and Climates
- IX. The Late Paleozoic
 - A. The North American Craton
 - B. The Appalachian Orogeny
 - C. Sedimentation and Orogeny in Western North America
 - D. Europe During the Paleozoic
 - E. Gondwanaland
 - F. Paleogeography and Climates
- X. Paleozoic Lifeforms
 - A. Plants of the Paleozoic
 - B. Paleozoic Invertebrates
 - C. Paleozoic Vertebrates
 - D. Mass Extinctions
- XI. The Mesozoic Era
 - A. Pangea and the Breakup
 - B. Mesozoic History of North America
 - C. The Tethys Seaway
 - D. Gondwana continents
- XII. The Mesozoic Biosphere
 - A. Climates
 - B. Flora
 - C. Invertebrates
 - D. Vertebrates
 - E. The Cretaceous-Tertiary Mass Extinction
- XIII. The Cenozoic Era
 - A. Early Cenozoic Tectonics of Western North America
 - B. Before the Ice Age
 - C. The Pleistocene Ice Age
 - D. Mineral Resources of the Cenozoic
- XIV. Life of the Cenozoic
 - A. Vertebrates and Invertebrates
 - B. Marine Phytoplankton
 - C. Extinction of Pleistocene Species
 - D. Early Human in North America