

Fall 2006 – Geology 001 Lecture Syllabus

[A] Fundamentals – A Geological Primer (~ 1/3 of course; 8 Class Sessions)

Evolution of the Solar System and Planets, Abyss of Time, History of Geology, Stratigraphy and the Time Scale (3 Sessions)

The Earth's Crust and Below – Internal Structure, Rocks and Igneous Processes (3 Sessions)

How the Earth Works –Plate Tectonics, Isostasy, Rock Cycle (2 Sessions)

(EXAMINATION I on Fundamentals of Geology [A])

[B] Individual Modules – FIVE TOPICS SELECTED (2/3rds of Course; 18 Class Sessions)

I. DRIFTING CONTINENTS (3 Class Sessions)

History of Concept

Evidence

Plate Tectonics

Mountain Building

II. EARTH MATERIALS (3 Class Sessions)

Minerals and Mineral Uses

Rocks, Crystals, and Gems

The Rock Cycle and Economic Geology

III. FAMOUS ERUPTIONS (3 Class Sessions)

Igneous Geology Primer

Volcanoes and Famous Volcanic Eruptions

Hot Spots, Subduction, Rifts

Volcanic Mineralization

IV. EARTHQUAKES (3 Class Sessions)

Seismicity

San Andreas Fault

Earthquakes and NYC

V. GLACIATION (3 Class Sessions)

Glacial Geology Fundamentals

Glacial Landforms

Glacial Geology of Long Island

VI. WATER EVERYWHERE (3 Class Sessions)

Hydrologic Principles

Drinking Water - Long Island vs. NYC

Groundwater Contamination

VII. THE GEOLOGIC EVOLUTION OF NYC (3 Class Sessions)

Passive Margin Sedimentation

Active Margin Tectonics

Manhattan Prong, Newark Basin, Coastal Plain

VIII. COASTING ALONG (3 Class Sessions)

Coastal Geology

Long Island Beaches

Hurricanes

IX. PLANETARY GEOLOGY (3 Class Sessions)

Exploration History

Impact History

Terrestrial vs. the Outer Planets

X. DINOSAURS

Evolution

Dinosaurs of the Eastern U.S.

Dinosaur Extinction

XI. GEMOLOGY

Types of Gemstones

Geological Environments

What makes a Precious Stone?

XII. NATURAL DISASTERS

Earthquakes

Volcanoes

Landslides

Hurricanes

(EXAMINATION II on Three Topics of Modules from [B])

(EXAMINATION III on Two Topics of Modules from [B])

COURSE GRADES:

The three lecture-based exams are averaged and compose 50% of the semester grade. The other 50% is based on evaluations in the laboratory. We encourage you to monitor your course grade during the semester.

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Textbook: Geology by Chernicoff and Whitney (2006), Pearson/Prentice-Hall Publishers, 679 p.