

## Fall 2004 – New 1C Lecture Syllabus (Professors Farmer, Gibbons, Merguerian)

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

Abyss of Time, History of Geology, Stratigraphy and the Time Scale (2 Sessions)

Evolution of the Solar System and Planets (2 Sessions)

The Earth's Crust and Below – How Do We Know (1 Session)

How the Earth Works – Internal Structure, Plate Teconics, Isostasy, Rock Cycle (3 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

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

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

#### COURSE GRADE:

The three lecture-based exams are averaged and this composes 50% of the semester grade. The other 50% is the evaluations in the laboratory. We encourage you to monitor your course grade. There should be no negative surprises at the end of the semester.

#### STAFF E-MAIL ADDRESSES:

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Homework Reports [R], Laboratory Practicums [P], and Laboratory Exercise Topics.

<u>Wk</u>	<u>Due</u>	<u>Topic</u>
1		<b>LABORATORY SAFETY:</b> Size, Shape, Density of Planet Earth.
2		<b>PHYSICAL TESTING:</b> Identifying Properties of Natural Minerals.
3		<b>MINERAL IDENTIFICATION:</b> Determine the Properties and Names of Minerals.
4	[R1,P1]	<b>MINERAL IDENTIFICATION PRACTICUM. INTRO. TO ROCK TYPES.</b>
5		<b>PLUTONIC AND VOLCANIC ROCKS:</b> Texture & Mineral Compositions.
6		<b>SEDIMENTS AND SEDIMENTARY ROCKS:</b> Texture & Mineral Compositions.
7		<b>METAMORPHIC ROCKS:</b> Texture & Mineral Composition.
8		<b>ROCK IDENTIFICATION:</b> Integrated Textural & Mineralogical Evaluation.
9	[R2,P2]	<b>ROCK IDENTIFICATION PRACTICUM. TOPOGRAPHIC MAPS:</b> Compass.
10		<b>TOPOGRAPHIC MAPS:</b> Direction, Distance, and Position.
11		<b>TOPOGRAPHIC MAPS:</b> Height, Slope, and Profiles.
12		<b>EARTHQUAKE STUDIES:</b> Location of Epicenters, Isoseismal Maps.
13	[R3,P3]	<b>FINAL LABORATORY PRACTICUM.</b> Based on Map Studies. <b>Submit Photoessay.</b>

Laboratory Manual: "GEOLOGY Lab Manual" by Bennington & Merguerian, 5<sup>th</sup> Edition, 2003, 185 pp.

**LABORATORY SAFETY:** All regulations must be followed. No food or drinks allowed in laboratory.

**LABORATORY MANUAL:** Packaged with the textbook.

**LABORATORY TEST KITS:** Provided by the Geology Department.

#### **REPORTS [R1,R2,R3]:**

The homework reports must be word processed, double spaced, 12 point font with 1 inch margins. They should be written using complete, grammatically correct sentences and must contain no typographical or spelling errors. The reports are due at the beginning of the laboratory as shown above. Grading of the reports will be based on the use of English grammar, the format and quality of presentation, evidence of library investigations, data compilation, scientific observations, deductions, and interpretations.

#### **LATE REPORTS [R]:**

Homework reports submitted one week late will be penalized one grade point (i.e. a "B+" becomes a "C+"). Reports more than one week late, but submitted by **Dec. 10th** will be **assigned 50%**.

Missing work may **not** be submitted after **Dec. 10th** and will be **assigned 0%**.

#### **PRACTICUM MAKE-UP POLICY [P]:**

No make-up examinations are given for practicums. Any missing grades will be **assigned** as follows: the lower of 50%, or 10% lower than the lowest earned class grade in that practicum.

#### **EXTRA HELP AND TUTORING:**

Geology tutors are available in Gittleston Hall, room 135. Laboratory materials such as mineral and rock specimens and maps are also available for study. A schedule of geology tutor availability will be posted. Check the Geology Department Web Site at <http://www.Hofstra.edu/Academics/HCLAS/Geology>

#### **LABORATORY GRADE:**

This is calculated by averaging the three written homework reports [R] with the three practicums [P]. This average can be improved by participation in our voluntary field trip and submitting a photoessay, that is normally graded "A" or "B". The photoessay grade replaces your lowest earned laboratory grade in a practicum [P]. Please note that the photoessay grade will not replace an **assigned** grade.

#### **FIELD TRIP:**

The field trip is scheduled for **Saturday, Oct. 30th**, from 8 am. to 4 pm. and examines the geology of Long Island, Orchard Beach (N.Y.C.), and the Wachung lava flows (N.J.). Your report will be a photographic essay. A disposable camera is perfectly adequate and you are not judged on the quality of your photography. Students must register with their laboratory instructors before the end of the third laboratory class so that we can reserve enough buses to transport the group. The buses are provided free of charge but you must provide your own lunch and camera. We will stop at Burger King for lunch and restrooms.