

Course Syllabus

Department: Environmental Conservation and Horticulture

Date: December 19, 2012

I. Course Prefix and Number: CON 220

Course Name: Glacial Geology of the Finger Lakes

Credit Hours and Contact Hours: 3 credit hours – 3 contact hours

Catalog Description including pre- and co-requisites: This course is an introduction to glaciation emphasizing historic events within the Finger Lakes region. The mechanics of glacial motion, erosion, and deposition will be studied and then used to interpret our modern landscape. Students will be introduced to the technique of air photo interpretation. Our modern biodiversity and distributional patterns of organisms will be related to postglacial events. Scenic values associated with glacial landscapes will be a focal point of the class field trips. (Also listed as SCI 220.)

Relationship to Academic Programs and Curriculum including SUNY Gen Ed designation if applicable: Glacial Geology of the Finger Lakes serves as both a Conservation and Science elective course in relevant degree programs at the college.

II. Course Student Learning Outcomes:

1. Students will demonstrate knowledge of glacial processes that produced geologic features within the Finger Lakes landscape. Students will demonstrate the proper use of glacial terminology when describing these processes and features.
2. Students will comprehend the large scale impact of continental ice sheets on soil patterns and landscape diversity, and recognize the profound impact of glaciation on the distributional patterns of modern natural communities and the species that these communities support.
3. Students will apply hypotheses on causes of global cooling during the Pleistocene Ice Age to comparative information about climate change in modern time.
4. Students will review and evaluate the explanations of mega-fauna extinction at the end of the Pleistocene Ice Age.
5. Students will demonstrate skills with stereographic air photo interpretation, topographic map reading and graphic representation of glacial landforms.

College Learning Outcomes Addressed by the Course: *(check each College Learning Outcome addressed by the Student Learning Outcomes)*

- | | |
|---|---|
| <input type="checkbox"/> writing | <input type="checkbox"/> computer literacy |
| <input checked="" type="checkbox"/> oral communications | <input type="checkbox"/> ethics/values |
| <input type="checkbox"/> reading | <input type="checkbox"/> citizenship |
| <input checked="" type="checkbox"/> mathematics | <input checked="" type="checkbox"/> global concerns |
| <input type="checkbox"/> critical thinking | <input checked="" type="checkbox"/> information resources |

III. Assessment Measures (Summarize how the college and student learning outcomes will be assessed): *For each identified outcome checked, please provide the specific assessment measure.*

List identified College Learning Outcomes(s)	Specific assessment measure(s)
Oral communications	Students will complete an oral presentation to the class on glacial features in the Finger Lakes, the return of plant life to glaciated North America, ice age mammals and modern arctic life, or the value of glacial deposits and landscapes. PowerPoint® presentations and student produced handouts are encouraged.
Mathematics	Students will collect measurements from five individual drumlins on a USGS topographic quadrangle map, calculate mean measurements, and then draw their average drumlin on graph paper utilizing appropriate scaling techniques.
Global concerns	Students will successfully answer quiz and exam questions on global Ice Age impacts during cold time periods as well as warm interglacial periods, especially focused on modern global warming and changes in storm intensities.
Information resources	Students will locate, evaluate and use library/Internet resources for their oral presentation.

IV. Instructional Materials and Methods

Types of Course Materials: Topic specific handouts, PowerPoint slideshows and a field trip itinerary complement the required textbook:

Robert P. Sharp. 1988. Living Ice: Understanding Glaciers and Glaciation. Cambridge University Press. New York, New York. 225 pages.

Methods of Instruction (e.g. Lecture, Lab, Seminar ...): A combination of lecture, discussion, field trips and student oral presentations are used in this course.

V. General Outline of Topics Covered:

1. Class introduction, historical development of the glacial theory, modern distribution of glaciers
2. Glaciology, properties of ice, conversion of snow to glacial ice
3. Types, features and characteristics of glaciers, glacial movement and unusual behavior
4. Glacial erosion, Glen's Law, erosional features in the landscape
5. Glacial transport and deposition
6. Depositional features and landforms, drumlin drawing project
7. Meltwater processes and fluvial sediments
8. Glaciomarine and glaciolacustrine processes and deposits, model of glacial landscapes
9. Introduction to the Cenozoic Ice Age, recent de-glaciation time sequences
10. Causes of glaciation, ice sheet in western New York
11. Glacial features in the Finger Lakes
12. Return of plant life to glaciated North America
13. Ice Age mammals and modern arctic life
14. Value of glacial deposits and landscapes