

Geology 51-360/560: Coral Reefs, Oceanography and Geology of Bermuda

**August 14, 15 & 16 Lectures in Harrington Hall 9 AM to 3 PM
In Bermuda August 21-28, 2006
3 Credits**

Instructor: Eric Hiatt

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Office hours: 3:00-4:00 M,W,F; 10:20-11:20 W & F, and by appointment or chance.

Grades: Your grade will be based on your participation during the course (August 14-28, 2006) and on your field notebooks.

Graduate Credit: Students taking the course for graduate credit will be required to complete a research project based on data that we collect while on the island. You must discuss this with Dr. Hiatt during the Spring semester 2006, for pre-approval before the final plans are made for the trip.

Grade scale: 92% and up = A; 87-91 = AB; 82-86 = B; 77-81 = BC; 72-76 = C; 67-71 = CD; 60-66 = D; <60% = F

Required text: James, N. P. and Chen, P. E., 1983, Field guide to Pleistocene and modern carbonates of Bermuda: Bermuda Biological Station for Research Special Publication No. 25, 72 p. Available in the UW-Oshkosh Campus Book Store.

Additional Reading on Reserve.

Course Objectives: The purpose of this course is to give students an opportunity to explore the oceanographic and environmental factors that affect coral reefs and carbonate sediment-producing organisms. For a geologist, it is critical to understand the relationships between environments and the sediments (solid remains of organisms, such as stony corals, many forms of algae, mollusks (clams and snails), and single-celled calcifying organisms), because it is these sediments that later become carbonate rocks (limestone and dolostone). These relationships are important because much of our petroleum, natural gas, and even groundwater are derived from the pore spaces in carbonate rocks. Ultimately, the original environment in which these organisms lived provides the first order control of the size and distribution of this pore space that later becomes reservoirs for these vital natural resources.

We will also explore global climate change as recorded in rocks and soils on Bermuda. When the Pleistocene ice sheets advanced covering areas such as Wisconsin, the volcanic atoll that is Bermuda stood as much as 150 meters higher above sea level, and thick soils developed on the island. These soils contain the shells of well preserved land snails which were studied by the paleontologist Stephen J. Gould, and from which he developed the idea of punctuated equilibrium as a mechanism of evolution.

Geology 51-360/560 Schedule.

Part I: Pre-Trip Short Course:

August 14 , 2006 (Monday):

- 9:00 AM-3:00 PM. Lecture on modern carbonate environments in [Harrington Hall](#), room 217.

August 15 , 2006 (Tuesday):

- 9:00 AM-3:00 PM. Lecture on sea level change and carbonate sediments in [Harrington Hall](#), room 217.

August 16 , 2006 (Wednesday):

- 9:00 AM-3:00 PM. Lecture on diagenesis and carbonate rocks in [Harrington Hall](#), room 217.

Part II: Field trip to the island of Bermuda. During the trip we will be based at the Bermuda Biological Station for Research (BBSR). We will spend about 6 hours per day in the water and/or visiting outcrops on land, about 3 hours per day in the laboratory studying samples that we collected during the day, and about 2 hours per day in a lecture room discussing the geology, hydrology, and oceanography of Bermuda.

All times listed below refer to time at the location (local time).

August 21, 2006 (Monday):

Leave Oshkosh by van at 4:00 AM!!!

Depart Milwaukee at 7:40 AM.

Arrive at Atlanta 10:41 AM.

Depart for Bermuda at 12:00 PM.

Arrive in Bermuda at 3:52 PM.

4:30 PM Arrive and Orientation at the Bermuda Biological Station for Research (BBSR).

5:00-6:00 PM Snorkeling practice.

6:00 PM Dinner at BBSR.

7:30-9:00 PM Lecture 1.

August 22 (Tuesday):

7:30 AM Breakfast at BBSR.

8:30 Hike to Whalebone Bay (snorkeling) (sack lunch in the field).

2:00-5:00 PM In Laboratory (examine samples collected).

6:00 PM Dinner at BBSR

7:00-9:00 PM Lecture 2.

August 23 (Wednesday):

7:30 AM Breakfast at BBSR.

8:00 AM-2:00 PM Boat to Castle Harbor (snorkeling) (sack lunch in field).

3:00-5:00 PM In Laboratory (examine samples collected).

6:00 PM Dinner at BBSR.

7:00-9:00 PM Lecture 3.

August 24 (Thursday):

7:30 AM Breakfast at BBSR.

8:00 AM -2:00 PM Boat to Harrington Sound (snorkeling) (sack lunch in field) and tour Bermuda Aquarium.

3:00-5:00 PM In Laboratory (examine samples collected).

6:00 PM Dinner at BBSR.

7:00-9:00 PM Lecture 4.

August 25 (Friday):

7:30 AM Breakfast at BBSR.

8:00 AM -12:00 PM South shore (snorkeling) (sack lunch in field).

1:00-5:00 PM Tour Hamilton Area.

6:00 PM Dinner OFF BBSR campus.

August 26 (Saturday):

7:30 AM Breakfast at BBSR.

8:00 AM -2:00 PM Boat to North Lagoon and Bailey's Bay (snorkeling) (sack lunch in field).

1:00-5:00 PM In Laboratory (examine samples collected).

6:00 PM Dinner at BBSR.

7:00-9:00 PM Lecture 5.

August 27 (Sunday):

7:30 AM Breakfast at BBSR.

8:00 AM -2:00 PM Boat to North Rock (snorkeling) (sack lunch in field).

2:00-5:00 PM Cave exploration.

6:00 PM Dinner at BBSR.

7:00-9:00 PM Wrap-up Lecture.

August 28 (Monday):

7:30 AM Breakfast at BBSR.

9:00 -11:00 AM Laboratory (wrap up and clean up lab).

11:30 AM Depart for airport.

Depart Bermuda.

Arrive Milwaukee.

Travel back to Oshkosh by university van.

Contact Information in Bermuda August 21-28, 2006:

Bermuda Biological Station For Research

Ferry Reach

St. George's GE01

Bermuda

Telephone: (441) 297-1880

Fax: (441) 297-8143

e-mail: reservations@bbsr.edu

Checklist of things to bring to Bermuda:

(In August the air temperature will be 82-95°F, and the water temperature will range from 85-87°F. Be prepared for sun, heat, and possibly rain on land.)

- _____ Field Notebook.
- _____ Water Bottle (approximately 1 liter).
- _____ Mask, snorkel, and fins.
- _____ 1 pair of running or tennis shoes and 1 pair sport sandals.
- _____ Rain jacket.
- _____ Day pack for transporting gear.
- _____ 2 bathing suits.
- _____ 2 Towels.
- _____ Sunscreen (SPF 30-60), hat, and comfortable shirt for protection from sun.
- _____ Shirt(s) & windbreaker for sun protection, rain and windy truck rides.
- _____ Eyeglasses (if needed; spare pair recommended).
- _____ Personal hygiene needs (toothpaste, shampoo, etc.; no drugstore nearby).
- _____ Motion sickness medication, if needed.
- _____ Notebooks, pens and pencils.
- _____ Camera, film (expensive in Bermuda), (disposable underwater camera(s)).
- _____ Small pocket flashlight (BBSR grounds are not well lit at night).
- _____ Small amount of laundry detergent if you plan to use BBSR facilities (~\$4/load).

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