



Marine Invertebrate Zoology (5 credits)

Synopsis of Course Content

Bermuda is home to unique assemblages of sub-tropical invertebrates thriving in the most northern coral reefs, mangrove forests, oligotrophic open-ocean and tropical seagrass beds in the Atlantic. Marine Invertebrate Zoology (MIZ) serves as an introduction to the diversity and ecology of marine invertebrates, presenting animal diversity from a phylogenetic perspective, as well as from an ecological point of view. MIZ introduces the development, anatomy, biology and evolutionary relationships of the main marine invertebrate phyla including sponges, cnidarians, molluscs, annelids and arthropods.



Course emphasis is on comparative diversity of animal forms and their adaptations to different ecosystems, with the focus on tropical and sub-tropical taxa relevant to Bermuda. Lectures will be complemented with laboratory exercises and field trips to a diversity of easily accessible, sub-tropical marine habitats. Invertebrate habitats typically explored and surveyed during the course include coral reefs, mangroves, anchialine ponds, caves and cave pools, seagrass beds, mud flats, open-ocean, coastal planktonic and rocky shores. Major environmental characteristics and factors effective in the different habitats will be examined and discussed.

Prerequisites

Students are expected to be juniors majoring in either life science or environmental science and to have taken an introductory ecology course. All participants in the course must be able to snorkel and must be comfortable in the water. SCUBA certification is not essential for this course but qualified SCUBA divers will have opportunities to dive on some of the MIZ field trips.

Assignments and Grading

Lecture/Lab Exams

The mid-term and final exams in MIZ are a combination of lab and lecture. Exams are held in Scott Lab, where a number of stations are set up with specimens or slides or illustrations. Each station has a corresponding question on your exam paper. You will be given a set period of time at each station and then asked to move, with your chair, to the next station. There will be a few minutes at the end of the session to return to a station or stations for which you require more time.

Lab/Field Notebooks

Students will be provided with notebooks. Notebooks should include all lab assignments, as well as notes on each course field trip. Lab assignments are usually handed out at the beginning of each lab. For field trips, you should record the date, site, weather, dive information

and any other information/ observations you think relevant. You should also include a species list for each site; your instructor will create these with you either immediately after the field trip or in the next lab session. If you were assigned an exercise during the field trip, your results should be reported in your notebook.



Group Presentations/Reports

The class will work in small groups for 2 field assignments: rocky shore intertidal and reef invertebrate community surveys. The results of these group field assignments must be entered into your notebook. In addition, each group can choose 1 of the 2 field assignments on which to present a 15-minute PowerPoint presentation. Guidelines on the preparation of presentations will be provided.

Note

Every effort is made to schedule exams to minimize overlap with CRE exams. However, the end of the semester is typically a busy time and students are strongly encouraged to study throughout the course and to not leave completion of their notebooks to the last minute. Attendance at lectures, laboratory sessions and field exercises is required unless notice is given of illness.

Grading (subject to revision)

Mid-term lecture/lab exam: 25%
Final lecture/lab exam: 40%
Lab/field notebook mid-term: 10%
Lab/field notebook end-of-term: 20%
Group presentations/reports: 5%

Reading Material

There is no set textbook for MIZ. BIOS's library has an extensive collection of appropriate literature including the following reference books, which are very useful for MIZ:

Brusca, R. C. and G. J. Brusca. 2003. Invertebrates, 2nd edition. Sinauer Associates, Sunderland.

Pechenik, J.A. 2000. Biology of the Invertebrates, 4th edition. McGraw-Hill, USA. Nielsen, C. 2001. Animal evolution: interrelationships of the living phyla, 2nd edition. Oxford University Press, Oxford.

Ruppert, E.E. and R.D. Barnes. 1994. Invertebrate Zoology, Sixth Edition. Saunders College Publishing, Harcourt Brace and Company, Florida.

Photos by James B. Wood