THOMPSON RIVERS UNIVERSITY

Department of Biological Sciences

BIOL 4100 - 3
FIELD METHODS IN MARINE ECOLOGY (125 HOURS)
Winter 2013

Instructor: Dr. Louis A. Gosselin
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Course dates: 29 April - 12 May 2013
Course location: Bamfield Marine Sciences Centre
Bamfield, B.C.

Course website: www.faculty.tru.ca/lgosselin/biol410/

Calendar description

A two-week intensive course in the field methods used to study marine ecosystems. The course will typically be given immediately after exams in the Winter semester (usually late April or early May). Students will learn field and laboratory techniques for sampling, experimentation, and analysis of marine organisms and ecosystems, and will carry out individual projects of their own design. Facilities such as the Bamfield Marine Station will be utilized, and a fee will be assessed to meet living expenses.

Course description

Intended for biology students with limited prior experience with the marine environment, the purpose of this field course is to introduce students to some of the key issues in coastal marine ecology. The course will examine the physical, chemical, and biological factors that regulate distribution, abundance, and diversity of marine algae and animals. This will be achieved mainly through a hands-on approach in which students will apply methods commonly used for sampling, identification, and experimentation with marine organisms and ecosystems. The course will focus on marine organisms and ecosystems of the B.C. coast.

Prerequisites

BIOL 3030 [Population Biology]
or
BIOL 2170 [Introduction to Ecology] and BIOL 2290 [Evolution of Animal Body Plans]

Texts/materials

Optional textbooks: Nybakken JW and Bertness MD (2005) Marine biology: An ecological approach. 6th ed. Pearson, 579 p.
Garrison T (2006) Essentials of oceanography. 4th ed. Thompson, 368 p.

Any field guide on marine invertebrates, algae, birds, or mammals
Consult checklist of clothing and other materials to bring.

Student evaluation

Quizzes (3 quizzes)	45%
Formal collection of two taxa	10%
Journal	10%
Research proposal (oral presentation & report)	5%
Written research paper	25%
Oral presentation of research project	5%
	100%

Special course activities

The entire course will be given at the Bamfield Marine Sciences Centre, on Vancouver Island. A large proportion of the course work will take place in natural habitats. Most of the remaining time will be spent in the laboratory analysing collected specimens or data.

Tentative course topics

-The ocean ecosystem: abiotic properties & processes
-Diversity of marine habitats
-Phytoplankton & zooplankton
-Macroalgae: seaweeds and kelp
-Invertebrate diversity
-Marine fishes
-Marine mammals and birds
-Intertidal ecology
-Reproduction and life history of marine organisms
-Aquaculture
-Terrestrial-marine interactions
-Sampling methods for intertidal, subtidal, and pelagic communities.

Use of technology

Since the major focus of this course is the application of ecological methods, students will be required to use various scientific equipment to collect, measure, or rear organisms, and to measure the physical and chemical parameters of seawater and sediments (plankton nets, beach seines, incubators, microscopes, probes for measuring temperature, salinity and pH, computers to input and analyse data, etc.).

Academic integrity

All students are expected to abide by TRU's policy regarding cheating, academic misconduct, fabrication and plagiarism, as described in the TRU Academic Integrity Policy (available at: www.tru.ca/ shared/assets/ed05-05657.pdf).