

EDUC 393 Special Topics:  
Environmental Education in  
Marine Environments  
Bamfield Marine Station/SFU  
Summer session, 2000



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### **Course Readings**

A variety of current and topical readings will be provided from the following list of publications: *Marine Biology*, *Journal of Environmental Education*, *Journal of Marine Education*. In addition, information from popular media sources such as video, television, radio, newspapers and the internet will be considered.

### **On-line Resources**

Centre for Marine Environmental Initiatives (<http://inseine.ifmt.nf.ca/cmerits/>)  
Earthtrust - Wildlife Conservation Worldwide (<http://leahi.kcc.hawaii.edu/~et/>)  
United Nations Environmental Programme (<http://www.unep.org/>)  
Environment Canada's Green Lane (<http://www.ec.gc.ca/>)

### **Available References**

#### *Marine education*

- Levine, J. (1985). Undersea life. New York : Stewart, Tabori & Chang.  
Longhurst, A. (1998). Ecological geography of the sea. London: Academic.  
Barnes, R.& Hughes, R.(1982). An introduction to marine ecology. Oxford: Blackwell Scientific.  
Laevastu, T. (1996). Exploitable marine ecosystems. Oxford: Fishing News Books.  
NRC (1994). Restoring and protecting marine habitat. Washington: National Academy Press.  
Valiela, I. (1995). Marine ecological processes. New York: Springer.  
Raffaelli, D. & Hawkins, S. (1996). Intertidal ecology. New York: Chapman & Hall.  
Little, C.& Kitching, J. (1996). The biology of rocky shores. New York: Oxford University Press.

### Marine Science 402.1 (P80 UVic TT# 64616, 501.12 Calgary)

Special Topics: Marine Science for Educators (3 weeks: July 3 - 23)

A course of field trips, laboratory sessions, and seminars for teachers interested in environmental or marine education. The course is multidisciplinary in nature and appropriate for teachers of all subjects and grade levels. Participants will be introduced to a variety of marine environments and given frequent opportunities to explore and research relationships occurring within and among them. Participants will also be given varied opportunities to explore their personal application of this knowledge to educational settings.

Instructor: Dr. David Zandvliet, Simon Fraser University

### Marine Science 402.2 (P81 UVic TT# 60399, 501.28 Calgary)

Special Topics: Development of Marine Molluscs (3 weeks: July 3 - 31)

This survey of molluscan development will incorporate both lectures and laboratory work; the latter will emphasize observations on live, locally available molluscs. Topics will include: neuroendocrine control of reproductive functions, gametes, life history patterns, cleavage and cell lineage, organogenesis, larval biology, and induction of settlement and metamorphosis. Evolution of development will be a pervasive theme.

Prerequisite: Introductory invertebrate zoology.

Instructor: Dr. Louise Page, University of Victoria

### MacMillan Coastal Biodiversity Workshop (9 days: June 17 - 25)

A special series of workshops focusing on biodiversity in coastal zones of British Columbia and of Canada in general. These non-credit workshops are offered to faculty, graduate students, senior undergraduate students, NGO members as well as government employees interested in a unique hands-on experience in coastal biodiversity research and surveys.

#### Plenary Session (June 17 & 18):

Dr. André Martel, BMS and Canadian Museum of Nature (Chair)

Dr. Elliott Norse, Centre for Marine Conservation, IUCN, WWF

Dr. Geoffrey Scudder, UBC, Biodiversity Research Centre

Dr. Steven Murray, California State University Fullerton

Dr. Gerhard Pohle, Huntsman Marine Science Centre and ARC

Dr. Robert Clarke, Plymouth Marine Laboratory

Robert Dennis, Huu-ay-aht First Nation

#### Workshop (June 19-25):

##### Diversity, Monitoring and Assessment Techniques of Intertidal Seaweed and Invertebrate Communities

Dr. Gerhard Pohle, Huntsman Marine Science Centre and ARC

Dr. Steven Murray, California State University Fullerton

##### Other contributors / visiting experts:

Dr. Louis Druehl, SFU & BMS

Dr. Robert Clarke, PML

Russell Markel, BMS and Postels Marine Expeditions

Dr. André Martel, BMS & CMN

##### Workshop wrap-up / conclusion: Day hike on West Coast Trail, Pacific Rim National Park Reserve (June 25)

Fees: contact BMS for more information

Deadline for application: March 31, 2000

Enrollment: maximum of 15

### 2001 SUMMER COURSES

The following courses are tentatively planned for 2001:

**Marine Invertebrate Zoology**  
**Marine Phycology**  
**Marine Behavioural Ecology**  
**Oceanographic Techniques**  
**Biology of Marine Birds**

**Biology of Fishes**  
**Special Topics in Aquaculture**  
**Neurobiology**  
**Coastal Biodiversity**

A project outline and a letter from a faculty member training applications. Normal room and board, tuition, and supplemental fees will apply.

### Marine Science 400 (500 Calgary)

Undergraduate Directed Studies (3 weeks or 6 weeks)

### Marine Science 470 (500 Calgary)

Directed Research in Aquaculture (3 weeks)

### Marine Science 500 (600 Calgary)

Graduate Directed Studies (3 weeks or 6 weeks)

## APPLICATION PROCEDURES

Bamfield Marine Station application forms are available from the University Programs Coordinator or one of the five member university representatives listed below.

University of Alberta: Dr. R. Palmer  
Department of Biological Sciences, Edmonton, Alberta T6G 2E9

The University of British Columbia: Dr. T. Carefoot  
Zoology Department, Vancouver, B.C., V6T 1Z4

The University of Calgary: Dr. G. Bourne  
Department of Biological Sciences, Calgary, Alberta T2N 1N4

Simon Fraser University: Dr. N. Haunerland  
Department of Biological Sciences, Burnaby, B.C. V5A 1S6

University of Victoria: Dr. C. Hawryshyn  
Department of Biology, Victoria, B.C. V8W 2Y2

**APPLICANTS FROM ANY OF THE FIVE MEMBER UNIVERSITIES MUST REGISTER AT THEIR UNIVERSITY BEFORE ARRIVAL AT BAMFIELD. APPLICANTS NOT CURRENTLY ENROLLED AT ONE OF THE MEMBER UNIVERSITIES MUST REGISTER AT THE UNIVERSITY OF VICTORIA.** See details on the Bamfield Marine Station application form.

**DEADLINE FOR APPLICATIONS** is March 20, 2000. After that date, qualified applicants will be accepted on a first-received basis. While priority will be given to degree program students registered at member institutions, applications from other well-qualified persons will be considered on their individual merits. Only one course may be taken at a time to a maximum of 18 weeks (equivalent to three full-year courses).

## FEES AND CHARGES

### TUITION FEES ARE PAYABLE TO THE UNIVERSITY AT THE TIME OF REGISTRATION.

There is a mandatory room and board charge of \$960 for each six-week course and \$515 (including GST) for each three-week course. In addition, there is a supplemental fee for students of member universities of \$100 per 6-week course and \$50 per 3 week course, payable to the Bamfield Marine Station on arrival. A \$50.00 non-refundable application fee to be applied as a credit to the mandatory charge above is payable to the Bamfield Marine Station on application.

**Note:** Students who are not normally enrolled at one of the five member universities must pay supplemental fees of \$200 per 6 week course and \$100 per 3 week course.

## FINANCIAL ASSISTANCE

### Scholarship program

All applicants for summer courses from the five member universities are considered for scholarships awarded by the Western Canadian Universities Marine Biological Society. In 1999, all students with standings of 80% or higher for the previous 2 years received scholarship support. Students registering for 12 or more weeks of courses may be eligible for student aid: Contact your Financial Aid Officer for details.

### Work-study

Work-study opportunities are available to Bamfield Marine Station students. Interested students should include a work résumé with the course application.

### Special Awards

Students enrolled in Bamfield Marine Station courses are eligible for special awards including the F.W. Benton Memorial Scholarship.

### Post Graduate Financial Assistance

Graduate students undertaking thesis research at Bamfield Marine Station are eligible for financial aid. Contact the Director for further details.

## ENQUIRIES

University Programs Coordinator, Bamfield Marine Station, Bamfield BC V0R 1B0 Canada

Phone: (250) 728-3301 Fax: (250) 728-3452 e-mail: info@bms.bc.ca http://bms.bc.ca

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## WESTERN CANADIAN UNIVERSITIES MARINE BIOLOGICAL SOCIETY

# Bamfield Marine Station

Bamfield, a picturesque village on the west coast of Vancouver Island, forms the setting for the Marine Station. Nearby, Barkley Sound's abundant marine life and rich diversity of habitats afford many unique opportunities for teaching and research in the marine and coastal sciences. The Station is jointly operated by the University of Alberta, the University of British Columbia, the University of Calgary, Simon Fraser University and the University of Victoria.

