



## Zoology 379

### Introduction to Marine Biology

Course Outline and Schedule for Winter semester Reading week, 2012.

**Instructor :** Dr. Carol Gibbons Kroeker  
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#### **Textbook:**

Seashore Life of the Northern Pacific Coast, by Eugene Kozloff. University of Washington Press

Reading assignments should be completed before the field course. Chapters will be assigned at pre-trip meetings.

#### **Grading:**

Your grade will be based on:

Pre-trip work	10%
Field work / laboratory work	30%
Field work presentations (done at Bamfield)	20%
Research papers	40%

This course will introduce students to the organisms found in the open ocean as well as in the coastal and inter-tidal zones, how these organisms adapt to the environment, and the factors that control their productivity, distribution and abundance. The course will be multi-disciplinary, including aspects of animal biology, physiology, and ecology. The course will incorporate lectures with class discussions and will emphasize field work with organisms found in the coastal waters of British Columbia. Independent research papers will provide further opportunity for students to explore specific aspects of the biological oceanography of Barkley Sound and the Pacific Northwest.

For this course, we will travel to Bamfield Marine Station, which borders Pacific Rim National Park on Vancouver Island, BC. We will spend several days doing hands-on activities that will incorporate lecture material in Marine Biology. There will be readings to be completed before the travel portion of the course, as well as papers to be completed when we return. Several weeks of pre-trip lectures will introduce you to the marine species of the region, as well as their physiology and ecology. You will be responsible for completion of your own research project while on site.

Total course hours (pre-trip, field work- lectures and labs) = 80

The laboratory portion of the course will include:

- Individual research projects in the lab on an organism of your choice
- Observations in open coast intertidal areas (sandy, rocky, cobbles): natural history, intertidal zonation, adaptations, interactions between species.
- Semi-protected coast intertidal studies (quantitative and qualitative studies)
- Plankton collection and microscopic examination
- Natural history of docks and pilings
- Collection and analysis of oceanography data (temperature and salinity)
- Open ocean dredging to examine subtidal sea life
- Open ocean surveys of seabirds and marine mammals
- Laboratory instruction on marine invertebrates, and "hands-on" knowledge
- Laboratory studies of seaweed ecology, diversity and human use
- Laboratory studies of behaviour, physiology, taxonomy, etc. of specific groups of marine organisms in display tanks and sea water tables
- Slide shows and educational workshops (marine mammals, species at risk, biodiversity and conservation, kelp forest ecology)
- Lab studies of marine mammal and seabird adaptations.
- Temperate rainforest ecology and ethnobotany walks

The two largest papers that you will be required to write will be on:

- 1) The Biodiversity / ecology of the Pacific Northwest – the will include water and land biomes as well as an assessment of the health of the species in the regions
- 2) The physiology / zoology of an animal of your choice – this will incorporate the research you completed at the marine station

**Costs:**

Travel (Flights)	\$440
Bus transport to marine Station	\$140
Bamfield Marine Station (user fees, room and board, MV Alta)	\$585
Incidental	\$50
<b>Total Cost</b>	<b>\$1250</b>

Deposit of \$200 is due by November 15. Second payment is due December 15.  
Balance is due by Feb. 1. Tuition remission will be given for the course in lieu of travel costs.

The Bamfield Marine Sciences Centre - co-owned by five other western Canadian universities - clings to the spectacularly rugged west coast of Vancouver Island. It lies in the heart of the coastal rain forest, on the southeast side of Barkley Sound, near the Broken Island Group and the West Coast Trail portions of the Pacific Rim National Park.

It is the premier marine research and teaching field station in Canada, and is among the very best in the world. It offers a wide variety of summer courses and a full-term Fall Program for university students. During the winter months it hosts a lively and successful Public Education Program that welcomes students of all ages from throughout western Canada.



*Looking north across Barkley Sound  
Helby Island & Deer Group in the  
foreground,  
mountains of central Vancouver Island  
in back.*

## **TRIP SUMMARY**

Space is available for up to 30 students to visit the Bamfield Marine Sciences Centre over reading week.

- **TOTAL COST** (includes air fare, charter bus, meals at BMSC, housing & field trips, GST): **\$1250.00**

## **DETAILS**

- You are responsible for transportation to and from the airport.
- Each of you must check individually using your e-ticket. Make sure you have identification (passport, eg.). Be at the airport early since security protocols may take time (by 6:30 very latest)
- If you miss your flight, we cannot guarantee your arrival at Bamfield, nor can we refund your air fare, bus fare, or dredge costs, as these are paid in advance. Meals and lodging may be able to be refunded, if we are not billed for unused services.
- The village of Bamfield has only two small convenience stores at which you can buy snacks and basic toiletries if you wish (it is unlikely you will have the opportunity to visit these). Otherwise, pack your own snacks!
- You will have an opportunity to purchase Bamfield gear on the final day at the station (t-shirts, sweatshirts, postcards, mugs, etc.)

## CHECKLIST OF PERSONAL GEAR TO BRING:

1. **Photo ID / e-ticket** : airport check-in / security requires either a passport or drivers license in order to board the plane.
2. **Money / debit / credit card** : Debit card readers are available at Bamfield and an ATM is available in one store. T-shirt etc. are available at Bamfield.
3. **Rain Gear**: rain pants and rain jacket with hood are highly recommended. A hat is also handy. February can be very wet, windy, and cold at Bamfield. They do have some gear they can lend out.
4. **Rubber boots** : HIGHLY recommended for field trips; but if you don't mind cold, wet feet, running shoes that can get wet, salty, and muddy are OK. Again, Bamfield does have some gear to lend out.
5. **Warm Clothing**: wool sweaters, fleece, long johns, wool socks, etc. (Don't bring down as it's too heavy when wet). Field trips will last 2-3 hours and if it's windy and 5 degrees, it can feel very cold.
6. **Gloves**: wool or fleece. Also, a pair of dishwashing gloves are good to use when sorting through the dredges, etc.
7. **Changes of Clothes**: bring **at least** two complete changes of clothes. You will get wet and want something to change into. Extra socks are always useful. There are coin-operated laundry facilities available if needed.
8. **Daypack**: as water-proof as possible. Pens, pencils, notebooks may be handy if you want to keep a species log. You may even want to bring binoculars.
9. **Camera, film, card, batteries** : optional but worth considering – it's a beautiful area
10. **Personal hygiene items**: shampoo etc. are not provided
11. **Flash-light** – highly recommended for walking back and forth to the dorms at night, and will be needed for evening field trips (bio-luminescence).
12. **Plastic bags** – to store camera, binoculars, spare clothes, wet clothes, etc.

## **Emergency Contact Numbers:**

Should someone need to contact you at Bamfield, the numbers are:

**Phone:** 250-728-3301

**Fax:** 250-728-3452

**Email:** BMSC has many computers with high-speed internet for email  
Payphone in dining hall (meal times only) – 250-728-9370

**After hours Emergency only :**

Phone: 250-728-3469

For more info, contact Dr. Carol Kroeker, [ckroeker@ambrose.edu](mailto:ckroeker@ambrose.edu) or  
[kcagibbo@ucalgary.ca](mailto:kcagibbo@ucalgary.ca)

