

Introduction to Marine Biology
3 credits
Prerequisite(s): Biology 133

Class Information		Instructor Information		First day of classes:	Wed., Jan. 6, 2016
Days:	Module Field Course	Instructor :	Dr. Carol Gibbons Kroeker	Last day to add/drop/change to audit:	Sun., Jan. 17, 2016
Time:	Feb. 13-17	Email:	ckroeker@ambrose.edu	Last day to request revised exam:	N/A
Room:	Weekly meeting January – Feb.	Phone:	403-410-2000, ext 5910	Last day to withdraw from course:	
Lab/Tut:		Office:	A 2156	Last day to apply for time extension for coursework:	Mon., Mar. 28, 2016
Final Exam: N/A		Office Hrs:	Tues / Thurs 11-1	Last day of classes:	N/A

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.

Course Description:

This course will introduce students to the organisms found in the open ocean as well as in the coastal and intertidal 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 at the Bamfield Marine Sciences Centre.

Expected Learning Outcomes:

After the completion of this course, students will

- Have hands-on experience with identifying and handling marine specimens
- Be familiar with the biodiversity of the Pacific Northwest
- Gain an appreciation for the different ecosystems of the region
- Understand how an organism's physiology and ecology complement each other
- Compare and contrast ocean and terrestrial environments, and describe the properties of the marine environment that are associated with specific marine adaptations.
- Distinguish between different marine zones in terms of their biotic and abiotic characteristics and the factors that affect their communities.
- Understand the threats (and consequences) facing many of the marine organisms such as pollution, overfishing, global warming and ocean acidification, and invasive species

Payment Schedule: Nov. 15 (\$300 deposit), Dec. 15 (\$400), Jan 15 (\$400)

Total Costs:

Travel (Flights)	\$435
Bus transport to marine Station	\$85
Bamfield Marine Station (user fees, room and board, MV Alta)	\$555
Incidental	\$25
Total Cost	\$1100

Course Schedule:

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

Pre-trip meetings (January) to cover:

- The marine environment and the basics of oceanography
- The ecosystems of the Pacific Northwest – ecological threats
- The biodiversity of the Pacific Northwest
- Animal focus – Physiology and Biology of several common species to the region

Feb. 13- 17th – Field Work at Bamfield Marine Sciences Centre:

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

March – Post- trip meetings

April – Final papers will be due

Requirements:

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%

Attendance:

You will be graded on your field work and attendance at all labs and sessions at the marine station is mandatory. Attendance at pre-trip meetings is also mandatory.

Grade Summary:

The available letters for course grades are as follows:

<u>Letter Grade</u>	<u>Description</u>
A+	
A	Excellent
A-	
B+	
B	Good
B-	
C+	
C	Satisfactory
C-	
D+	
D	Minimal Pass
F	Failure

Because of the nature of the Alpha 4.00 system, there can be no uniform College-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

Other

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.

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

ASSIGNMENTS:

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

TRIP DETAILS

- You are responsible for transportation to and from the airport.
- Each of you must check-in 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 rubber 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.
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You may even want to bring binoculars.

9. **Camera, 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 or kcagibbo@ucalgary.ca

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.

Policies:

Communication

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

Registration

During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline**; please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Exam Scheduling

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

Students, who find a conflict in their exam schedule must submit a Revised Examination Request form to the Registrar's Office by the deadline date; please consult the List of Important Dates. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

Electronic Etiquette

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devices in class. The professor has the right to disallow the student to use a laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Extensions

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office

in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of \$50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university college. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Note: Students are strongly advised to retain this syllabus for their records.