



**CAMOSUN COLLEGE**  
**School of Arts & Science**  
**Department of Biology**

**BIOL-105-001**  
**Introduction to Marine Biology**  
**Winter 2018**

**COURSE OUTLINE**

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The course description is online @ <http://camosun.ca/learn/calendar/current/web/biol.html>

Ω Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

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**1. Instructor Information**

(a) Instructor	Annette Dehalt MSc	
(b) Office hours	Tues & Thurs 1:30-3:50 pm	
(c) Location	F 252B	
(d) Phone	250-370-3388	Alternative: _____
(e) E-mail	dehalt@camosun.ca	
(f) Website	<a href="http://sites.camosun.ca/annettedehalt">sites.camosun.ca/annettedehalt</a>	

**2. Intended Learning Outcomes**

Upon completion of this course the student will be able to:

1. Explain basic biological and ecological concepts, including evolution, food web structure and population dynamics, as well as the nature of the scientific process.
2. Assign defining characteristics to the major categories of marine biodiversity, including taxonomic and ecosystem diversity.
3. Explore and evaluate the role of abiotic (geological, chemical, physical) factors in determining the distribution and abundance of marine species.
4. Describe the ecological niches of major marine life forms.
5. Discuss current environmental issues in the marine environment, and examine the multi-disciplinary aspects (scientific, social, political, legal and indigenous) of these problems.
6. Develop and employ critical thinking and problem-solving skills regarding scientific inquiries, field situations, and environmental problems.
7. Demonstrate practical skills regarding marine sampling methods and materials, tide and current calculations, basic concepts of coastal navigation and marine safety.

**3. Required Materials**

- (a) Text: Karleskint/Turner/Small: Introduction to Marine Biology, 4<sup>th</sup> ed.
- (b) Basic office supplies: pen, pencil, white-out, ruler, stapler, blank paper for lab sketches, 3-ring binder (recommended)

#### 4. Course Content and Schedule

Wk	Week days	Lecture Topics (T, Th)	Lab/Field Exercises (W) <i>FT = Field Trip</i>
1	Jan 8-12	Ways of Knowing about the Sea (Ch. 1 + readings)	Lab and Field Safety Tide Tables and Compass
2	Jan 15-19	Basics of Ecology (Ch. 2) <b>Quiz 1</b> (Th)	Use of Microscopes
3	Jan 22-26	Basics of Biology (Ch. 5)	<i>FT: Traditional Ecological Knowledge - First Nations (Tsawout) Fisheries</i>
4	Jan 29- Feb 2	Marine Primary Producers (Ch. 6 excerpts & Ch. 7) <b>Test 1</b> (Th)	<i>FT: Marine Exploration: 1. Salish Sea Aquarium (class time) 2. Cattle Point (evening - optional)</i>
5	Feb 5-9	Marine Invertebrates (Ch. 8)	Algae Lab <b>Seminar topic due</b>
6	Feb 12-16	<b>READING BREAK</b>	
7	Feb 19-23	Marine Invertebrates (Ch. 8 cont.) <b>Quiz 2</b> (Th) Marine Invertebrates (Ch. 9)	<b>LAB EXAM I</b>
8	Feb 26- Mar 2	Marine Invertebrates (Ch. 9 cont.) <b>Test 2</b> (Th)	Invertebrate Lab I
9	Mar 5-9	Marine Fishes (Ch. 10)	<i>FT: Marine Bird Identification - Esquimalt Lagoon</i>
10	Mar 12-16	Marine Reptiles, Birds & Mammals (Ch.11&12)	Invertebrate Lab II <b>Seminar outline due</b>
11	Mar 19-23	<b>Quiz 3</b> (Th) Marine Habitat (Ch. 3&4 excerpts)	Vertebrate Lab
12	Mar 26-29 <i>(Mar 30=Good Fri)</i>	Marine Ecosystems (Ch. 13-18 excerpts)	<b>Medicine Wheel Seminar</b>
13	<i>(Apr 2=Easter M)</i> Apr 3-6	<b>Test 3</b> (Th) Harvesting Ocean Resources (Ch. 19)	<i>FT: Fisheries Management – Tour of Institute of Ocean Sciences (IOS)</i>
14	Apr 9-13	Oceans in Jeopardy (Ch. 20)	<b>LAB EXAM II</b>

## 5. Basis of Student Assessment (Weighting)

- (a) Assignments 10%
- (b) 3 Quizzes 10% (unit exams)
- (c) Exams:
  - 3 Lecture Tests 30% (unit exams)
  - 2 Lab Exams 20% (unit exams)
  - Final Exam 25% (cumulative)
- (d) Seminar Presentation 5%

## 6. Grading System

- Standard Grading System (GPA)
- Competency Based Grading System

## 7. Recommended Materials to Assist Students to Succeed Throughout the Course

- (a) Downloads/print-outs of lecture and lab notes posted on course web site (pass word: "ccseaandme")
- (b) Get Ready for Biology by Lori Garrett (on reserve in library)

## 8. College Supports, Services and Policies



### Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

### College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

## A. GRADING SYSTEMS <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

### 1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

### 2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

## B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://camosun.ca/about/policies/index.html> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

## **ADDITIONAL INFORMATION**

**Academic Conduct:** Be sure that you are familiar not only with the Student Conduct Code (s.a.), but also with the General Department Safety Policies, which will be provided in lab. **Cheating or plagiarism will not be tolerated in any form, and will result in “0”.**

Each student is required to sign and hand in a waiver prior to field trip participation.

**Attendance:** You are expected to attend all classes, labs and field-trips, and be on time. It is your responsibility to acquire *all* information given during a class missed, incl. notes, hand-outs, assignments, laboratory or field data, changed exam dates etc.

**Exams:** Exams have to be written when scheduled. There are no make-up exams during the term. **A missed exam results in “0” except in case of documented emergency or illness (doctor’s note required stating that student is too sick to attend class during a specified time period).** Valid documentation of illness/emergency needs be received **within 1 week** of the illness/emergency. With a valid excuse, the weighting of the missed exam will be added to the final exam, along with additional questions on course material of that unit. **Please bring a pen and soft pencil to all exams. No programmable devices are allowed in exams.**

**Lab/Field:** Lab assignments can only be handed in for labs actually attended (except in cases of documented illness/emergency). You are encouraged to discuss assignments with your lab partner, however, **each assignment has to be your individual work – beware of plagiarism.** It is absolutely necessary to read and mentally **work through each exercise before coming to lab.** Otherwise you may not be able to finish on time, annoy your lab partner, or flunk a pre-lab pop quiz.

**Assignments:** Unless otherwise stated, all assignments are due by the **beginning** of the lab/class of the due date. The first late assignment/term is penalty-free – otherwise a **10%/day non-negotiable late penalty** (rounded to the nearest full mark) applies, except in cases of documented illness/emergency. Late assignments will **not** be accepted after marked assignments have been returned to the rest of the class – usually one week after the due date. A **professional format** is expected, i.e. a **neat, legible, clean** copy. If the assignment is more than one page, separate pages must be **stapled**. “Rough” drafts risk rejection and a subsequent late penalty or reduced marks.

**Study Habits:** You will probably find this course not very difficult, but surprisingly labor-intensive. Good (and regular!!) study habits are required to do well in this course. One hour/day is a good starting point. Joining a study group can help make this time more fun. Some **“study hints”** (beyond reading, highlighting and making flash cards!) for efficient use of study time are posted on the course web site.

**Lecture notes and lab/field exercises** will be posted on the web for you to print and review prior to class. The point form lecture notes should be used as a guideline, not as your sole source of information! You will need to write down additional notes of examples and explanations given during lecture. It is also recommended practice to transcribe these notes into a study-friendly format after each lecture, incorporating additional information from your textbook and other sources. Study these notes before the next class to prepare yourself for new material, which will often build on previously covered material.

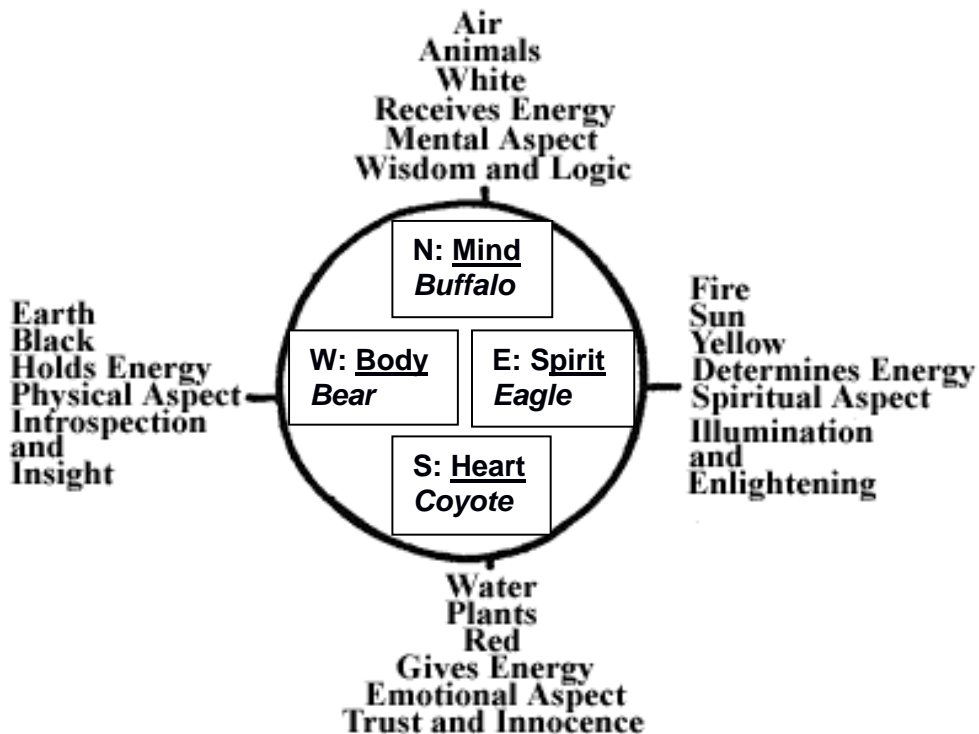
**Exam questions** will be based on material covered or pointed out in class. However, studying additional details in the corresponding textbook sections will help you understand the material more thoroughly. It is not sufficient simply to memorize point-form notes! Please keep up with your readings, and take advantage of office hours if you need extra clarification and help, or simply would like to discuss a topic a little further.

## Bio 105 Marine Biology “Medicine Wheel” Seminar: *Marine Issues*

This assignment requires a 10 minute oral presentation by groups of 4 students in circle format, followed by a 5 minute question and answer period. The topic is your choice of a current issue concerning a marine species or group of organisms. The notion is to study and empathize with a marine organism and its challenges of survival or well-being, using aspects of an aboriginal, more holistic approach, in accordance with Camosun College’s goal of integrating indigenous content across the curriculum. This is an opportunity to gather and present information on the causes and potential solutions regarding a particular problem facing a marine organism that you care about, by integrating science and personal involvement.

Topics may include environmental or ethical issues, for example: endangerment of a species through habitat destruction, climate change, pollution, or over-exploitation, welfare concerns regarding marine animals killed for human consumption, marine animals in captivity, issues regarding poaching, trade in species (parts), fishing methods and regulations, or the effect of an introduced species on a Native species, etc. There is a wide range of possible topics, but the basic premise is a bio-centric approach, i.e. deconstructing the issue from the point of view of the species in question, and focusing on the organisms’ best interest. Please check with your instructor if your topic choice and angle fits the scope of this assignment before you proceed with your research (see course outline for deadlines).

Format and content of this presentation is supposed to be holistic in nature and is loosely based on the concept of a generalized First Nations medicine wheel:



In your presentation, you are therefore expected to present not only the physical and mental aspects of the issue (see West and North), but also the emotional and value-based/spiritual aspects (see South and East) to the same extent.

Please present your talk in the following sequence: Briefly introduce yourself and your topic, and then address the 4 basic aspects of your chosen issue by going around the medicine wheel. Depending on species and issue, some or all of the following guidelines may apply.

1. W: "Physical"Aspect: Issue Definition

Introduce your chosen species, including a *brief* background on its biology and ecology as it pertains to the issue. Define and explain the concrete problem facing this species or group of species, keeping in mind that this may be the first time your audience has heard about this issue. Condense your background research into a precise yet concise, readily comprehensible summary. If relevant, mention other species affected by the issue.

2. S: "Emotional"Aspect: Personal Engagement

Why do you care about this species, this particular issue? What is the story behind your choice? What emotions does this issue evoke, e.g. compassion, frustration, urge to take action etc.? Do co-presenters have similar or different sentiments regarding the chosen species or issue? Do you know which position on this issue is representative of the population at large?

3. E: "Spiritual"Aspect: Value-based Solutions

What do you perceive to be the root of the problem? How did the status quo come to be? What ethical principles or choices may have led to this issue, e.g. greed, carelessness, anthropocentrism etc.? Are there underlying societal values or belief systems that may have to be re-evaluated or changed in your opinion to allow for support for any type of practical solution? What other societies/cultures/value systems can we learn from in this regard, incl. Traditional Ecological Knowledge and Wisdom (TEKW)? You could discuss some of the values and attitudes you would like to foster.

4. N: "Mental"Aspect: Practical Solutions

What should be done, in your opinion, to fix or ameliorate the problem facing your chosen species? What can different levels of society contribute to the solution, e.g. government, NGO's, industry, academia, organized religion etc. and what actions can you and your class mates take to support your solutions? Give specific examples. You may cite published solutions that you support, or think outside the box to come up with your own answers to the problem.

A different path around the medicine wheel may be more suitable to your presentation – please discuss the best sequence or integration of aspects with the instructor. Conclude your talk with a short statement referring to future hopes or plans and thank your audience. (Note: "that's all we got" or "I guess that's it..." is *not* a good concluding statement!)

You need to know the material well enough to speak freely as well as answer questions for approx. 5 minutes following your talk (*know more than you present!*). The presentation itself will take place in circle format around a replica of a medicine wheel, i.e. the presenters are seated along with the audience in a circle. If necessary, a room other than the lab will be booked for this purpose. Therefore, you will not have to stand in front of the class, and **you are not required to prepare overheads or power-points – this really is an oral presentation**, and it is meant to provide a different presentation and learning experience, more along the lines of sharing around a campfire. This means that your speech should be as free from references to written notes as possible.

You are also required to bring a visual aid to be passed around, e.g. a good quality picture or replica or otherwise relevant object (1 minimum and 3 maximum visual aids per presentation). Aids should be user-friendly and add to your talk but not distract from it; written materials are usually not suitable. Please also have a list of references handy, in case you may be asked about the sources of presented information. Although not a requirement, you are free to integrate original elements of the visual, musical, healing or performing arts as well as aspects of your cultural or spiritual practices that you are able to share.

It is important to practice the talk several times beforehand, in order to feel comfortable speaking freely, to allow for smooth transitions, and to keep within the time limit of 10-15 minutes in fairness to all other students in the same lab period. However, in alignment with common indigenous practice, speakers will be allowed – within reason – to complete their presentation regardless of time.

As a member of the audience, you are expected to be respectful to the speaker by following the talk with focus and an open mind, so you may be able to contribute a question at the end of the talk. While a class mate is presenting, it is unacceptable to review your own notes, carry on a conversation or leave the circle early. Being a disrespectful listener may affect your overall mark for this project.

**Evaluation of Oral Presentation:**

CRITERIA	SCORE (0-10)
1. <b>Content:</b> biocentric, not anthropocentric perspective maintained; all 4 sub-topics addressed adequately and with appropriate details in each category; evidence of broad background research and in-depth contemplation of the issue	
a. Physical	
b. Emotional	
c. Spiritual	
d. Mental	
2. <b>Outreach:</b> the issue and potential solutions were presented convincingly, with respect, empathy and engagement; the audience felt compelled to listen and learn	
3. <b>Delivery:</b> free speech, good projection, clear pronunciation, appropriate opening and closing statements, smooth transitions between sub-topics; talk flowed well	
4. <b>Visual Aid(s):</b> well-chosen and informative, attention to ease of viewing and handling, no distracting details such as extensive writing; well-integrated into talk	
5. <b>Timing:</b> time used efficiently and evenly; no unnecessary pauses or “fillers;” time limit observed (10+/-1 minutes) - minus 2 marks for each minute over or under	
6. <b>Questions:</b> questions from the audience were answered knowledgeably and honestly, showing involvement with the subject beyond information given in talk	
7. <b>Audience:</b> As audience members, presenters were part of circle, respectful, paid full attention to presenters, and – optionally - asked valid questions	
<b>TOTAL SCORE</b>	...../100