

UNIVERSITY OF VICTORIA
Department of Biology & School of Earth and Ocean Sciences
BIOLOGICAL OCEANOGRAPHY
BIOL 311 (CRN: 10404) / EOS 311 (CRN: 11511) Fall 2022 (202209)

Course Outline

<u>Lead Instructor:</u>	Roberta Hamme
<u>Email:</u>	rhamme@uvic.ca
<u>Office:</u>	Bob Wright Centre (BWC) A417
<u>Telephone:</u>	250-472-4014
<u>Office Hours:</u>	Mondays and Thursdays that I teach 2:20-3:00pm or by appointment / arrangement (in-person or on Zoom)
<u>Instructor:</u>	Shea Wyatt
<u>Email:</u>	snwyatt@uvic.ca
<u>Office:</u>	Bob Wright Center (BWC) A403
<u>Office Hours:</u>	Mondays and Thursdays that I teach 2:20-3:00pm or by appointment (Zoom)
<u>Senior Lab Instructor:</u>	Casey Brant
<u>Email:</u>	cbrant@uvic.ca
<u>Office:</u>	Bob Wright Centre (BWC) B111
<u>Teaching Assistants:</u>	B01&B02 Tues&Weds 2:30pm : Liam Hubbert (lhubbett@uvic.ca) B03 Thurs 2:30pm : Matt Miller (mattmiller@uvic.ca) B04 Fri 2:30pm : Moronke Harris (moronke@uvic.ca) B05 Thurs 8:30am : Brett Jameson (bjameson@uvic.ca)
Lecture classroom:	Clearihue Building (CLE) A224
Lecture times:	Mon and Thu, 1:00-2:20 PM
Laboratory classroom:	Bob Wright Centre (BWC) B118
Lab Manual:	Fall 2022 edition required. Purchase from UVic bookstore
Other materials:	Lab coats, safety glasses, long trousers, and closed shoes are required when specific chemical analyses are listed in the schedule.
Website:	http://bright.uvic.ca/ "Fall 2022 BIOL 311 A01 - EOS 311 A01 X"
Echo360:	We will use Echo360 for polls in the large classroom. Click on the link through Brightspace AND download the Echo360 app to use your phone for polls.

Course Objectives: In this course, we will explore how marine biological organisms interact with each other and their environment (the ocean's chemistry and physics). These interactions regulate the structure, function, and productivity of marine ecosystems. We will primarily investigate what controls seasonal cycles in planktonic systems throughout the world's oceans.

Prerequisites: One of CHEM 101 or 150; CHEM 102; Two of MATH 100, 101, 102, 109, 151; One of PHYS 102, 102A & 102B, 110 & 111, 112, or 120 & 130. Minimum third-year standing.

Inclusion and Accessibility: The University of Victoria is committed to creating a learning experience that is as accessible as possible. If you anticipate or experience any barriers to learning in this course, please feel welcome to discuss your concerns with us. If you have a disability, learning challenge, or chronic health condition, or think you may have one of these, we encourage you to meet with an advisor at the Centre for Accessible Learning (CAL) as early in the term as possible. You can find more information about CAL at <https://www.uvic.ca/services/cal/>.

Territory Acknowledgment: We acknowledge and respect the lək'wəŋən peoples on whose traditional territory the university stands and the Songhees, Esquimalt, and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.

Illness: Please **DO NOT** attend any in-person activity (class, labs, or field trip) for any reason if you feel unwell (especially sore throat, runny nose, fever and/or chills, recent onset of coughing, or diarrhea) even if you have tested negative for COVID-19. You should complete a daily health self-assessment before coming to class activities.

If you need to miss any in-person activity due to illness, inform as soon as possible the instructor for the day about classroom sessions missed and the Senior Lab Instructor (Casey) about lab or field activities. For classroom activities, you will be able to earn discussion participation marks by turning in written answers to the questions and you can receive an extension for Brightspace assessments. For labs, expect to complete an alternate assignment if you cannot participate in the scheduled lab activity. If you miss activities without contacting the instructors, you will receive zero for those activities (including labs).

While mask wearing is currently a matter of personal choice, we strongly encourage you to wear a mask in indoor spaces (classroom and lab) where you are in close proximity to others. Requirements while on campus and conditions in which this course is offered may change over the course of the term based on the public health situation at the time. Check the [UVic Health and Safety website](#) for the most up-to-date information. We will do our best to keep you informed when the evolving health situation affects our course.

Mental Health and Wellbeing: A note to remind you to take care of yourself. Diminished mental health can interfere with optimal academic performance. Do your best to engage in self-care and maintain a healthy lifestyle this term. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. **You are not alone.** The source of symptoms might be related to your course work; if so, please speak with us, your instructors. However, other parts of your life can also contribute to decreased academic performance. The [UVic Student Wellness Centre](#) provides cost-free and confidential mental health services to help you manage personal challenges that impact your emotional or academic well-being.

Class recordings: Be aware that classroom sessions in this course will be recorded to allow students who are ill to watch later. These recordings will only be made available on a case-by-case basis. Students who have questions or concerns regarding class recording and privacy may contact privacyinfo@uvic.ca. Auto-generated captioning is enabled for recordings in this course. Automated captioning is at best 70-90% accurate and will include errors depending on the subject matter, speaker, audio quality, etc. Words prone to error include specialized terminology and proper names. Please refer to the audio feed for clarification of errors. If you find captioning that is offensive, please make your instructor aware.

Course activities:

Classroom: This course will be primarily taught in-person. Classroom sessions will typically consist of short lectures combined with activities and exercises designed to promote a deeper understanding. Discussions and exercises will take place in small groups. Groups will be asked to present the conclusions of their discussions to the rest of the class. Instructors will help groups with their discussion and exercises as well as answer questions for the class. Unless ill, you should attend classroom activities to be successful in this course (and to receive your participation grade).

In addition to classroom exercises, online assessments will be posted on Brightspace as part of each module.

Laboratories: The laboratory component of this course will be devoted to our class project on Saanich Inlet. **In-person labs begin on Thursday September 8th** and will be held in Bob Wright Centre (BWC) B118 unless otherwise specified. We are starting early to accommodate our field trip schedule! You are expected to attend all of your laboratory sessions, unless you are unwell. If you need to miss a laboratory session, contact Casey (cbrant@uvic.ca) **as soon as possible** – **preferably in advance**, but no later than one week following the missed lab section. If you miss a laboratory exercise without contacting Casey, you will receive a zero on that exercise.

All lab sections are full, so, unless you have previous permission from Casey, you may only attend the section in which you are officially registered.

Further information about laboratory policies and procedures can be found in the Lab Manual.

Field Trip: A series of one-day research cruises on UVic's research vessel, the *R/V John Strickland* is scheduled for **September 22 to October 1**. Each student is expected to participate for one day on the ship. Data collected on these trips will form the basis for subsequent laboratory analyses and assignments. More information on the *Strickland* trips and lab exercises will be provided in the lab manual and during lecture and labs throughout the term.



Lab assignments consist of a combination of in-lab assignments and a series of three longer assignments associated with your Strickland Cruise. In-lab exercises are due at the end of the lab period.

Lab Manual: The printed lab manual contains the necessary background and analytical procedures for successful completion of the pre-lab quizzes and lab activities. Instructions for computer labs, Strickland Cruise Report Assignment guidelines, and other materials will be posted on Brightspace as required.

Textbook: We will not assign readings from a textbook in this course. However, if you feel that a textbook is useful to you, we can suggest two that cover some of the same material as this course.

1) Biological Oceanography - An Introduction (2nd edition) by C.M. Lalli & T.R. Parsons (1997) Butterworth Heinemann. Freely available online through the UVic library:

<http://www.sciencedirect.com/science/book/9780750633840>.

2) Biological Oceanography" (2nd edition) by C.B. Miller and P. Wheeler (2012) Wiley-Blackwell.

Essential Course Requirements: At minimum, you must complete the final exam and all three parts of the Strickland Cruise Report assignments to pass the course. Students must also achieve a passing grade ($\geq 50\%$) in each of the lecture component and the laboratory component to pass the course. Students who do not complete at least these requirements will be assigned an N in the course and a maximum grade of 49%.

Marking Scheme: No supplemental examinations or additional course work for extra marks are offered in this course.

Classroom Component (60%):

In-class Discussion Participation (Echo360)	5%
Module Assessment Questions (Brightspace)	10%
Midterm Exam	18%
Final Course Exam	27%

Laboratory Component (40%):

In-lab exercises	15%
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Strickland Cruise Report Assignments

Annotated Bibliography	5%
First Draft of Figures/Graphs	5%
Final Report (Final Graphs & Written Results and Discussion)	15%

Final Course Mark	100%
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Grading Scheme:

A+	90 - 100%	B+	77 - 79%	C+	65 - 69%	F	0 - 49%
A	85 - 89%	B	73 - 76%	C	60 - 64%	N	0 - 49%
A-	80 - 84%	B-	70 - 72%	D	50 - 59%		

F: Unsatisfactory performance, completed essential course requirements, no supplemental.

N: Did not complete essential course requirements by the end of term, no supplemental.

Final grades will be made available no sooner than one week after the Final Exam.

Late Policy: If illness, personal/family crisis, or a conflicting academic commitment will prevent you from meeting a due date, please contact Roberta to discuss possible accommodation. Due dates for Brightspace assessments and for the components of the Strickland Cruise Report can be flexible, if you contact Roberta at least 24 hours before the due date and negotiate a new due date for yourself. Otherwise, **late work will be assessed a penalty of 10% per day.**

Assessments and Exams: All module assessments and exams in BIOL/EOS 311 must be completed individually. You are not permitted to work with others.

Assessments for each module will be posted on Brightspace following the last lecture of each module. The assessments count for 10% of your total grade and are weighted according to the proportion of the class material covered.

The only acceptable reasons to miss an exam are: illness, injury, personal crisis, or sporting commitments as a UVic athlete. In some circumstances, we will ask you to provide supporting written documentation (e.g. a note from an official UVic coach). Students who miss the Midterm Exam for legitimate reasons (i.e. excused as above) will have the Final Exam count for 45% of their final grade. Travel plans are not a valid reason for missing the Midterm or the Final Exam, even if the plans were made and tickets purchased for you by family members without your knowledge. The date for the BIOL/EOS 311 Final Exam will not be known until the final exam schedule is posted in late October. The last day for final exams this semester is 21 December. You are safe to make travel arrangements for after that date.

All requests for Deferred Status for the Final Exam must be made through the Office of the Registrar on a Request for Academic Concession form. No other arrangement is acceptable.

Academic regulations: Please refer to the [2022-09 UVic Calendar](#), particularly to the Undergraduate and Faculty of Science sections, regarding your rights and obligations. It is **YOUR** responsibility to attend to ADD/DROP dates published in the Calendar. Your instructors cannot drop you from a course that you do not attend. It is also **YOUR** responsibility to check your records and registration status.

Academic Integrity: Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. It is expected that students, faculty members, and staff at the University of Victoria, as members of an intellectual community, will adhere to these ethical values in all activities related to learning, teaching, research, and service. Any action that contravenes this standard, including inappropriate sharing of work, misrepresentation, falsification, or deception, undermines the intention and worth of scholarly work and violates the fundamental academic rights of members of our community. UVic has a policy on academic integrity that is designed to ensure that the university's standards are upheld in a fair and transparent fashion. Violations to the policy are considered serious offenses. See [UVic Policy on Academic Integrity](#) in the undergraduate calendar.

BIOL/EOS 311 Module Topics and Course Schedule

Date	Lecture Topics (CLE A224)	Instructor	Lab Topics (BWC B118)
Th - Sept 8	<i>Introduction to the course & FIRST DAY OF LABS</i>	<i>Roberta & Shea</i>	<i>1 – Intro to Lab and Oceanographic Data</i>
M - Sept 12	<i>Productivity and Limiting Factors</i>	<i>Roberta</i>	
Th - Sept 15	<i>The Role of Light I</i>	<i>Shea</i>	<i>2 – Cruise Prep and Sampling Overview</i>
M - Sept 19	<i>The Role of Light II</i>	<i>Shea</i>	
Th - Sept 22	<i>No Class</i>	<i>All</i>	<i>3 – Strickland Cruises (22, 23, 26, 27, 29 Sept; 1 Oct)</i>
M – Sept 26	<i>No Class</i>		
Th – Sept 29	<i>No Class</i>		
M – Oct 3	<i>Nutrient Dynamics I</i>	<i>Roberta</i>	<i>4 – Chlorophyll Analysis & CTD data overview</i>
Th – Oct 6	<i>Nutrient Dynamics II</i>	<i>Roberta</i>	
F – Oct 7	--	--	Annotated Bibliography Due Friday Oct 7 @ 4 pm
M – Oct 10	<i>No Class – Thanksgiving</i>	--	<i>5 – Nitrate Analysis & Zooplankton Biomass</i>
Th – Oct 13	<i>Productivity in Saanich Inlet</i>	<i>Roberta</i>	
M – Oct 17	<i>Episodic Productivity I</i>	<i>Shea</i>	<i>6 – Silicic acid and Phosphate Analysis</i>
Th – Oct 20	<i>Episodic Productivity II</i>	<i>Shea</i>	
M – Oct 24	Midterm Exam	--	<i>7 – Zooplankton Abundance and Biomass Part 2</i>
Th – Oct 27	<i>Grazing Pressures I</i>	<i>Roberta</i>	
M – Oct 31	<i>Grazing Pressures II</i>	<i>Roberta</i>	<i>8 – CTD Data Tutorial and Report Figure Workshops</i>
Th – Nov 3	<i>Adaptations in Phytoplankton</i>	<i>Roberta</i>	
M – Nov 7	<i>Nutrient Recycling I</i>	<i>Shea</i>	<i>No Labs – Reading Break</i>
Th – Nov 10	<i>No Class – Reading Break</i>	--	
M – Nov 14	<i>Nutrient Recycling II</i>	<i>Shea</i>	No Labs – Report Draft Figures Due Monday Nov 14 @ 4 pm
Th – Nov 17	<i>Deep Ecosystem Cycles I</i>	<i>Shea</i>	
M – Nov 21	<i>Deep Ecosystem Cycles II</i>	<i>Shea</i>	<i>9 – Report Workshop/Tutorial I</i>
Th – Nov 24	<i>Systems Without Blooms I</i>	<i>Shea</i>	
M – Nov 28	<i>Systems Without Blooms II</i>	<i>Roberta</i>	<i>10 – Report Workshop/Tutorial II</i>
Th – Dec 1	<i>The Changing Ocean</i>	<i>Roberta</i>	
M – Dec 5	<i>No Class – Friday Schedule</i>	--	Saanich Inlet Report Due @ 4 pm