



Biology 3415G Aquatic Ecology

Winter 2022 - Wednesdays - 9:30 to 11:30 am
Fridays - 9:30 to 10:30 am

Prerequisites

Biology 2483A/B.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Antirequisites

Biology 3222F/G - Introduction to Freshwater and Marine Environments

Instructor Information

Dr. Vera Tai

e-mail: vtai4@uwo.ca

office: BGS 2028

office hours: e-mail to schedule as needed, either in person or via Zoom

Teaching Assistant:

Kiana Lee

e-mail: klee882@uwo.ca

Course Description

This course examines water as a habitat for life and the ecology of freshwater and marine environments. In particular, we will examine the role of aquatic ecosystems in global and local biogeochemical cycles, including climate change, ocean acidification, and eutrophication. Emphasis will be placed on the protists, bacteria, viruses that make up the bulk of the biomass in aquatic environments.

Class Schedule and Mode of Delivery

Wednesdays 9:30–11:20 am

Fridays 9:30 - 10:20 am

While online: virtual, synchronous sessions - via Zoom, see links on OWL

-virtual synchronous sessions will be recorded for later viewing for up to 7 days afterwards.

If returning to in-person: classes held in SSC-3028

Course Materials

Students should check OWL (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis.

All course material will be posted to OWL: <https://owl.uwo.ca/>

There is no textbook. Readings and other resources will be posted on OWL.

If students need assistance, they can seek support on the OWL Help page.

Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

Technical Requirements

- ✓ Stable internet connection
- ✓ Computer with working microphone and/or webcam

Methods of Evaluation

Course Component	Weight	Description
Participation	10%	participation in class activities
Research Communication #1	10%	writing assignment, due Feb 18th
Midterm	25%	short and long answer, Wednesday March 3rd in class make-up - Monday March 7th, 1:30 pm
Research Communication #2	15%	writing assignment, due March 25th
Final Exam	40%	short and long answer including interpretation and communication questions about a pre-assigned research article scheduled by the registrar

Participation

Students will be assessed based on participation and engagement in class activities (in groups or individually), and submission of written answers to short, in-class assignments. There will be approximately 8 to 10 participation activities that will be graded on a scale of 0 to 3 (0 = not submitted, 1 = incomplete, 2 = complete but poor contribution or answers, 3 = complete and sufficient contribution or answers).

Research Communications

Students are to write 2 communications (~ 1000 words each) explaining research articles and defining concepts in aquatic ecology. These writing assignments will assess the communication of ideas, evaluation of evidence, and understanding of concepts in aquatic ecology. The communications will be submitted to Turnitin (see Scholastic Offences statement in Academic Policies below). Details for each Research Communication will be provided in class and via OWL. **Both research communications must be completed to pass the course.**

Midterm and Final Exam

The Midterm and Final exam will consist of short- and long-answer questions. The Final Exam will also include communicating the results of a research article assigned at the end of term.

Required Conditions to Pass the Course

- i) completion of 2 Research Communications
- ii) completion of the Final Exam

Students not meeting these conditions will receive a maximum grade of 45.

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

Accommodated Evaluations

Late Course Components

Assignments, presentations, and reports must be handed in on the appropriate due date unless a valid excuse is provided through your academic counsellor or self-reported absence (see below), and an alternate due date will be arranged with your instructor.

Missed Course Components

If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Approval can be granted either through a self-reporting of absence or via the Dean's Office/Academic Counselling unit of your Home Faculty. Please also inform your instructor (vtai4@uwo.ca).

If you are a Science student, the Academic Counselling Office of the Faculty of Science is open for virtual appointments. Their website is https://www.uwo.ca/sci/counselling/advising_services/index.html

Information about late or missed evaluations:

- Late assessments without self-reported absences (SRA) or academic consideration will be subject to a late penalty of 10% per day.
- Late assessments with self-reported absences should be submitted within 24 hours of the end of the 48-hour period.
- If you miss the mid-term (March 3rd, 9:30 am), you are eligible to write the make-up (scheduled for March 7th at 1:30 pm) only if you have self-reported your absence or have academic consideration.
- If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam).

Student Absences

Academic Consideration for Student Absences

Students who experience an extenuating circumstance (illness, injury or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

- (i) Submitting a Self-Reported Absence (SRA) form provided that the conditions for submission are met. To be eligible for a Self-Reported Absence:
 - an absence must be no more than 48 hours
 - the assessments must be worth no more than 30% of the student's final grade
 - no more than two SRAs may be submitted during the Fall/Winter term

- (ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner to the Academic Counselling office of their Faculty of Registration.
- (iii) Submitting appropriate documentation for non-medical absences to the Academic Counselling office in their Faculty of Registration.

Note that in all cases, students are required to contact their instructors within 24 hours of the end of the period covered, unless otherwise instructed in the course outline.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For the policy on Academic Consideration for Student Absences – Undergraduate Students in First Entry Programs, see:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf

and for the Student Medical Certificate (SMC), see:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at <https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a “Multiple Exam Situation” (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

Accommodation and Accessibility

Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf

Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Electronic devices will not be permitted on tests and exams.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

[Review Biology 2290 learning outcomes. You are expected to know what plagiarism is at this stage of your programme.](#)

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Remote Proctoring, in the event of a health lock-down:

Tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course

will require you to have a reliable internet connection and a device that meets the technical requirements for this service.

More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at: <https://remoteproctoring.uwo.ca>.

Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on add/drop courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at 661-2147 if you have any questions regarding accommodations.

The policy on Accommodation for Students with Disabilities can be found here: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_disabilities.pdf

The policy on Accommodation for Religious Holidays can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, <http://westernusc.ca> services.

Course Outline

This schedule may change to accommodate lecture progress or adjust course content over the term.

Week of	Topic(s)
January 12/14	Introduction, why water? Water on Earth, water physics and chemistry
January 19/21	Life in aquatic environments, nutrients in water Water usage, sustainability case study - Hudson Bay ecosystem - Participation #1
January 26/28	Living in water Primary production, phytoplankton Reynold's number - Participation #2
February 2/4	Phytoplankton blooms Bloom dynamics - Participation #3 Secondary production, zooplankton, microbial loop Plankton ID - Participation #4
February 9/11	Biological carbon pump Examine research papers for research communication - Participation #5
February 16/18	Ocean acidification Species interactions, ecosystem effects Research Communication #1 DUE February 18, 5 pm
February 19-27	Reading Week - no classes
March 2	Mid-term - "in class" Wednesday March 2 (make-up on Monday March 7)
March 4	Near shore marine ecosystems
March 9/11	Deep sea ecosystems Deep sea biodiversity - Participation #6
March 16/18	Freshwater ecosystems Eutrophication, case study - Lake Erie Searching for research - Participation #7
March 23/25	Invasive species case study - effects of invasive species - Participation #8 Fisheries Research Communication #2 DUE March 25, 5 pm
March 30/April 1	Conservation ecology How many fish in the sea? - Participation #9 Guest Speaker - Dr. Paul Mensink
April 6/8	Marine Protected Areas
April 10 - 30	April Exam Period, Final Exam scheduled by the registrar