



ERS 275

**The Future of Canada's Oceans:**

**Policy, legislative, institutional and climate change perspectives**

Course Outline, F 2021 Term

**Course Instructor:** Trevor Swerdfager, School of Environment, Resources and Sustainability, University of Waterloo; [trevor.swerdfager@uwaterloo.ca](mailto:trevor.swerdfager@uwaterloo.ca)

**Teaching Assistant: To be confirmed in September**

**In Person (!) Office Hours** in Room EV2-2011 every weekday from 13:00-17:00  
Virtual Office hours pretty much any time by email or by Teams by appointment

**Course Location and Time:** To be Confirmed by Labour Day

**Course Delivery Mode** – The course will be delivered in person on campus in a lecture format and via online delivery utilizing a set of recorded lecture material. In person and online lectures will be supported by a mix of readings and a range of resource material posted on the course Learn site.

**Course Synopsis**

**The Future of Canada's Oceans: Policy, legislative, institutional and climate change perspectives**

With the world's longest coastline and its massive territorial sea, Canada is truly an ocean nation. Our ocean estate lies at the very heart of much of our nation's history and remains central to our current and future societal and economic well-being. Yet relatively few Canadians understand our ocean spaces, their roles in our society and the threats to their sustainability. This course seeks to address this gap by first briefly describing key biological and physical oceanographic characteristics of our ocean spaces and the threats posed to them by pressures such as climate change, plastics pollution and overfishing. It then describes the domestic policy and legislative arrangements governing Canada's territorial seas as well as the United Nations Convention on the Law of the Sea (UNCLOS). The course

then describes the fishing sector in detail before moving to modules on the shipping industry, international maritime security and piracy and other key challenges to the future of our oceans. It concludes with case studies of the Southern Resident Killer Whale in BC and the North Atlantic Right Whale in Atlantic Canada as a means for unifying the various threads of the course into “real life” contexts.

### **Course Description:**

This course is situated within the Faculty of Environment’s thematic areas of climate change, resource management and sustainability and is designed to support the programs of students from across the Faculty as well as the university more broadly. It is a broad “survey” course intended to introduce students to ocean issues at a generalist level with a view to establishing a foundation for future more detailed coursework delving into particular aspects of oceans science, policy and governance.

The course follows three main themes. *Theme One* focuses on the ocean itself and is designed to familiarize students with the physical and biological nature of oceans at a general level. The goal is to set the foundation for a proper conversation around the future of our ocean estate from an informed starting point. It is not a “science course” and does not require a science background to participate in though students with science backgrounds are likely to find the course helpful in deepening their science knowledge base.

*Theme Two* focuses on the various uses we make of the oceans and the key pressures and stressors we put upon the ocean. Again, the focus is at a general level and seeks to afford students with a broad understanding of the challenges to ocean sustainability in Canada.

*Theme Three* turns to an overview of the policy and legislative instruments in place to govern and manage Canada’s territorial sea and coastal zones. The course touches on the United Nations Convention on the Law of the Sea but is focussed primarily on Canada. Particular attention will be devoted to the Oceans Act, the Fisheries Act, the National Marine Conservation Areas Act, the Canada Wildlife Act and the Canada Shipping Act and government institutions and actors related to them.

### **Learning Objectives**

Following completion of this course, students should be able to:

- Describe the key elements of the discipline of oceanography and related fields. In this context, students should be able to generally describe major physical ocean processes such as currents, waves and tides as well as primary oceanic chemistry. Similarly, they should have a basic understanding of the elements of ocean biodiversity and how they interact with and are affected by core ocean physical processes.
- Describe the major uses of the ocean with particular emphasis on fishing, hydrocarbon development and marine transportation.
- Describe the key threats to ocean sustainability notably climate change, plastics pollution and unsustainable practices in some elements of the industrial uses described above.
- Describe the policy and legislative instruments governing the protection and conservation of Canada's ocean estate. In a related vein, students should come away from the course with a good general understanding of who the key players are in ocean protection and conservation and how they interact with each other.
- Identify areas of future interest for more detailed coursework in upper year programs elsewhere in Environment or in Biology, Public Administration, Political Science etc.

### **The Course Evaluation Framework**

#### **A) Quizzes – 50%**

This element will consist of three multiple choice quizzes based on course content and readings. Each one will be about 33 questions in length and will be open for completion for 70 minutes during a three day window as follows:

1. 08:00 Tuesday October 5<sup>th</sup> until 17:00 Thursday October 9<sup>th</sup>
2. 08:00 Wednesday November 3<sup>rd</sup> until 17:00 Friday November 5<sup>th</sup>
3. 08:00 Wednesday December 1<sup>st</sup> until 17:00 Friday December 3<sup>rd</sup>

Students best to marks in the three quizzes will be averaged to form the final grade for this element in recognition that students may find some course material may be more comfortable than others or that they might just have a bad day on a particular quiz. Students must however, complete all three quizzes to complete the course.

#### **B) Mid-Term Assignment due by 23:59, November 14, 2021 – 20% of final grade**

Prepare a paper of 1500-2000 words (approximately three or four pages) that:

- Describes the organizational structure and mandates of the Department of Fisheries and Oceans and the Canadian Coast Guard
- Summarizes the Oceans Act and the Fisheries Act
- Describes their main program areas of activity
- Identifies one key oceans issue confronting DFO and/or Coast Guard and how they are working to deal with it

**C) Final term assignment due by 23:59 December 14, 2021 – 30% of Final Grade**

Prepare a paper of approximately five pages (~2,500 words) Select **ONE** of the following three assignment topics:

1. Imagine that a large multi-national oil and gas company has proposed to drill an exploratory oil well twenty kilometres off the coast of Vancouver Island. Leaving aside whether you think this is a good idea or not, in your paper describe:
  - a. the key physical oceanographic factors that would affect the project;
  - b. the key marine biodiversity of the area and the risks the project could pose;
  - c. the jurisdictional arrangements affecting the proposal and who would be responsible for accepting it or rejecting it for approval; and,
  - d. any other factors you consider to be important in considering the proposal
  
2. Imagine that a major eco-tourism cruise ship line has proposed to operate a regular cruise that begins in the Beaufort Sea near Inuvik and transits the Northwest Passage through the Arctic islands to Iqaluit and back in the summer months. Leaving aside whether you think this is a good idea or not, in your paper describe:
  - a. the key physical oceanographic factors that would affect the project;
  - b. the key marine biodiversity of the area and the risks the project could pose;
  - c. the jurisdictional arrangements affecting the proposal and who would be responsible for accepting it or rejecting it for approval; and,
  - d. any other factors you consider to be important in considering the proposal

3. Imagine that the same company that built the fixed link bridge from New Brunswick to Prince Edward Island is proposing to build a similar structure from the southeast coast of Labrador to the Northwest tip of Newfoundland. Leaving aside whether you think this is a good idea or not, in your paper describe:
  - a. the key physical oceanographic factors that would affect the project;
  - b. the key marine biodiversity of the area and the risks the project could pose;
  - c. the jurisdictional arrangements affecting the proposal and who would be responsible for accepting it or rejecting it for approval; and,
  - d. any other factors you consider to be important in considering the proposal

### **Late Policy for All Assignments**

This course is designed to give you exposure to life beyond the university. Consequently, a strict penalty of 10% (absolute, not of earned grade) per 24-hour period including weekends will be assigned to late work. All assignments are due to the relevant dropbox on Learn no later than 11:30 p.m. on the day they are due.

### **Intellectual Property:**

Students should be aware that this course contains the intellectual property of their instructor, TA, and/or the University of Waterloo. Intellectual property includes items such as:

- Lecture content, spoken and written (and any audio/video recording thereof);
- Lecture handouts, presentations, and other materials prepared for the course (e.g., PowerPoint slides);
- Questions or solution sets from various types of assessments (e.g., assignments, quizzes, tests, final exams); and
- Work protected by copyright (e.g., any work authored by the instructor or TA or used by the instructor or TA with permission of the copyright owner).

Course materials and the intellectual property contained therein, are used to enhance a student's educational experience. However, sharing this intellectual property without the intellectual property owner's permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor, TA and/or the University of Waterloo for permission before uploading and sharing the intellectual property of others online (e.g., to an online repository).

Permission from an instructor, TA or the University is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow

distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights.

Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

**Academic integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check [the Office of Academic Integrity](#) for more information.]

**Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read [Policy 70, Student Petitions and Grievances, Section 4](#). When in doubt, please be certain to contact the department's administrative assistant who will provide further assistance.

**Discipline:** A student is expected to know what constitutes academic integrity to avoid committing an academic offence, and to take responsibility for his/her actions. [Check [the Office of Academic Integrity](#) for more information.] A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate associate dean. For information on categories of offences and types of penalties, students should refer to [Policy 71, Student Discipline](#). For typical penalties, check [Guidelines for the Assessment of Penalties](#).

**Appeals:** A decision made or penalty imposed under [Policy 70, Student Petitions and Grievances](#) (other than a petition) or [Policy 71, Student Discipline](#) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to [Policy 72, Student Appeals](#).

**Note for students with disabilities:** [AccessAbility Services](#), located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

**Turnitin.com:** Text matching software (Turnitin®) may be used to screen assignments in this course. Turnitin® is used to verify that all materials and sources in assignments are documented. Students' submissions are stored on a U.S. server, therefore students must be given an alternative (e.g., scaffolded assignment or annotated bibliography), if they are concerned about their privacy and/or security. Students will be given due notice, in the first

week of the term and/or at the time assignment details are provided, about arrangements and alternatives for the use of Turnitin in this course.

It is the responsibility of the student to notify the instructor if they, in the first week of term or at the time assignment details are provided, wish to submit alternate assignment.