DALHOUSIE UNIVERSITY

Faculty of Science Course Syllabus
Department of Biology
BIOL 4880/5880 and MARI 4880/5880
Communicating science for societal impact
Winter 2022-2023

Dalhousie University is located in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq. We are all Treaty people.

We acknowledge the histories, contributions, and legacies of the African Nova Scotian people and communities who have been here for over 400 years.

Instructors: Boris Worm (Boris.Worm@dal.ca)

Teaching assistant (TA): Vanessa Schiliro (vn670925@dal.ca)

Lectures & Tutorials: **Synchronous**; one 3-hr Session per week: Wednesday Jan 11 – Wednesday Apr 5 from 11:35-14:35 (in person, LSC C212)

Office hours: After class or by appointment

Course delivery: In Person

Class Web Site: BrightSpace https://dal.brightspace.com/d2l/home/250998

Course Description
This class is aimed primarily at upper-level undergraduate and graduate students that are interested in conceptualizing and communicating scientific content in a way that amplifies its relevance to society, and its contribution to positive change. We learn about communication tools and venues to reach the mainstream media, decision makers, regulators, and the public. The emphasis will be on communicating scientific findings effectively to relevant audiences, rather than on more general outreach via social media. Real-life media projects deepen learning and help put theory into practise. Students will learn to communicate about science with a variety of audiences by engaging in hands-on activities and completing assignments aimed at developing critical skills in science communication and leadership.

Course Prerequisites for undergraduate
Students must be enrolled in a Biology, Oceanography or Marine Science (BSc) program and have completed at least 90 credit hours towards their degree. It is recommended (but not mandatory) that students have completed HSTC 2400 Science and The Media or SCI 3210 Communicating Science to Non-Scientists. This class is particularly geared towards students already engaged in research, who are interested in communicating their findings effectively and effecting science-based societal change.

Course Prerequisites for graduate students
none

Course Exclusion
none

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Learning Objectives and Outcomes

As a result of participation in this course, students will be able to

1. describe and conceptualize the basics of effective science communication that contributes to public awareness and positive societal change,
2. explain which elements are most relevant to different audiences and using varied communications outlets.
3. apply these elements as they communicate about their research projects, or other scientific topics, and
4. critically assess and improve their scientific leadership and communication skills by presenting to various audiences and engaging in public outreach.

Course Materials

All course materials (suggested readings and class slides) will be posted on BrightSpace https://dal.brightspace.com/d2l/home/250998

There is no textbook. However, it is recommended that students get a copy of "Escape from the Ivory Tower: A Guide to Making Your Science Matter" – by Nancy Baron, 2010

Course Delivery

- Lectures & Tutorials will be in-person (when possible) and will be very interactive, so attendance is required for the entire 1.5 hour sessions. In some cases we may switch to an online class on Collaborate, to accommodate guest lecturers from afar.
    - Wednesdays: 11:35-14.25
    - Attendance is required, sessions will not be recorded.
    - Lecture slides will be posted as pdfs on Brightspace after each session
    - For some Tutorials, students will need to prepare activities beforehand, which will be announced and posted ahead of time
    - Assignments and their instructions will be introduced in class and posted on Brightspace
- Contact with instructors and TA:
    - There is time after each session to ask questions in person
    - There is the discussion board on Brightspace to ask questions
    - Email us with any other questions or concerns, we can schedule individual one on one meetings if needed

Course Assessment Explanation

Students will be graded according to the weighted scheme and grading rubrics below, with 6 minor class assignments that will be due every other week throughout the term, and a major assignment that will be due in proposal form March 1 and in final form ready for publication Apr 14. At that time, a public-facing event will take place where these projects will be presented to a non-specialist audience. Students have a lot of flexibility with respect to the topics and outlets they chose for their assignments, depending on their interests and personal preferences. There will be no exams.

Component	**Weight (% of final grade)**	**Date**
6 minor class assignments (10% each)	*60*	*Bi-weekly*
Participation and contribution to discussion (tutorial)	*10*	*Continuous*
Major class assignment (term project)	*30*	*Mar 1 - Apr 14*

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Major rubrics for grading oral and written assignments:

- Clarity and Organization (30%)
  - Well-organized, easy-to-read slides/paper
  - Good structure and within time or word limit
  - Well-explained content
  - Clear take-home messages
- Speaking/Writing Style (30%)
  - Well-articulated and comprehensible
  - Clear and well-structured
  - Projecting voice to audience, engaging
  - Properly cited and formatted references
- Content (40%)
  - Well-thought-out representation of the argument
  - Demonstrated knowledge and proper citation of relevant sources
  - Intelligent discussion
  - Conclusions are clear and sound

Details on Assignments (PLEASE READ CAREFULLY)

Major Term Assignment: There is a term project for each student that aims to produce a real-life media project designed and executed by each student over the course of the term. Each student will engage in their own project worth 30% of their final mark. This will be a personal project aiming to apply lessons learned during the class to your own science communication practise. Students can work on this alone or in groups of two or three. Group projects will receive the same mark for each participating student.

Minor Assignments: There are six minor assignments (once every two weeks) in the tutorial portion of this class, worth 10% of your final grade each (60% combined). These assignments will include the completion of a 'message box' used in the mock interviews, writing a press release, writing a one-page explainer, creating an infographic, creating a learning object for kids in schools, and delivering a pitch-proposal for their final media project. We consider these assignments to be a very important component of the course as they should indicate whether you have understood the relevant concepts, whether you can evaluate and synthesize scientific content, and whether you are able to present your findings, through written and visual means

Participation grade: Ten percent of the final grade will reflect students' participation in class activities discussion and collaboration. This includes being present at classes, contributing their own thoughts and ideas to discussion and (for graduate students only) serving as collaborators and mentors for undergraduate students.

***** Please check with your Instructor if you have any questions about the assignments *****

Other course requirements

Attendance and engagement in the class will be mandatory. Lack of participation and engagement during the tutorial discussion will result in a lower participation mark, worth 10% of the final grade.

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Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

A+ (90-100)	**B+** (77-79)	**C+** (65-69)	**D** (50-54)
A (85-89)	**B** (73-76)	**C** (60-64)	**F** (<50)
A- (80-84)	**B-** (70-72)	**C-** (55-59)	

Course Policies

- This is a highly interactive class and students need to attend synchronous classes at all times and contribute to class discussions, hands-on activities, and presentation feedback. Missing more than 2 synchronous classes without a Student Declaration of Absence (SDA) form will lower the grade on in-class activities.
- All assignments have a strict deadline indicated on Brightspace and announced in class; late assignments will be docked 10% per day late; missed assignments will count 0%; with the following exceptions:
- In case of illness, please use the Student Declaration of Absence (SDA) form for late or missed academic requirements. Late penalties will not apply if SDA is submitted prior to the due date. Maximum 2 uses of the SDA per term. Students who are ill for an extended period and thus miss multiple requirements should contact Patricia Laws, Assistant Dean (Student Affairs).
- In case of technological malfunction (internet failure, power outage), please notify the instructor via email as soon as possible and provide a written explanation.
- If excused, we will provide the following alternative arrangements:
  - missed assignments: an extended deadline will be offered.
- The content of cancelled lectures or tutorials due to inclement weather or technological malfunction (internet failure, power outage) or other unforeseen circumstances will either be shifted to a later date or dropped from the course.
- In case of group projects, each student is required to contribute to the group's work, and the group will be assigned one grade.
- Plagiarism software will be used to check for the originality of written assignments.

Course Content

Week	Lecture Topic	Tutorial Topic	Assignment
1 (11 Jan)	Introduction into science communication: who do we communicate with and how and why?	Draft and discuss your science communication positionality statement	Finalize positionality statement
2 (18 Jan)	The practise of science communication: tools and skills	Work on and discuss message box	Finalize Message box and prepare for interviews in week 3
3 (25 Jan)	Talking to the mainstream media: tailoring your message to different audiences and contexts (Guest Speaker: Allison Auld)	Mock interviews and critiques	Write a Press release
4 (1 Feb)	Providing expert advise and testimony (Guest Speaker: Inka Milewski)	Mock interviews and critiques	

5 (8 Feb)	The science-policy interface: talking to government and non-governmental organisations (Guest Speakers: Margot Stiles and Andy Filmore)	Group work: create policy brief on a topic of choice, present to policy maker, group discussion to follow	Write a policy brief for NGO, provincial or federal agency
6 (15 Feb)	The backlash primer: how to respond to criticism and controversy	Team work: graduate students presenting one-pager to NGO or policy audience and responding to criticism	
7 (22 Feb)	Study Break		Write Pitch Proposal for Final Media Project (Due March 1)
8 (1 Mar)	Data visualization tools (Guest speaker: Mike Smit)	Data visualization exercise	Create a data-rich infographic
9 (8 Mar)	Framing your research question for societal impact	Research questions exercise (Group work)	
10 (15 Mar)	Engaging K-12 audiences: How to work with students and teachers (Guest lecture Heather Delagran)	Mock classroom exercise (using infographics)	Design a creative learning object for kids
11 (22 Mar)	Engaging with (anti)social media: how to navigate (Guest speaker: Paul Greenberg)	Twitter exercise (Group work)	Design a creative learning object for kids
12 (29 Mar)	Science, diversity and inclusion: Engaging marginalized communities	Group discussion: Breaking the mold of traditional science communication	
13 (5 Apr)	Synthesis and outlook: Why are we doing science and who cares?	Questions and answers regarding final media projects (Group work)	Finalize media Projects for Public presentation (Due April 14)

University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate

Academic Integrity

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

Information: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

Information: https://www.dal.ca/campus_life/academic-support/accessibility.html

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Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution.

Code: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness

Statement: http://www.dal.ca/cultureofrespect.html

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) (elders@dal.ca).

Information: https://www.dal.ca/campus_life/communities/indigenous.html

Important Dates in the Academic Year (including add/drop dates)
https://academiccalendar.dal.ca/Catalog/ViewCatalog.aspx?pageid=viewcatalog&catalogid=117&chapterid=-1&topicgroupid=31821&loaduseredits=False

University Grading Practices

https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html

Student Resources and Support

Advising

General Advising https://www.dal.ca/campus_life/academic-support/advising.html

Science Program Advisors: https://www.dal.ca/faculty/science/current-students/undergrad-students/degree-planning.html

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Black Students Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: https://www.dal.ca/campus_life/international-centre/current-students.html

Academic supports

Library: https://libraries.dal.ca/

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Studying for Success: https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Copyright Office: https://libraries.dal.ca/services/copyright-office.html

Fair Dealing Guidelines https://libraries.dal.ca/services/copyright-office/fair-dealing.html

Other supports and services

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Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness.html

Student Advocacy: https://dsu.ca/dsas

Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Safety

Biosafety: https://www.dal.ca/dept/safety/programs-services/biosafety.html

Chemical Safety: https://www.dal.ca/dept/safety/programs-services/chemical-safety.html

Radiation Safety: https://www.dal.ca/dept/safety/programs-services/radiation-safety.html

Scent-Free Program: https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html

Dalhousie COVID-19 information and updates: https://www.dal.ca/covid-19-information-and-updates.html