

Science Communication for social change Syllabus

Department of Biology

BIOL 4811 Fall 2024

Dalhousie University acknowledges that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People and pays respect to the Indigenous knowledges held by the Mi'kmaq People, and to the wisdom of their Elders past and present. The Mi'kmaq People signed Peace and Friendship Treaties with the Crown, and section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights. We are all Treaty people.

Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.

Course Instructor(s)

Name	Email	Office Hours
Letícia Magpali (she/they) (instructor)	leticiamagpali@dal.ca	Wed, 12 - 1 pm
Joseph Bielawski	TBD	-

Message from the instructor

Hi everyone! My name is Letícia (she/they), I am a PhD candidate with the Biology Department and your main instructor for BIOL 4811. I am passionate about knowledge and diversity, which is why I decided to do biology! As an instructor, I understand that people learn in many different ways and I will do my best to create a respectful, inclusive and supporting environment in our course. Learning is about exchange, dialogue, and fun! True learning will only happen in a place where you feel accepted as who you are, and where you can develop a meaningful connection with knowledge. In BIOL 4811, you are welcome to share your thoughts and opinions and ask for help/support. We also value and encourage your feedback at any time! We are instructors, but before anything we will always be students.

Course Description

This course will focus on basic concepts and practical skills to get started on science communication, and dive into how science communication can be leveraged to generate social change in the face of historical inequality. Students will hear from diverse voices in the field, discuss science under a socio-historical context, and strengthen science communication skills by developing their own projects, obtaining a deeper understanding of what it means to communicate science to everyone.

Learning Objectives

- Understand the definitions and aims of science communication
- Acknowledge the diverse ways of communicating science (e.g., in-person, online, via social media or events)
- Build an individual perception of science communication, articulating your personal values, background and self-reflection with your understanding of the current scientific literature
- Explain the meanings of decolonization, social justice, equity, diversity and inclusion in the context of science and science communication
- Obtain a practical understanding of the necessary steps to successfully plan, organize and develop a science communication project/event\
- Practice the use of software for producing social media content (text writing, video/audio/image editing)

Student Resources

Office hours: weekly on Wednesdays, from 12 - 1 pm. Students can join online on Brightspace, via Collaborate Ultra, or in-person at the Life Sciences Centre, room 7050.

Special appointments: if you need to schedule a meeting outside of the office hours, please email leticiamagpali@dal.ca

Course Structure

Course Delivery

The course will be delivered fully in person, but some guests will present their lectures online and they will be transmitted live in the classroom. Online lectures will be recorded whenever possible, given the lecturer's permission.

Lectures

Classes will be held weekly on **Thursdays at the [McCain Building](#), room 2022 from 12:35 am - 2:25 pm** with 40 min of lecture, and the remaining time will be dedicated to Q&A and discussions.

Course Materials

Recommended bibliography

- Bucchi, M., & Trench, B. (Eds.). (2021). *Routledge handbook of public communication of science and technology*. Routledge.
- Kappel, K., & Holmen, S. J. (2019). Why science communication, and does it work? A taxonomy of science communication aims and a survey of the empirical evidence. *Frontiers in Communication*, 4, 55.
- Borowiec, B. G. (2023). Ten simple rules for scientists engaging in science communication. *PLOS Computational Biology*, 19(7), e1011251.
- Canfield, K. N., Menezes, S., Matsuda, S. B., Moore, A., Mosley Austin, A. N., Dewsbury, B. M., ... & Taylor, C. (2020). Science communication demands a critical approach that centers inclusion, equity, and intersectionality. *Frontiers in Communication*, 5, 2.
- Dawson, E., Hughes, S., Lock, S., & Wahome, M. (2022). Exploring the politics of science communication research: looking at science communication from a social justice perspective. *Journal of Science Communication*.
- Iyengar, S., & Massey, D. S. (2019). Scientific communication in a post-truth society. *Proceedings of the National Academy of Sciences*, 116(16), 7656-7661.

Supplementary readings

(feel free to explore and read the ones you are interested about)

- Fraaije, A., van der Meij, M. G., Kupper, F., & Broerse, J. E. (2022). Art for public engagement on emerging and controversial technologies: A literature review. *Public Understanding of Science*, 31(6), 694-710.
- König, L., & Jucks, R. (2019). Hot topics in science communication: Aggressive language decreases trustworthiness and credibility in scientific debates. *Public understanding of science*, 28(4), 401-416.

- Massey, M. D. B., Arif, S., Embuldeniya, S., Nanglu, K., & Bielawski, J. (2022). Ten simple rules for succeeding as an underrepresented STEM undergraduate. *PLOS Computational Biology*, 18(6), e1010101.
- Nava, T. S., Francisca, R. L., Oplaat, K. T., & Bervoets, T. (2023). Decolonising Science Communication in the Caribbean: Challenges and Transformations in Community-Based Engagement with Research on the ABCSSS Islands. In *Race and Sociocultural Inclusion in Science Communication*. Bristol University Press.
- Riggs, E. E., Shulman, H. C., & Lopez, R. (2022). Using infographics to reduce the negative effects of jargon on intentions to vaccinate against COVID-19. *Public Understanding of Science*, 31(6), 751-765.
- Tuck E and Yang K W (2012) Decolonization is not a metaphor. *Decolonization: Indigeneity, Education & Society* 1(1): 1–40
- Subramaniam, B. (2013). Snow Brown and the Seven Detergents: a metanarrative on science and the scientific method. In *Women, Science, and Technology* (pp. 15-20). Routledge.
- Dickinson, K. (2022, September 28). Women face 5 biases in STEM. Here's how to bridge the gap. *Big Think*, The learning curve.
<https://bigthink.com/the-learning-curve/biases-in-stem/>

OBS: Access to all bibliography materials will be provided on Brightspace.

Recommended materials

Please bring along, if possible, a **laptop or tablet** to access online web pages and use writing/editing softwares in class.

Course Content

The table below is a tentative schedule of the course's lectures.

Week	Date	Lesson Topic(s)	Lecturer	Assignment
1	Sep 5	Introduction to science communication	Letícia	
2	Sep 12	Foundations of science communication	Letícia	1a
6	Sep 19	Planning a Sci Comm project	Lucija Prelovec	1b
3	Sep 26	Language and visual identity	Carolina Frandsen (@clorofreela)	1c
4	Oct 3	Science Communication on social media	TBD	1d
5	Oct 10	Values and the social dimensions of Science Communication	Joe Bielawski	1e
7	Oct 17	Science communication on astronomy	Aline Novais (@astro.aline)	2
8	Oct 24	Science communication on climate change	Karina Lima (@karilimax)	3
9	Oct 31	Storytelling through photography	Esteban Salazar	
10	Nov 7	Making change in your own community	TBD	4
11	Nov 21	Student presentations day #1		
12	Nov 28	Student presentations day #2		

Assessment

Assignments

Detailed instructions for all the assignments can be found [here](#).

(Assignments will be discussed with the students during the first week of classes and may be changed according to their suggestions)

1. *End of class short assignments (10%)*
2. *Analyze a published piece of science communication (10%)*
3. *Written Science Communication Proposal (25%)*
4. *Launched Science Communication Project (30%)*
5. *Final presentation (25%)*

Other course requirements

Participation and attendance will be evaluated and can count towards a bonus on the final grade.

Conversion of numerical grades to final letter grades follows the [Dalhousie Grade Scale](#):

A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (0-49)
A- (80-84)	B- (70-72)	C- (55-59)	

Course Policies on Missed or Late Academic Requirements

Late assignments will still be accepted, but will have a penalty of **10% per week day**, unless an excused extension is given by the instructor. If you miss or anticipate missing an assignment due to unexpected events (such as illness) and would like to obtain an extension, please write to the course instructor at leticiamagpali@dal.ca with an explanation and your case will be reviewed.

Course Policies related to Academic Integrity

Plagiarism: Any forms of plagiarism are not accepted, according to Dalhousie's [Academic Integrity](#) Policy. Your work will be submitted into Urkund when you submit your assignments. Please see [Student Submission of Assignments & Use of Originality Checking Software Policy](#).

Generative AI and large language models (ChatGPT): using AI to help write your assignment is allowed, however, if you decide to do so, you must detail how and when AI was used in your assignment and this will be taken into consideration in the evaluation.

University Policies and Statements

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 at 1321 Edward St or elders@dal.ca. Additional information regarding the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.html

Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: <https://www.dal.ca/about-dal/internationalization.html>

Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all 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. Additional academic integrity information can be found at: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that

result in barriers to your inclusion, please contact the Student Accessibility Centre (https://www.dal.ca/campus_life/academic-support/accessibility.html) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (<https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html>)

Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

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 (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: <http://www.dal.ca/cultureofrespect.html>

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. The full Code of Student Conduct can be found at: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Fair Dealing Policy

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at:

https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html

Originality Checking Software

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at:

https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html

Student Use of Course Materials

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.