

McGill University is located on land that has long served as a site of meeting and exchange amongst Indigenous peoples, including the Haudenosaunee and Anishinabeg nations. McGill honours, recognizes, and respects these nations as the traditional stewards of the lands and waters on which we meet today. In our course, let's discuss how our projects and individual practices can work toward the Truth and Reconciliation Commission's calls to action <https://www.mcgill.ca/indigenous/>.

FSCI 500

Science Communication and Outreach

Winter 2024

Course Start and End Dates: Wednesday, January 10th to Wednesday, April 10th

Class Times: 2:35 pm-5:25 pm

Location: Education 627

Instructor: Dr. Diane Dechief (pronounced deCHEF)

Pronouns: she/her

Individual meetings: by appointment

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Course Description and Objectives: Welcome to FSCI 500! We are excited to learn with you this term. In this course, we will examine, critique, and imagine opportunities and mechanisms for the public to engage with the processes and outcomes of scientific research. Guided by theory and research in science communication, science education, and science outreach studies, we will question and potentially unsettle our current perspectives of science by thinking critically about representations of science as objective, acultural, and value-free. We'll focus especially on how outreach and science communication (or science engagement) can raise important questions and, through practice and critique, make science more accountable and inclusive. Together, we will consider who has been historically overlooked in efforts to engage the public in scientific knowledge, and we will work to address this by exploring possibilities for inclusive practices in science communication and outreach.

FSCI 500 is structured as a series of weekly opportunities to learn about the theory and practice of science communication and outreach. Several guests will share their perspectives and experiences to help us consider the ways that of science communication and outreach can either reproduce or disrupt traditional representations and forms of engagement in science. We will reflect on our individual values in relation to science and inclusion vis-a-vis our own participation in these practices.

Our course goal is that by the end of the term, you will be able to:

- Think and communicate critically about research practices and outcomes, and how we engage and ask others to engage, with science and research more broadly
- Engage with theories and research in the fields of science communication, science education, outreach studies, communication studies
- Plan for potential science engagement participants' or audiences' needs

- Recognize biases in science practices and ways in which science communication and outreach can be exclusionary
- Create science learning experiences that are inclusive and accessible
- Communicate deliberately and compellingly about scientific research and practices
- Plan and promote science communication or outreach activities for particular or diverse audiences

Major assignments include planning and promoting an outreach event or science communication project and an audio or visual “explainer”.

Course materials: Weekly readings, podcasts, or videos will be posted on myCourses. These materials are varied and will serve as theory, instruction, and examples.

| Assignments | Due date | Value | Length |
|---|---------------------|-------|--|
| Engagement | In-class activities | 20% | -- |
| Inclusive summary | Feb. 2 | 10% | 250 words + planning form |
| Science explainer | Feb. 16 | 20% | 1-2 page infographic or 2-3 minute audio recording |
| Interview or critique: (individual or pair) | Mar. 15 | 15% | 500-750 words |
| Team project: proposal | Feb. ~23 | 5% | 300-400 words |
| Team project: pitch presentation including project evaluation | April 3 or 10 | 15% | 2-/+ minutes per person |
| Team project: promotion sample + plan | April 10 | 15% | 1-5 images appropriate to plan plus explanatory text |

(Note: One double-spaced page, excluding images, is roughly equivalent to 250 words.)

Engagement activities 20%

This component of your mark is based on submitting one weekly activity (these can generally be completed during class and will total 15%) and engaging with one reading on Perusall (commenting on the readings is worth 5% total). The readings will be provided in advance, and we'll discuss them in groups during class. The activities will be based on lecture topics or assignments and will be either an output from a group activity (e.g., a summary or feedback) or a small individual activity to help you reflect, prepare, or scaffold your learning. Guidelines for both of these will be provided in class and shared on myCourses. Both of these assessments are low stakes and formative so will be marked for completion.

Inclusive summary (250 words + complete form) 10%

Why? Brief summaries of academic research articles written for non-specialist audiences are increasingly mandated by academic journals. In FSCI 500, we have an opportunity to practice crafting and critiquing these short but important texts.

How? Following a presentation by the science librarian(s) working on FSCI 500, you'll have an opportunity to select a journal article and to summarize it for a non-specialist audience. Consider the writing choices that you'll need to make to share the most significant findings of the paper in an inclusive manner.

Explainer visual (1-2 pages) or audio recording (2-3 minutes) 20%

Why? Practice communicating with an audience that you have selected about a research or scientific topic that matters to you and of which you are knowledgeable.

How? Consider what kinds of information your selected audience will be most interested in (e.g., findings of research, methods, context, significance for the future) and craft this information in a way that your audience will find compelling. Consider order of information, level of detail, word choice (e.g., avoiding jargon), and visual, audio, and story elements.

Interview/Critique (500-750 words) 15%

Why? This assignment is intended as preparation for your team project. Here, you are asked to either interview someone who is involved in leading a project like the one that you are proposing or to critique an existing outreach or science communication project by engaging the frameworks and strategies that you've been learning about. The interview or critique can be completed individually or in pairs. The goal is to return to your group with new insights or information about an existing science engagement project so that you can better plan yours.

How? Select a science engagement project that relates to one that you would like to work on and either interview someone involved in it or learn about or experience it and then critique it. Share your insights with your team to help plan your group project.

Science communication or outreach proposal, promotion, and plan (Team Project) Total 35%

Why? In groups of 3 to 4, you will practice planning, promoting, and evaluating a science engagement project of your choosing.

How? With attention to your audience or participants, propose an outreach or science communication activity including ideas about promotional materials and a plan to evaluate the project. We will provide feedback on an initial proposal. You will then plan the assignment including information about who your audience is, what you hope they will gain, the motivation, purpose and focus of a project, as well as how it will be evaluated. Considerations for equity, diversity and inclusion (EDI), should be included. The main outputs of the project are the strategies you will use to reach the people you would like to engage with including draft promotional materials, as well as a presentation or pitch for your plan.

Requirements, Policies, and Procedures:

- **Completing engagement activities is a must for success in this course—these are low-stakes activities that are marked for completion. You will have one week to complete each activity, but most can be finalized during class time. Details can be found in the Engagement folder on myCourses.**
- **Assignment Submission:** All assignments must be submitted, on their due date, to the correct folder on myCourses. Accordingly, assignments submitted via e-mail or in any other medium will not be accepted unless we have given prior written permission.
- **Format:** Unless otherwise stated, all assignments should be submitted double-spaced, in Times New Roman 12-point font, left-aligned, with page numbers in the bottom right corner of every page. When a citation format is required, please use APA 7.
- **Consequences of Late Submission:** If you know that it will be difficult to meet one of the deadlines that is set out in the syllabus, please write to your instructor and TAs in advance. Exceptions that have already been determined to be acceptable include documented medical, family, and personal emergencies and observance of holy days. Late work (i.e., when there has been no advance communication and work is not submitted by the deadline) will be penalized by 2% per day, including weekends.
- **Holy days** (besides official holidays in Quebec): Students planning to observe holy days should notify the instructor by email **at the beginning of the course**. Holy days that are already acknowledged at McGill are listed here: <https://www.mcgill.ca/importantdates/holy-days-0>.
- **This course is administered via myCourses.** Students are advised *to check myCourses on weekdays*. Failure to do so may result in your missing important information. **Neither absence from class nor failure to check myCourses is an acceptable excuse for being unaware of important course-related information.**

- Please be sure to submit only your own original work in our course. None of the assignments can be generated by AI tools unless that is the focus of one of your projects and you are sharing examples. Please refer to the Academic Integrity details at the end of this document for the University’s guidelines.
- **Recording class activities:** Students may not record any class proceedings or collect any electronic data (including photos and videos) from class activities without the express consent of the instructor.
- **Instructor generated course materials** (e.g., handouts, notes, summaries, test questions, recorded lectures, etc.) are **protected by law** and may not be copied or distributed in any form or in any medium without the explicit permission of the instructor. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.

Course Schedule—updates will be posted on MyCourses and shared in announcements

| | Date | In-Class Content | Due/to do |
|----|--|---|---|
| 1 | January 10 | What are the goals and challenges of science communication and outreach? -Introductions of people and course topics -River of Experience activity | |
| 2 | January 17 | Sharing specialized science -Accessing sources Guests: Science librarian April Colosimo -Inclusive summaries guidelines | |
| 3 | January 24 | Science engagement research and evaluation -Inclusive summaries peer feedback | |
| 4 | January 31 | Making science compelling -Visual and audio explainer assignments introduced | Due: Inclusive summary (Feb 2) |
| 5 | February 7 | What is inquiry? How to plan inquiry-focussed outreach Guest: Rebeca Esquivel -Feedback: discuss explainer assignments in small groups | |
| 6 | February 14 | What is the “nature” of science and the value of talking about science? Guest: Dr. Allison Gonsalves -Plan teams for project | Due: Explainer (Feb 16) |
| 7 | February 21 | -Begin project planning -mid-term course check-in | |
| 8 | February 28 | Project planning | Due: Project proposal (~Feb 23) |
| | March 4-8 | READING WEEK | TAKE A BREAK |
| 9 | March 13 | Indigenous-led science collaboration and engagement | Due: Interview/critique (Mar 15) |
| 10 | March 20 | Art and science engagement | |
| 11 | March 27 (Easter holiday March 29-April 1) | Class-selected topic | |
| 12 | April 3 | Receive feedback on plan and promotion | Due: Presentation and promotion |
| 13 | April 10 | Presentations of work | Due: Presentation and promotion |

General reference: Carpenter, S. (2020). *The Craft of Science Writing: Selections from The Open Notebook*. The Open Notebook.

Grading System

| Letter Grade | Numerical Range |
|--------------|-----------------|
| A | 85-100 |
| A- | 80-84 |
| B+ | 75-79 |
| B | 70-74 |
| B- | 65-69 |
| C+ | 60-64 |
| C | 55-59 |
| D | 50-54 |

McGill Scientific Writing Initiative (MSWI)

Are you interested in science communication and want to get involved in the McGill community? The McGill Scientific Writing Initiative (MSWI) is student-led and includes passionate students from all fields and programs at McGill. We work to provide resources and workshops for students to help navigate McGill student life as well as the intricacies of scientific communication and outreach. We welcome you to join us and get involved by attending our workshops, visiting our website (<https://www.mcgill-mswi.com>), signing up for our annual SciComm Case Competition (<https://www.mcgill-mswi.com/scicomm>), or by joining our supportive team to help other students continue to hone their communication skills. Contact us by sending an email to mcgill.swi@gmail.com to see how you can get involved!

University Policies, Procedures, and Resources

1. McGill Resources for Academic Success

(a) Inclusive Learning Environment

McGill is committed to providing an inclusive and supportive learning environment. If you experience barriers to learning in this course, do not hesitate to discuss them with your instructor. If you have a special learning need or disability, you are encouraged to contact the Office for Students with Disabilities: <https://www.mcgill.ca/osd/>.

(b) Health and Wellness

Student wellbeing is a priority for the University. To help students find the support they need as quickly as possible, all of McGill's health and wellness resources have been integrated into a single [Student Wellness Hub](#), a one-stop shop for everything related to physical and mental health. If you need access to services or would like more information, you are strongly encouraged to visit the Virtual Hub: <https://www.mcgill.ca/wellness-hub/>.

(c) McGill Writing Centre Tutorial Service

Writing well is key to both academic and professional success. The McGill Writing Centre (MWC) offers credit courses in academic and professional writing, and a tutorial service open to all McGill students: <https://www.mcgill.ca/mwc/tutorial-service>. The tutorial service offers one-to-one sessions with seasoned instructors and experienced tutors who will work with you at any stage of the writing process.

(d) McGill Library

Discover the McGill Library's rich array of resources. Watch a short welcome video in English, French, Arabic, Chinese, Hindi, Persian, Spanish, or Urdu: <https://www.mcgill.ca/library/orientation>.

2. Academic Conduct

(a) Academic Integrity

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism, and other academic offences under the *Code of Student Conduct and Disciplinary Procedures*: <https://www.mcgill.ca/students/srr/honest>.

L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le *Code de conduite de l'étudiant et des procédures disciplinaires* : <https://www.mcgill.ca/students/srr/honest>).

Students are responsible for knowing McGill's rules and regulations concerning academic honesty, which can be found on the Students Rights and Responsibilities website: <https://www.mcgill.ca/students/srr/>. Violations of academic integrity undermine not only the value of honest students' work, but also the academic integrity of the University and the value of a McGill credential. The Student Rights and Responsibilities website provides resources that can help students avoid dishonest work, and an explanation of the disciplinary measures that go with it.

As of Fall 2019, all newly admitted students must complete the Academic Integrity Tutorial (AIT) in Minerva during their first semester at McGill. Failure to complete the tutorial will place a hold in Minerva and restrict the student from registering for courses in the following semester. The Tutorial can be accessed as follows: Minerva → Student Menu → Academic Integrity Tutorial.

(b) Assessment

The University Student Assessment Policy exists to ensure fair and equitable academic assessment for all students and to protect students from excessive workloads:

https://www.mcgill.ca/secretariat/files/secretariat/2016-04_student_assessment_policy.pdf

(c) Language of submission

In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French written work that is to be graded. This does not apply to courses in which acquiring proficiency in a language is one of the objectives.

Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté, sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue.

(d) Inclusive and Professional Communication

If you would like to share information about your preferred pronouns or if you would like to be referred to by a different name than the name indicated in your student records, please let your TA and/or an instructor know by email or in a conversation after class or a workshop. We are also happy to meet with you privately.

This course is designed to help you learn to communicate effectively both during your time at McGill and in your future workplaces. In keeping with McGill's policies on student rights and responsibilities, it is expected that during class discussions and small group interactions you will communicate constructively and respectfully. Sexist, racist, homophobic, ageist, and ableist expressions will not be tolerated in the classroom or during group meetings held outside of class.

(e) Course Evaluations

End-of-course evaluations are one of the ways that we work towards maintaining and improving the quality of courses and the student's learning experience. You will be notified by e-mail when the evaluations are available. A minimum number of responses must be received for results to be available to future students so please fill out course evaluations at the end of term. We will remind you. ☺

3. Basic needs

If you have difficulty affording food or if you lack a safe and stable place to live and believe that these circumstances may affect your performance in this course, we encourage you to contact the Dean of Students, who can connect you with support services. If you feel comfortable doing so, please let one of us know as well so we can discuss how we can best support your learning.

4. Policy Against Sexual Harassment and Violence

McGill University is committed to creating and sustaining a safe environment through proactive, visible, accessible, and effective approaches that seek to prevent and respond to sexual harassment and sexual violence. *McGill's Policy against Sexual Violence* underlines this commitment and ensures that procedures are in place to address complaints. To learn more, visit the Office for Sexual Violence Response, Support, and Education website: <https://www.mcgill.ca/osvrse/>.

Sexual Violence Training: "It Takes All of Us"

In accordance with a new law, Bill 151, Policy to Prevent and Fight Sexual Violence in Higher Education Institutions, McGill has implemented training measures for all community members. The online training is mandatory for everyone at McGill—all students, faculty, and administrative and support staff.

As of fall 2019, all newly admitted students must complete the sexual violence training course, called "It Takes All of Us," in *myCourses* during their first semester at McGill. Failure to complete the training will place a hold in Minerva and restrict the student from registering for courses in the following semester. The training can be accessed through *myCourses* and will appear as a separate course in your profile.

5. Policy on Harassment and Discrimination

McGill University is committed to promoting an equitable environment where the fundamental dignity of all of its members is respected. The objectives of McGill's *Policy on Harassment and Discrimination Prohibited by Law* are to promote education and awareness about equity issues and to ensure that procedures are in place to address complaints: <https://www.mcgill.ca/how-to-report/>.

6. Inclusivity and safe spaces

As the instructors of this course, we endeavor to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with us and Student Accessibility and Achievement: <https://www.mcgill.ca/access-achieve/> or 514-398-6009.

We are committed to nurturing a space where students, teaching assistants, lecturers, and professors can all engage in the exchange of ideas and dialogue, without fear of being made to feel unwelcome or unsafe on account of biological sex, sexual orientation, gender identity or expression, race/ethnicity, religion, linguistic and cultural background, age, physical or mental ability, or any other aspect integral to one's personhood. We therefore recognize our responsibility, both individual and collective, to strive to establish and maintain an environment wherein all interactions are based on empathy and mutual respect for the person, acknowledging differences of perspectives, free from judgment, censure, and/or stigma.

7. Guidelines for the Academic Accommodation of Pregnant Students and Students Caring for Dependents

McGill acknowledges the challenges facing pregnant students and students caring for a dependent. McGill supports students in their desire to further their education while meeting their family obligations. A student who is faced with a conflict between a responsibility in respect of pregnancy, or of care-giving responsibilities toward a dependent, and an academic obligation, may ask the University for academic accommodation in accordance with the guidelines found here: <http://www.mcgill.ca/students/records/pregnant-students-and-dependants>.