

**UTSC Department of Physical and Environmental Sciences**  
**PSCD-11H3 Communicating Science: Film, Media,  
Journalism, and Society**

**2023 Outline**

Course Instructor: Roberto Verdecchia  
Office: EV340  
Office hours: Thurs 4:30-6:30pm  
Email: roberto.verdecchia@utoronto.ca

Teaching Assistant: Franklin Perez  
Email: f.perez@mail.utoronto.ca

Lecture time: Thursday 7pm to 10pm  
Location: SW311 (in-person)

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**Overview**

The realities behind the making of science documentaries and science journalism.

**Course Description**

When it comes to science, the medias play a key role in the global transfer of information. Potentially they are a vital bridge, mediating the gap between scientists and non-scientists, and enhancing the understanding of pressing environmental, social, and ethical questions. But the perennial problems of communication between specialists and the rest of us are complicated in our times by a highly polarized climate of scepticism towards institutions, perceived elites, and “fake news”.

How can an understanding of complex issues in science be successfully communicated to a wider audience? How can we recognize “bad science” even when it is being communicated brilliantly? How can we help others to do the same?

These are just a few of the related challenges, all of which have important implications for the well being of our society. Finding answers to these questions is both more vital and more difficult than ever.

This course will use traditional (print, radio, film, TV) and new media (including blogs, Instagram and Twitter) to explore the role of science and scientists in society, and the role of the medias in conveying issues. Students will have opportunities to engage with filmmakers, TV and radio producers, journalists, bloggers, and academics in order to understand their approaches, choices, and the real-world forces and constraints within which they work.

### **Instructor**

Lecturer Roberto Verdecchia is an award-winning director and writer of television documentaries. He has been an independent producer for many years and has a long-running history with CBC's *The Nature of Things*, having started his career there nearly 30 years ago. He will be joined by occasional guests involved in the making of the works being explored.

### **Objectives**

In this course, students will explore practical and theoretical issues around the role the various medias play in communicating developments in the sciences, and their implications in our daily lives. Our interest is learning how to communicate science more effectively, but also how to recognize "bad science," no matter how enticing the packaging.

My specific objective in this course is to provide you with a look "backstage" at the challenges and choices involved in the production of science journalism for a general audience. This simple objective raises many questions, not least among them: what are the influences at play in the making of a science, nature, or environmental documentary? What about a blog or radio broadcast? How are complex situations distilled into narratives for a visual medium like film, short articles for your mobile, or memes for Instagram? What is lost or gained in the quest to both tell the truth and tell a good story? How are decisions made in the contest between accuracy and simplifying? Given limited broadcast hours and the demand for ratings, how do broadcasters decide what subjects get covered?

Each session of *Communicating Science* will focus on a particular theme (nature, medicine, mathematics, etc.) or particular medium. During that class, we will investigate a specific documentary film, program, website, etc. in order to illustrate and explore the topic. In each session, the question asked will be how scientific information has been 'pictured' for that media. Specific excerpts or programs will be screened during class to illustrate issues and demonstrate editorial decisions.

## Learning Outcomes

Upon completion of this course, you will be better able to:

- understand the relationships between scientific and mass media communications
- explain and better analyse the role of media in communicating science
- understand the differences in how science is communicated through various media, i.e., documentary films, news, peer reviewed publications, popular science magazines, science blogs, etc.
- develop and articulate a scientific idea in documentary form
- develop a critical appreciation of the role of media (particularly documentaries) in science communication

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## MARKING SCHEME

In addition to class participation (which includes in-class discussion of our chosen film/media for that week as well as assigned postings to our Discussion board), students will be asked to complete two written assignments, give a short group presentation, and write a final exam.

### **Assignment 1** (Due February 16 at the start of class) – 25%

An analysis and critique of a science documentary focusing on:

- the variety of ways that science is presented in the film
- the elements of the storytelling that affect, enhance and hinder the strength of the science communicated
- the influence of the film's style, characters, and scenes as they impact the effectiveness of the science.

Your paper should be 6-8 pages (1500-2000 words), double-spaced, excluding title page, reference list, etc. and submitted through Quercus (and its plagiarism detection tool)

### **Assignment 2** (Due March 16 at the start of class) – 25%

Students will be asked to produce a thoughtful and credible proposal for their own science film on a subject of their choosing.

-You will be asked to write up a formal treatment of 6-8 pages (1500-2000 words, double-spaced, excluding title page, reference list, etc.) for a film that you could theoretically propose to a broadcaster.

-This must include clear explanations of subject matter, theme, thesis, explication of how the story will unfold (i.e. key scenes and how they interconnect), scientific groundwork for the story, methods of illustrating the story, elements of film-making employed, scientific experts involved, scenes, characters, locations, graphics, and other didactic elements, with an eye to addressing the demand for both entertainment and engagement value, and scientific integrity.

-The purpose of the "pitch" is to sell a project. That takes a good telling of a good story, it takes creativity and an eye for what your buyer (the broadcaster) needs for a

compelling, entertaining and understandable presentation of the science, in a form suitable for their audience.

- This assignment is submitted through Quercus (and its plagiarism detection tool)

**Assignment 3 - In-Class Group Presentation (Mar 30 and Apr 6) – 10%**

- students will work in groups of three and be asked to explain a scientific theme or issue at three different levels of complexity: for a 7-8 year old, for a high school student, and then for a university peer.
- the *entire* group presentation should take about 5 minutes
- the group will receive a mark for the presentation as a whole, based on the clarity and creativity expressed for each appropriate level, including the use of analogies and other devices as discussed throughout the course
- presentations will take place over the course of two weeks

<b>Grade Distribution Summary (percentage of total)</b>	
Assignments (2 @ 25% each)	50
In-class presentation	10
Participation (includes discussion, posting, attendance)	20
Final Exam	20
Total Grade Possible	100

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## **LECTURE SCHEDULE**

Subject to change, especially depending on guest availability.

**Week 1: Thursday January 12, 2023**

Topic: Communicating Science

Objectives: understanding the course and its basic goal: the real-world factors that shape how science is communicated to a wider audience.

Screening: *Bees*, *LHC*, *Feynman* and others.

**Week 2: January 19, 2023**

Topic: Learning to Look at Science Films

Objective: Understanding the elements that go into visually translating and communicating scientific ideas.

Screening: *The Code*

**Week 3: January 26, 2023**

\* *Introduction of Assignment 1*

Topic: The Nature film.

Objective: How to analyse a documentary (tropes).

Screening: *Kingdom of the Polar Bears (Part 1)* & *The Great Wild Indoors*

**Week 4: Feb 2, 2023**

Topic: Accuracy and Entertainment.

Objectives: Learning to analyse (cont.)

Screening: *Carbon: An Unauthorized Biography*

**Week 5: February 9, 2023**

Topic: Timing (and Access) is Everything

Objectives: Understanding some of the real-world pressures on science communication.

Screening: *Inside the Great Vaccine Race*

Special Guest: director Liam O'Rinn (tbc)

**Week 6: February 16, 2023**

**\*Assignment 1 due at the start of class**

Topic: Bad Science / Scientists vs the Media

Objectives: Examining problems in the science-media relationship, and within the institutions of science

**> Reading Week: February 23, 2023 <****Week 7: Mar 2, 2023**

Topic: Science as News

Objectives: To explore the particular demands of reporting on scientific discoveries, especially in print/web form.

Guest: science journalist (tbd)

Screening: *Wired* videos: Explaining \_X\_ in Different Ways

**Week 8: March 9, 2023**

Topic: Science Writing

Objectives: How to craft a good story in written form. Analysing science news

**Week 9: March 16, 2023**

**\*Assignment 2 due at the start of class**

Topic: In Your Ear – Radio and Podcasts

Objectives: Appreciating the advantages and challenges of science communication in audio form

Guest: tbd

**Week 10: March 23, 2023**

Topic: Science? Like!

Objective: Investigating the impact of social media on how science is communicated and absorbed.

Guest: ROM Social Media coordinator (tbc)

**Week 11: Mar 30, 2023**

**\* In-class presentations of Assignment 3, part 1/2**

First instalment of [the in-class presentations for Assignment 3](#).

**Week 12: April 6, 2023**

**\* In-class presentations of Assignment 3, part 2/2**

Topic: Documentary as Activism – the environmental film

Objectives: Analysing the persuasive approach: films that want to change the world

Screening: Ice on Fire (excerpts)

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## Assignments

Your first paper should be between 1500 to 2000 words (6-8 pages), double-spaced, excluding title page, reference list, and any figures or tables you wish to include. Your second paper should be between 1500 to 2000 words (6-8 pages), double-spaced excluding title page, reference list and any figures, photos, illustrations, etc. that you wish to include.

Use the APA reference format. The use of section headings is strongly suggested.

### Grading:

Evaluation of Assignment 1 takes into account quality of the writing, organization and structure, as well as research and content. You will be graded on the quality of your work and your ability to meet the desired learning targets. The marking scheme will consider:

- the critique of the science communicated (i.e., how well does the student analyse the media and its message, what was well or poorly communicated and how) (60%)
- originality of observation (20%)
- grammar and style (20%)

Evaluation of Assignment 2 takes into account the quality of the writing, organization and structure, as well as research and content. You will be graded on the quality of your work and your ability to meet the desired learning targets. The marking scheme will consider whether within the 6-8 pages you:

- Clearly explain the topic, and the reason it will be of interest to the public. Have you made clear why it will be compelling viewing, as well its importance to the viewer? (20%)
- Most importantly, have you given an explanation suitable for the targeted recipient of your pitch, i.e. the broadcaster? (20%)
- Does the pitch cover: your program idea, and its suitability for the broadcaster's needs and format. Does it explain it in a clear and concise fashion your story idea and how it unfolds in those four acts? How you will simplify the science while still managing to present it with integrity and accuracy? How will the science be

- visualized? The locations where it will be filmed. Who are your experts? Any special photography or equipment (e.g. for underwater scenes, microphotography, super-high speed, etc. (40%)
- Grammar and style. (20%)

Your assignments must have the title of your assignment, your name, course number, the date and your student number.

Evaluation of the In-class Group Assignment takes into account the quality of the verbal presentation, its timing, organization and structure, as well as the research and level-specific content. You will be graded individually and as a group on the quality of your work and your ability to meet the desired learning targets.

**Due Dates:** It is your responsibility to consult the Lecture Schedule for all the Assignment due dates. The instructor will not assume the responsibility of reminding you that an assignment is due or that the exam is being given.

**Grade Posting:** All grades will be posted on Quercus. You have 7 days after a grade has been posted to dispute an entry. Your grade may be revised up or down based on the review. After the 7-day period, the grade stands as entered.

**Late assignments:** The late penalty is 5% a day; more than 8 days – 100%. Please make sure to submit your assignments by the due time to avoid a late penalty.

**Handing in Assignments:** You are responsible for submitting your work through Quercus.

**Regarding Use of Plagiarism Detection Tools:** Normally, students will be required to submit their course essays to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site (<https://uoft.me/pdt-faq>).

**Lost or misplaced assignments:** It is your responsibility to keep a photocopy of your work, and to make more than one digital copy of your work. Excuses are not accepted in the case of lost or misplaced work.

### **Class Attendance and Participation:**

Students are required to attend class as discussion is essential to this course.

**Absences:** Students who are absent from academic participation for any reason (e.g., COVID, cold, flu and other illness or injury, family situation) and who require consideration for missed academic work should report their absence through the [online absence declaration](#). The declaration is available on [ACORN](#) under the Profile and Settings menu and DPES website. Students should also advise their instructor of their

absence using the online DPES [absence declaration form](#). Visit [COVID-19 Information for University of Toronto Students](#) page on the Vice-Provost, Students website for information on this and other frequently asked questions.

**Missed term work:** If a legitimate reason prevents you from submitting a piece of term work by its posted deadline, you must submit appropriate documentation within three business days of your absence. If the reason is medical, an official UTSC medical note must be completed by a doctor who examined you while you were ill/injured (i.e. not after the fact). The medical note can be downloaded here: [Verification of Illness or Injury](#). Note that conditions ranked as mild or negligible will not be considered a valid excuse.

**Extensions:** Requests for an extension on an assignment must be tendered in writing in advance of the due date. In instances of illness, an official UTSC medical note must be completed by a physician (see above). Other notes are not acceptable. Extensions are granted at the discretion of the Professor (and the TAs), and may be granted for other significant emergencies.

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## **Academic Integrity**

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's [Code of Behaviour on Academic Matters](#) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

In papers and assignments:

- \_ Using someone else's ideas or words without appropriate acknowledgement.
- \_ Submitting your own work in more than one course without the permission of the instructor.
- \_ Making up sources or facts.
- \_ Obtaining or providing unauthorized assistance on any assignment.

On tests and exams:

- \_ Using or possessing unauthorized aids.
- \_ Looking at someone else's answers during an exam or test.
- \_ Misrepresenting your identity.

In academic work:

- \_ Falsifying institutional documents or grades.
- \_ Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the *Code of Behaviour on Academic Matters*. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources (see [University of Toronto website on Academic Integrity](#)).

For reasons of privacy, as well as protection of copyright, unauthorized video or audio recording in classrooms is prohibited. This is outlined in the Provost's guidelines on Appropriate Use of Information and Communication Technology. Note, however, that these guidelines include the provision that students may obtain consent to record lectures and, "in the case of private use by students with disabilities, the instructor's consent must not be unreasonably withheld."

### **Accessibility & Services**

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodation, please feel free to approach me and/or the Access Ability Services Office as soon as possible. I will work with you and Access Ability Services to ensure you can achieve your learning goals in this course. Inquiries are confidential. The [UTSC Access Ability Services](#) staff (located in S302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416) 287-7560 or [ability@utsc.utoronto.ca](mailto:ability@utsc.utoronto.ca)

Students are encouraged to review the information regarding all services available on campus but I would especially like to point out the resources available through the [Writing Centre](#) for any writing help you may require, or the UT Centre for Teaching and Learning's [English Language Development Support](#).

### **Inclusion, Diversity and Equity**

The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. U of T does not condone discrimination or harassment against any persons or communities.

### **Notice of Video Recording and Sharing (download and re-use prohibited)**

When delivered online, this course (including your participation) will be recorded on video and will be available to students in the course for viewing remotely and after each session. Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. Do not download, copy, or share any course or student materials or videos without the explicit permission of the instructor. For questions about the recording and use of videos in which you appear, please contact your instructor.