



TEL AVIV אוניברסיטת
UNIVERSITY תל אביב

Full Syllabus



Science Communication

Instructor: Hadas Marcus

Academic year: 2022 **Semester:** Fall

Credit hours: 2

Classroom: Porter building, Room 106

Learning mode: Lecture & practice. This is a pass/fail course. The class materials are available on the Moodle site of the course.

Lecturer information

Office hours: by appointment in Webb building, room 204, or in the Porter building on Wednesday before or after class.

Email: h_marcus@netvision.net.il or mhadas@tauex.ac.il

Course Objectives

This course is designed to help students enrolled in the Master's Program at the Porter School for Environmental Studies communicate important issues in environmental science more effectively. As the complexity of scientific data increases, tools facilitating knowledge extraction and communication become ever more important. The focus will be on the hands-on skills required for students' current graduate studies and later on, in their future professional lives. Hopefully, by the end of the course, students will have learned to strategically plan, craft, and execute various forms of communication through writing, speaking, and visualizations in an engaging, scientifically-informed manner that is devoid of jargon and easily understandable. To this end, students will gain experience translating complex scientific concepts into clear and interesting stories for the public.

Among other skills that will be taught in this course, students will learn the principles of well-written scientific journal articles (e.g., *Nature* or *Science*) and popular science. Similarly, they will evaluate, interpret and create different visualizations that clearly and honestly represent data. They will acquire a basic grasp of key statistical terms and how they are used to support claims in scientific texts and visualizations. They will practice techniques for researching, organizing, and synthesizing ideas from various texts, as well as building reference libraries for proper citations (such as Mendeley). Students will be expected to prepare and deliver oral presentations to the instructor and their peers, from whom they will receive constructive feedback. Students will also learn what makes scientific visualizations meaningful, accurate, and appealing to broad audiences, and they will produce their own creative infographics or posters.

Because this course is for students who care deeply about our troubled planet in the Anthropocene, our discussion and the materials we read will invite students to consider what can be done to



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instigate change that will protect future generations and help them grapple with daunting challenges. This goal will be realized using a broad range of texts and topics that illustrate how we perceive and interact with our natural and built environment.

Evaluation of Student Work

Teacher assessment of student work in progress – As this is a pass/fail course, the emphasis is on the process of improvement, not on grades. Students are expected to complete all the assignments in order to pass the course.

Peer evaluation – As this is a project-based course, students will work in groups and will provide peer evaluation of assignments, as well as feedback during class discussions and outside of class.

Course format/delivery: There will be a selection of assigned and recommended readings, discussion, videos, and other kinds of media.

Grading: This is a pass/fail course. In order to pass, students must attend at least 80% of the lessons, participate in class discussions, submit all tasks, and complete all written and oral assignments. There is no final exam.

Attendance: Students are required to physically attend at least 80% of the classes in order to pass the course. There are no holidays this semester.

Course Assignments

Students are required to submit various written, oral, and illustrative tasks, which they will complete individually and in groups. They will receive feedback on these tasks on a regular basis.

Materials

The teacher will maintain a **Moodle website** and provide additional instructional materials and excerpts from books and other sources.



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Tentative Course Outline

NOTE: This general outline is subject to change throughout the semester.

Lesson	Lecture Topic	Teaching Points
1 Oct. 26 2022	Course overview / goals of scientific communication: written, graphic, and oral. How to give an elevator pitch	1. Comparing academic writing to popular literature on similar topics. Example – climate change 2. How to give an effective elevator pitch Assignment 1 - prepare a 1-2 minute presentation to introduce yourself.
2 Nov. 2 2022	Present elevator pitch – students may either present frontally or upload videos to be watched during class with the students there.	Watch elevator pitches to get to know each other in order to form working groups in the future.
3 Nov. 9 2022	1. What is good scientific writing? Evaluating scientific literature: top-notch vs. mediocre articles/ primary vs. secondary sources How to write an Op-Ed	Assignment 2- Op-Ed - Due in 3 weeks – Find 3 articles (2 academic/1 popular science) related to one environmental topic but with different points of view and/or possible solutions – working in groups.
4 Nov.16 2021	IMRaD –empirical research articles in comparison to Op-Ed writing The academic phrasebook	Work together on Assignment 2 and find thesis/main claim(s), main arguments, and write references for the three articles.
5 Nov. 23 2021	Good paragraph structure: Connecting complex ideas through logical flow, transitions, and coherence. How to choose good sources. Citations/reference lists: research techniques and Literature Review.	Write a 1 page op-ed about the three articles you have read working in your same collaborative group. Review the assignment: op-ed (genre), structure – due next class. Homework: Watch tutorials on citation and reference managers.
6 Nov.30	Guest lecture (live or recorded) in an environmental field Plagiarism - The consequences of not giving proper credit.	Assignment 2 is due today (Op-Ed) and share it with other members of the class.
7 Dec. 7	Statistics – very basic inference and relevant terminology. Visualizations: Interpreting figures and tables.	Introduction to some basic concepts (e.g., population, sample, mean, standard deviation) especially for humanities and social science students



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8 Dec. 14	Writing concisely – How to avoid being too wordy and redundant. Principles of presentations	Assignment 3 - Group infographic. Due in 3 weeks - This is to be done together with oral presentations (3 minutes per student) to be delivered during the few weeks of class – this will be connected to your group infographic. Similar to presenting a poster at a conference but less formal and more creative.
9 Dec. 21	More about visualizations: choosing and creating the right types of graphs and illustrations. Using CANVA	Work on group infographic – create groups, decide on topic, problem, solution
10 Dec. 28	Avoiding jargon and nominalizations. Use of action verbs instead of nominalizations.	Continue to work on group infographic and presentations at the same time. Remember: Your presentations are on the same topic about what you create in the infographic.
11 Jan. 4	Lecture on how to give an effective, dynamic oral presentation If time permits - oral presentations. (Assignment 3) Each student will speak about 3 minutes on the topic of their infographic.	Assignment 3 is due today. Relevant and interesting environmental topics. Listening to student presentations this class and the next one. Assignment 4 - In one paragraph write a plain language summary of an academic article related to the topic of your Master's degree with proper citations. Due no later than Jan. 15 (to be uploaded to course site).
12 Jan. 11	Oral presentations.	Last two classes will be devoted to review of materials covered so far, oral presentations, and helping students with the final assignment.
18 Jan. 3	Last few oral presentations.	Farewells

In addition to the tentative schedule of classes listed above, depending on available time, the instructor will share a number of presentations that reflect environmental communication and related issues, such as ecolinguistics, how visual and popular culture can also help to get a powerful message across, and so forth.



Recommended Reading. Selections from these materials and others (not listed here).

Books

Bailey, Stephen. (2011). *Academic writing: A handbook for international students* (3rd edition). Oxford, UK: Routledge.

Cox, Robert. (2010). *Environmental communication and the public sphere* (2nd edition). United States: Sage Publications.

Glasman-Deal, Hilary. (2010). *Science research writing for non-native speakers of English*. London, UK: Imperial College Press.

Patience Gregory, Daria Boffito and Paul Patience. (2015). *Communicate science papers, presentations, and posters effectively*. London. UK: Academic Press.

Swales, John M., and Christine B. Feak. (1994). *Academic writing for graduate students: essential tasks and skills: a course for nonnative speakers of English*. Ann Arbor: University of Michigan Press.

Articles

Kates W. Robert, Thomas M. Parris & Anthony A. Leiserowitz. What is Sustainable Development? Goals, Indicators, Values, and Practice, *Environment: Science and Policy for Sustainable Development*, 2005, 47:3, 8-21.

Kotcher, John, Teresa A. Myers, Emily K. Vraga, Neil Stenhouse & Edward W. Maibach. Does engagement in advocacy hurt the credibility of scientists? Results from a randomized national survey experiment, *Environmental Communication*, 2017, 11:3, 415-429.

Pain, Elisabeth. How to (seriously) read a scientific paper. March 21, 2016, *Science Magazine*.

Quammen, David. From spillover to pandemic. *Substantia: An International Journal of the History of Chemistry*. 4(1) 930, 2020.

Sword, Helen; Trofimova, Evija; Ballard, Madeleine. Frustrated academic writers. *Higher Education Research and Development*, 2018, v37 n4 p852-867.

Zimmer, Carl. Staying afloat in the rising tide of science. March 2016. *Cell* 164(6):1094-1096.