

**IB 496**  
**SCIENCE COMMUNICATION**  
**Spring 2021**

*“Science is not finished until it’s communicated”—Sir Mark Walport*

**Course General Information**

**Meeting Times:** Monday and Wednesday

**Textbooks:** All suggested readings will be posted on the course website

**Course Website:** All course materials will be available through Compass.

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**Course Description**

The purpose of the course is to train emerging scientists to communicate beyond academia. Science continues to provide answers to the most persistent challenges our global societies face, including climate change, public health, pest management, and food insecurity. Approximately, 2.5 million new scientific papers are published in academic journals every year. Yet, many of these novel scientific solutions are only meaningful to the science community. While students are under no obligation to make science accessible to the public, it benefits everyone if they do. Routinely communicating science allows researchers to become visible both to their peers and to the public. Further, engaging in science communication can also open doors to new networks that can lead to collaborations and interdisciplinary research. This class will explore the various avenues that can be used to communicate science with different audiences. Through weekly lectures, practical assignments and invited guest lecture presentations, this course builds critical skills in written and oral communication relevant to all careers. Students will further learn the art of writing and pitching opinion pieces to various media outlets. This class welcomes students looking to take their first steps into public engagement. Undergraduate and Graduate students are welcomed.

**Course Learning Outcomes**

By the end of this course, students should be able to:

- Learn and develop skills that underlie clear and effective science communication
- Learn the art of writing and pitching opinion pieces to various media outlets
- Learn the elements of communication that are most useful with varied audiences
- Apply these elements to communicate their research projects and improve their science communication endeavors

## Course Requirements

- **Attendance (10%):** Students will be expected to attend all class meetings. Class
- **Participation (10%):** Students will be expected to contribute to all class discussions.
- **Readings (20%):** Students will be expected to complete all readings and complete any assignments associated with the readings before class.

### **Projects (Letter to the Editor, Opinion Piece, and 3 minutes online presentations) (60%)**

: Students will be expected to complete and turn in all projects associated with this class on their respective due dates before 11:59 Pm. Late projects will not be accepted. Unless otherwise stated, please use 12-point font, double spacing, one-inch margins, and APA, MLA, or Chicago formatting for citations and works-cited.

## Course Grading System

Although the University of Illinois does not have a standard percentage associated with letter grades, in this course the following grading scheme will be used:

<b>Numerical Grade</b>	<b>Letter Grade</b>	<b>Numerical Grade</b>	<b>Letter Grade</b>
97-100	A+	77-79.99	C+
93-96.99	A	73-76.99	C
90-92.99	A-	70-72.99	C-
87-89.99	B+	67-69.99	D+
83-86.99	B	63-66.99	D
80-82.99	B-	60-62.99	D-
Below 60		F	

## Course Policies

**Statement on University Policies and Regulations:** As the instructor for this course, I respect and uphold all University policies and regulations pertaining to the observation of religious holidays; assistance available to the physically handicapped, visually and/or hearing-impaired student; plagiarism; sexual harassment; and racial or ethnic discrimination. All students are advised to become familiar with the respective University regulations and are encouraged to bring any questions or concerns to our attention.

**Statement on Academic Integrity:** Each student in this course is expected to abide by the Illinois Student Code as 'it is the responsibility of each student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions.' In this course, the normal penalty for a violation of the student code is an "F" for the term.

\* Please know that it is our responsibility as instructors to uphold the academic integrity policy of the University, which can be found here: [http://studentcode.illinois.edu/article1\\_part4\\_1-401.html](http://studentcode.illinois.edu/article1_part4_1-401.html). Please note that you are responsible for reading this policy. Do not hesitate to ask us if you are ever in doubt about what constitutes plagiarism, cheating, or any other breach of academic integrity.

**Statement on Emergency Response Recommendations:** Emergency response recommendations can be found at the following website: <http://police.illinois.edu/emergency/>. Please review this website and the campus building floor plans website within the first 10 days of class:

<http://police.illinois.edu/emergency/floorplans/> .

**Statement on the Family Educational Rights and Privacy Act (FERPA):** Any student who has suppressed their directory information pursuant to Family Educational Rights and Privacy Act (FERPA) should self-identify to the instructor to ensure protection of the privacy of their attendance in this course. See <http://registrar.illinois.edu/ferpa> for more information on FERPA.

### **Statement on Equity, Diversity and Inclusion**

This is an equal opportunity classroom, and we value diversity, equality and inclusion.

**Note to Students with Disabilities:** To ensure that disability-related concerns are properly addressed from the beginning, students with disabilities who require assistance to participate in this class are asked to contact Disability Resources and Educational Services (DRES) and see us as soon as possible, or make an appointment to see us, or see us during our office hours. DRES provides students with academic accommodations, access, and support services.

To contact DRES you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TDD), or e-mail a message to [disability@uiuc.edu](mailto:disability@uiuc.edu). <http://www.disability.illinois.edu/>.

### **Semester Calendar and Schedule**

**Note:** This course has no required books. All course readings will be posted on Illinois Compass.

#### **Week 1**

**Monday, January 25** | Course Introduction

Syllabus, Student introductions. Introduction to Science Communication: Why become a science communicator?

**Wednesday, January 27** | The many forms of Science Communication

## **Week 2**

**Monday, February 1** | Science communication basics

**Wednesday, February 3** | Science communication basics

## **Week 3**

**Monday, February 8** | Ethics of Science Communication: Do's and Don't's | **Assignment 1: Create a short and clear description of your research or a science topic of your choice and deliver a mini presentation**

**Wednesday, February 10** | Class presentations from assignment 1

Watching videos of good science talks: <http://www.gradpost.ucsb.edu/top-stories/top-stories-article/2016/04/16/2016-grad-slam-final-round-and-the-winner-is>. What makes a great talk? <https://www.youtube.com/watch?v=hbbvUZOLTQY>

## **Week 4**

**Monday, February 15** | What is the message?

**Wednesday, February 17** | NO CLASS

## **Week 5**

**Monday, February 22** | Science as a story. The art of creating a science story (Guest lecture)

**Assignment 1 Due** | Project activity

**Wednesday, February 24** | Workshop-Science as a story

## **Week 6**

**Monday, March 1** | Talking science to various audiences

**Wednesday, March 3** | Talking science to various audiences (contd)/In class exercises

## **Week 7**

**Monday, March 8** | Communicating risk and uncertainty

**Wednesday, March 10** | Communicating with politicians

### **Week 8**

**Monday, March 15** | Communicating science using social media

**Wednesday, March 17** | In class activity/ Communicating science using social media

### **Week 9**

**Monday, March 22** | Creating Mini-Ted Talks

**Wednesday, March 24** | NO CLASS

### **Week 10**

**Monday, March 29** | Guest Lecture (Holly Kearl) Why write?

**Wednesday, March 31** | The art of writing opinion pieces

### **Week 11**

**Monday, April 5** | Communicating Science with media

**Wednesday, April 7** | Guest lecture (NPR)

### **Week 12**

**Monday, April 12** | Policy briefs

**Wednesday, April 14** | Press Releases -Guest lecture

### **Week 13**

**Monday, April 19** | Engaging communities

**Wednesday, April 21** | Communicating with K12 audiences and outreach

### **Week 14**

**Monday, April 26** | Science Communication careers (Guest lecture)

**Wednesday, April 28** | Students work on final projects

### **Week 15**

**Monday, May 3** | Final projects due/students' presentations

**Wednesday, May 5** | Final projects due/students' presentations

## Reading List

- Baron, N. (2010). Stand up for science. *Nature*. 468: 1032-1033.
- Bik, H.M. et al. (2013). An introduction to social media for scientists. *PLOS Biology*. 11: e1001535.
- Dudo, A. et al. (2016). Scientist's prioritization of communication objectives for public engagement. *PLOS One*. 11: e0148867.
- Jensen, P. et al. (2008). Scientists who engage with society perform better academically. *Science and Public Policy*. 35: 527-541.
- Keohane, R.O. et al. (2014). The ethics of scientific communication under uncertainty. *Politics, Philosophy & Economics*. 13: 343-368.
- Kuehne, L.M. et al. (2013). Practical science communication strategies for graduate students. *Conservation Biology*. 28: 1215-1235.
- Liang, X, et al. (2014). Building buzz: (Scientists) communicating science in new media environments. *Journalism Mass Communication Quarterly*. 91: 772-791.
- Lupia, A. (2012). Communicating science in politicized environments. *PNAS*. 110: 14048-14054.
- Medvecky, F. et al. (2017). The ethics of science communication. *Journal of Science Communication*. 16 (04).
- National Science Foundation. NSF, Science communication and you.  
<https://nsf.gov/about/congress/reports/NSFScienceCommunicationAndYou.pdf>
- National Academies of Sciences, Engineering, and Medicine (2017). Communicating science effectively: A research agenda. <https://www.nap.edu/catalog/23674/communicating-science-effectively-a-research-agenda>
- Pace, M.L. et al. (2010). Communicating with the public: opportunities and rewards for individual ecologists. *Frontiers in Ecology and the Environment*. 8: 306-313.
- Piwowar, H. (2013). Altmetrics: Value all research products. *Nature*. 493:159.
- Scheufele, D.A. (2013). Communicating science in social settings. *PNAS*. 110: 14040-14047.
- Science communication collection. *Annals of the Entomological society of America*.  
[https://academic.oup.com/aesa/pages/science\\_communication](https://academic.oup.com/aesa/pages/science_communication)
- Scientific American. Scientists should talk directly to the public.  
<https://blogs.scientificamerican.com/observations/scientists-should-talk-directly-to-the-public/>
- Scientific American. If you want to explain your science to the public, here's some advice.  
<https://blogs.scientificamerican.com/observations/if-you-want-to-explain-your-science-to-the-public-heres-some-advice/>
- Scientific American. The joys of scientific outreach.  
<https://blogs.scientificamerican.com/observations/the-joys-of-scientific-outreach/>

Scientific American. We should reward scientists for communication to the public.  
<https://blogs.scientificamerican.com/observations/we-should-reward-scientists-for-communicating-to-the-public/>

Thelwall, M. et al. (2013). Do Altmetrics work? Twitter and ten other social web services. PLOS ONE 8: e64841.