Instructor Info

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Office Hours: W-F 11-2pm or by appt

Course Description

This course is offered through the UM BRIDGES training program, which trains future leaders from diverse backgrounds to advance societally-relevant science toward more sustainable food-energy-water systems (umt.edu/bridges).

This course builds on the skills and experiences introduced in Science Communication I and considers the recent history and future of science communications. Through a series of hands-on case studies it also explores how science communication is undertaken for three different audiences a) communication with other scientists b) communication with decision-makers c) communication with local communities.

Finally, through an independent study project, you will apply the skills learned to create your own communications product which will be use to communicate the importance/impact of the BRIDGES-FEW-NEXUS Program to a) other scientists b) decision-makers and/or c) your local community.

Learning Objectives and Outcomes

1. Explore the history and future of science communication.
2. Practice communicating science to decision-makers, other scientists and local communities.
3. Apply science communication skills through development of a communications product.
Course Assessment

The course grading is credit/no-credit. In order to gain credit, you must attend all sessions and case studies. You may miss a maximum of one session with prior approval. Under this scenario, you must propose an alternative method for completing the session or a relevant activity.

Course Outline and Schedule

This course builds on the skills and experiences introduced in Science Communication I and considers the recent history and future of science communications. Through a series of ‘case studies’ it also explores how science communication is undertaken for three different audiences a) communication with other scientists b) communication with decision-makers c) communication with local communities.

Finally, through an independent study project, you will apply the skills used in communicating to different audiences to create your own communications product which will be used to communicate the importance/impact of the BRIDGES-FEW-NEXUS Program to a) other scientists b) decision-makers and c) your local community.

Part 1: Communicating with Decision-Makers

Learning Objectives: Explore how science communications has been used in past and current real-world policy contexts. Practice communicating science to decision-makers.

Week 1: Introduction – The Science of Science Communication

Class: Friday, January 17th

Occasionally as a student it is difficult to understand why you are being taught something. In these cases, an understanding of the evolution and history of the field can give you a better appreciation of its importance. In this first class, we will briefly cover the recent history and evolution of science communication and introduce a case study of science communication for decision-makers.


Lecture: The Science of Science Communication (SO)

Case Study 1: The IPCC: The Great Science Communication Undertaking of our Time (SO)

Activity: Reflect on the following questions during class:
- Has the IPCC followed the direction provided by the AGU workshops? Why or why not?
- How does the structure and mandate of the IPCC influence what and how it communicates?
- Has the IPCC been a successful mechanism for communicating science? Why or why not?
- If you had the opportunity to reform IPCC communications, what would you do?
Week 2: Case Study: The Climate Solutions Council

No Class: Attend Council Meeting on 27/28

As students, the opportunity to communicate science to policy-makers or influence policy may appear a remote and intimidating possibility. However, opportunities actually exist all around us. This semester we have the opportunity to participate in a real science communication exercise right here at the University of Montana through the Climate Solutions Council.

In July 2019 Montana Governor Steve Bullock issued an Executive Order establishing the Montana Climate Solutions Council, tasking Montanans with providing made-in-Montana recommendations and solutions to reduce greenhouse gas emissions, prepare the state for climate impacts, and address the needs of communities in transition through appropriate economic development and workforce strategies.

The council is holding a public meeting at UM on January 27\textsuperscript{th} and 28\textsuperscript{th}. This week there will be no class, but there will be readings and an activity. In addition you are required to attend a portion of the Climate Solutions Council meeting.

Readings: Explore the Council Meeting documents, in particular the Climate Solutions Council - Purpose & Duties

Activity: Email responses to Sarah O’Keefe by 01/30.
1) How do the purpose, duties, membership and timelines shape the communications? (200 words)
2) How is science being communicated to the council? Is it effective? (200 words)
3) Consider your own research area. Do you think research in your area meets the needs of the council? Why or why not? (200 words)

Week 3: Reflections on Council Meeting

Class: January 31\textsuperscript{st}

This class will give you an opportunity to discuss some of your impressions of the council meeting. Try to put emotions aside and think like a scientist about what was working and what was not working. What was the purpose of the meeting? How were scientists communicating with others on the council? What communication tools and technologies were they using?

Part 2: Communicating with Scientists

Learning Objectives: Explore how scientists communicate with each other. Practice communicating science to other scientists.

Week 4: Science Communication with Scientists – The Ultimate Challenge?
We often forget that there are well established rules regarding how scientists should communicate with each other and with students. If you think about it, even the form and content of this course is a form of communication. Consider for a moment how the instructors are communicating the course content. What communication tools are they using? Why or why not? What explicit and implicit rules govern the way we communicate with each other as scientists?

Part 2 of the course begins with another case study. We learn about a scientist who has created a successful podcast in which ‘Scientists talk to Scientists’ and practice communicating scientific concepts with each other.

In this class Art Woods – creator of the Big Biology podcast and UM faculty member – will discuss the ‘Top 5’ things he has learned about a) how to communicate your research to other scientists b) what makes a good interview with a scientist and c) how to design an effective science podcast.

Reading: Listen to this Big Biology podcast [https://www.bigbiology.org/podcast#episode15](https://www.bigbiology.org/podcast#episode15)

Activity: Before class consider how you would explain and communicate the following terms to other scientists a) P-values and b) Post-modernism. Produce a 3 minute sound file (using phone recorder) in which you explain one of these concepts to another BRIDGES trainee. Due via email to Sarah O’Keefe by end of day February 6th, 2020.

Lecture: The Big Biology Podcast: How Scientists talk to Scientists (Art Wood)

**Week 5: Science Communication with Scientists – Conference Communication**

Class: February 14th, 2020

To celebrate Valentine’s Day, this class will feature Andrew Wilcox who will cover the basics of how to construct a conference talk and poster. As part of the class students will practice their talks and present their draft materials for Grad Con.


Lecture: Academic Communication (AW)

**Week 6 & 7: Grad Con**

No class on February 21st. Grad Con will be held on February 28th, 2020. You are required to attend even if you are not presenting your research.

Activity: Attend two talks or poster presentations by BRIDGES-FEWS trainees. Identify two strengths and weaknesses of the communication products. Provide two concrete actions that would improve
them. Email feedback (including title of presentation) to Sarah O’Keefe by end of day February 28th 2020.

**Part 3: Communicating with Local Communities**

*Learning Objectives: Explore how scientists communicate with local community groups. Practice communicating science to community and first nations groups.*

**Week 8: Communicating with ‘Local Communities’**

*Class: March 6th*

There have been many lessons learned in terms of what works and what doesn’t work when communicating with local communities. This week begins with a case study of communicating science with Montanans right here at UM.


**Lecture:** Communicating with Local Communities (TBC)

In this class a Native American Tribal Leader and faculty member will discuss experiences communicating stories to local communities across Montana. They will discuss strategic framing and delivery of science information to local communities and culturally sensitive communication.

**Activity:** We will visit the student radio station and each be interviewed live on-air about motivations for joining the BRIDGES-FEWS program and progress to date on research. In advance of the interview, consider the audience and framing you want to use in your interview.

**Week 9 - 15: Independent Study Project**

During these weeks there will be no lectures. Instead you will be tasked with designing and creating your own media project. This project will in some way communicate the importance/impact of your research and/or UM BRIDGES / the FEWS nexus to a) other scientists and/or b) decision-makers and/or c) your local community.

A wide variety of mediums and methods may be used to create the communication product. Ideas include:

- A podcast
- A blog series
- Vlog
- Curated Twitter feed (e.g., BRIDGES)
- A short film/documentary
- An exhibit or display
- A theatre or performance art piece
- A website or app

The project will involve two deliverables. The first will be a communications proposal in which you lay out the background, rationale, intended audience, medium and format and intended impact of your communications
piece. A few examples of what this could look like can be found here and here. A good guide on how to get to the stage where you are ready to write a proposal can be found here. Note that these are for different media products but the same guidance applies regardless of the medium. The proposal should be approximately 1000 words long and will be due March 13th by 5pm. Approval and/or revisions to your proposal will be delivered via email to you by March 23rd end of day.

The second deliverable will be the final communications product. These products will be presented during class in Week 15 (April 24th) and must be submitted for marking in their final form by end of day. This means you will have five weeks from the date of submitting your proposal until the submission of your communications product. Late submissions will be penalized.

Week 16: The Future of Science Communications

Class: May 1st

This week we will consider the future of science communication – including the potential impact of new technologies such as virtual reality, AI and machine learning.


Lecture: The Future of Science Communication (SO)

Respect, Inclusiveness and Diversity of Thoughts, Ideas and People

All students are entitled to and deserve respect, courtesy and tolerance, regardless of their race, ethnicity, background, religious affiliation, gender, sexual preference, disability or any other perceived difference. Likewise, faculty, staff, guest speakers, community members, and fellow students deserve the same treatment from other students. I will make every effort to promote and create a safe space for diverse thoughts, regardless of the form of communication. I ask that you do the same. We will strive towards an engaging, respectful and open forum in which numerous opinions related to the course material can be discussed and explored.

Equal Access

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors and Disability Services for Students (DSS). If you have a disability that adversely affects your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or by calling 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

Student Conduct

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code.
Course Withdrawal Deadlines

Important Dates Restricting Opportunities to Drop a Course are listed at https://www.umt.edu/registrar/calendar.php. In general, you may drop any course up to the 15th instructional day and receive a refund. Beginning the 16th instructional day, a class drop form, with the instructor’s signature is required. You will also need to pay a $10 fee, will not receive a refund, and you will receive a “W” on your transcript. On the 46th day of instruction and thereafter, students may only drop a class under very limited and unusual circumstances. Not doing well in the class, deciding you are concerned about how the class grade might affect your GPA, deciding you did not want to take the class after all, and similar reasons are not among those limited and unusual circumstances. If you want to drop the class for these sorts of reasons, make sure you do so by the end of the 45th instructional day of the semester. On the 46th day of instruction and thereafter, requests to drop must be signed by the instructor, advisor, and Associate Dean (in that order) so if you pursue this request, leave sufficient time to schedule meetings with each of these individuals (generally this will take at least 3-5 working days). A $10 fee applies if approved. Instructor must indicate whether the individual is Passing or Failing the class at the time of request.