

Communicating Scientific Research: Syllabus

Ph.D. Course: 2023-24

Note that this syllabus is subject to change.

Description

Spread over the academic year, Communicating Scientific Research (CSR) is a 5-credit course that teaches graduate students in science, engineering, and mathematics at Norwegian universities how to communicate their research in presentations, papers, posters, and films. The course consists of two intensive weeks of training—the first week occurring in the fall and the second week occurring in the spring. In between these weeks, the students work on individual projects. Designed for graduate students who have begun their research, the course combines lecture, discussion, critiquing workshops, and out-of-class assignments to give the students multiple opportunities to not only speak and write about their research, but also to receive feedback on those efforts.

Based on a graduate course taught by Professor Michael Alley at the University of Wisconsin-Madison, Virginia Tech, and Pennsylvania State University, this course is designed to help graduate students make their research communications more understandable, memorable, and persuasive. The course uses two textbooks, *The Craft of Scientific Presentations* and *The Craft of Scientific Writing*, both of which are authored by Michael Alley, one of the course instructors. These books will be provided for you at the beginning of class.

Course Requirements and Expectations

1. When you sign up for the course, you are agreeing to participate for Week 1 and Week 2 of the course, and to complete the Winter Writing Assignment.
2. You are expected to attend each of the lectures in-person. If you are feeling ill, you are encouraged to contact the instructors for a make-up assignment.
3. You are expected to complete and turn-in each of the preparation assignments for the course.
4. You are expected to give the assigned presentations, as well as participate in the writing critique sessions.

[Google Folder for Course](#)

Instructors

Michael Alley, Teaching Professor, College of Engineering, Pennsylvania State University
mpa13@psu.edu

Christine Haas, Principal, Christine Haas Consulting, LLC, christine@chcconnects.com

Lauren Murphy, murphylauren333@gmail.com

CSR Week 1 | Preparation Assignment + Schedule of Activities

Preparation Assignment

Due 3 October: Complete our [course survey](#) so we may learn more about your background and experience

Due 16 October:

Presentation Assignment: Using an [assertion-evidence presentation template](#), prepare *at least* 7 slides for a 10 to 15-minute presentation that presents an overview or slice of your research. For those graduate students just beginning their project, have the talk focus on the importance of the research, your working hypothesis, and an explanation of the approach. The audience for this assignment is other PhD students who have a technical background, but not necessarily in your field. *You are permitted to make changes to the draft after submission, but you must submit the first draft by 16 October.* These slides will form the basis of the presentation you give in class.

Before creating the slides, spend 10 minutes filling out this [Presentation Planning Worksheet](#) to organize your thoughts about your audience and purpose. In addition, view a tutorial for creating assertion-evidence slides on the [following website](#).

When you [upload the PowerPoint file](#), please use the following naming convention:

Surname_Presentation Assignment_Week 1

Due 23 October:

Writing Assignment: Before the first CSR writing class, please review the six short films (20 minutes total) from the [following self-study guide](#) on research writing.

Preparation Call + Virtual Meet and Greet

3 October | 15:00 - 16:30 CET

During this call, we will review and answer any questions on the preparation assignment, outline expectations for the course, and provide the course participants an opportunity to meet.

CSR Week 1 | 23 - 27 October, 2023 *(Schedule subject to change)*

Date + Time (CET time)	Activity	Assignments + Resources	Instructor/s	Location/ Rooms
23 October				<i>Simula Offices, Kristian Augusts gate 23 (KA23), Oslo</i>
9:00 - 9:30	Breakfast Social Breakfast, introduction to Simula, receiving books, and networking.			Hallway outside HPL (8th floor)
9:30 - 9:45	Course Welcome + Logistics		Rachel Thomas	HPL lecture hall (8th floor)
9:45 - Noon	Workshop Transforming Research Presentations	<i>Please bring your laptop and a copy of your assertion evidence slides to our workshop.</i>	Christine Haas	
12:00 - 13:00	Lunch			Kantinen (1 floor)
13:00 - 17:00	Workshop Transforming Research Presentations continued	Reference Guide	Christine Haas	HPL lecture hall (8th floor)
	Delivery Exercises	Worksheets for Class		HPL lecture hall

				(8th floor) Peisestua (room 802; 8th floor)
17:00	CSR Dinner			1st floor
24 October				
10:00 - 12:00	Presentation Coaching Sessions Round #1 Groups 1 - 2 Present a 10-12 minute talk and receive feedback <i>*3-4 people per group</i>	Group list Check the group list to find your time slot for Round 1	Christine Haas Lauren Murphy	HPL lecture hall (8th floor) Peisestua (room 802; 8th floor)
12:00 - 13:00	Lunch			Kantinen (1 floor)
13:00 - 15:00	Presentation Coaching Sessions Round #1 Continued Groups 3 - 4		Christine Haas Lauren Murphy	HPL lecture hall (8th floor) Peisestua (room 802; 8th floor)
15:15 - 17:15	Groups 5 - 6		Christine Haas Lauren Murphy	HPL lecture hall (8th floor) Peisestua (room 802; 8th floor)
25 October				
10:00 - 12:00	Presentation Coaching Sessions Round #2 Groups 1 - 2	Group list Check the group list to find your time slot for Round 2	Christine Haas Lauren Murphy	HPL lecture hall (8th floor) Nordmarka (room 243; 2nd floor)

	Present revised talk (12-15 minutes) and receive feedback <i>*3-4 people per group</i>			
12:00 - 13:00	Lunch			Kantinen (1 floor)
13:00 - 15:00	Presentation Coaching Sessions Round #2 Continued Groups 3 - 4		Christine Haas Lauren Murphy	HPL lecture hall (8th floor) Peisestua (room 802; 8th floor)
15:15 - 17:15	Groups 5 - 6		Christine Haas Lauren Murphy	HPL lecture hall (8th floor) Peisestua (room 802; 8th floor)
26 October				
9:00 - 12:00	Workshop Introduction to Writing Research Papers	<i>Bring a piece of your writing</i>	Lauren Murphy	HPL lecture hall (8th floor)
12:00 - 13:00	Lunch			Kantinen (1 floor)
13:00 - 17:00	Workshop Writing Research Papers continued		Lauren Murphy	HPL lecture hall (8th floor)
27 October				
9:00 - 13:00	Workshop Create an Elevator Pitch about your Research Course Wrap-up Complete Week 1 Evaluation	Reference Guide	Christine Haas	HPL lecture hall (8th floor)
13:00	Lunch			Hallway outside

CSR Winter Writing Project | Submission Dates to Come

For the Winter Assignment, students will participate in a Writing Critique Session with three other class members. Each person will submit a piece of writing to be reviewed and critiqued by the group. There are three options for submission:

1. Draft of a conference paper
2. Draft of a journal paper
3. Draft an Introduction and Methods chapter from dissertation

Please submit no more than six pages, including illustrations and references. If the paper is longer than this limit, feel free to submit just the first five pages of your work, with the sixth page reserved for references.

Writing Critique Group: Schedule *(details to come)*

During the winter term, each participant is to attend one 2-hour writing critique session with three other participants and one mentor. A sign-up for these sessions will become available in late November.

CSR Week 2 | Preparation Assignment + Schedule of Activities

Preparation Assignment

11 March | Preparation Assignment for Week 2 Sent to Students

1. **Writing Assignment:** Write a short proposal to the Norwegian Research Council or a similar agency to receive support for your PhD research or for a post-doctoral position. For those students just beginning your work, have the proposal focus on what you plan to research. Your proposal will be evaluated on the following: (a) Does the proposed research address an important need? (b) Are the research objectives logical and realistic? (c) Will the proposed methods achieve the research objectives and (d) Is the proposer capable of doing the proposed work? *Proposals should be no more than 2 pages of text in 12-point type, 1 page of illustrations, and 1 page of reference citations. A template and examples are [available in our Google Drive](#).*

8 April: Submit writing assignment to [folder on Google Drive](#)

10 April: Writing excerpts of students available for critique groups You are to prepare critiques of writing excerpts submitted by the other participants in your critique group.

2. **Poster Assignment:** From scientific documents or presentations that you have created, gather illustrations that you would want to have to tell one “story” about your research. Bring these illustrations on a laptop (or similar device) to the poster workshop.
3. **Presentation Assignment:** Using an [assertion-evidence template](#), prepare slides for a 10-15 minute proposal presentation to receive support for your PhD research. For those students just beginning your work, have the presentation focus on what you plan to research. Your presentation will be evaluated on (a) Does the proposed research address an important need? (b) Are the research objectives logical and realistic? (c) Will the proposed methods achieve the research objectives and (d) Is the proposer capable of doing the proposed work? Bring your presentation slides to the first class on **15 April**. Please note that you will continue working on the talk through the week.
4. **Film Assignment.** Collect videos, pictures, computer simulations, or any other media you have from your home institution that you might like to add to a video that you will create. **Between 17 and 21 April**, your group will create a short film about your lab's work, what it is like being PhD students, or many other topics. Below are past examples you can watch.

[Start Your Geoscience Adventure](#)

[Dark Matter Hunters](#)

[Curiosity and Creativity as a PhD Student](#)

[Physicus Osloensis](#)

You are welcome to work alone or with up to 5 team members. If you know who you would like to work with or wish to work alone, [sign up here](#) with the names of all group members. If you'd like help finding a group, email Lauren Murphy (murphylauren333@gmail.com) who can connect you with other students.

12 April: [Sign-up for your film group](#)

You will need editing software to assemble your video. A Mac comes with the editing software iMovie. If you are using another operating system (Windows, Linux) and need editing software, check [this spreadsheet](#) with software options. If you have questions, reach out to Lauren.

Preparation Call + Virtual Check-In

March 21 | 15:00 - 16:30

During this virtual call we will review and answer any questions on the preparation assignment, outline expectations for Week 2, and provide the course participants an opportunity to check-in.

CSR Week 2 | 15 - 19 April, 2024 *(Schedule subject to change)*

Date + Time (CET time)	Activity	Assignments + Resources	Instructor/s	Location / Rooms
15 April				<i>Simula Offices, Kristian Augusts gate 23 (KA23), Oslo</i>
9:00 - 9:30	Breakfast & Registration			Hallway outside HPL (8th floor)
9:30 - 9:45	Course Welcome + Logistics		TBD	HPL lecture hall (8th floor)
9:45 - 12:00	Workshop Making Research Proposals	Before class, please watch: Proposals: Analyzing Audience, Purpose, and Occasion (4:24) Organization of Proposals (4:16)	Michael Alley	HPL lecture hall (8th floor)

12:00 - 13:00	Lunch			Kantinen (1st floor)
13:00 - 15:30	Workshops Making Research Proposals continued Advanced Presentations	Three Minute Thesis by Samuel Ramsey (3:00) Illustration Exercise on Launch of Space Shuttle Challenger (2:43)	Michael Alley	HPL lecture hall (8th floor)
15:30 - 17:00	Delivery Exercises 2 Rooms - 9 students per room		Michael Alley Lauren Murphy	HPL lecture hall (8th floor) Peisestua (room 802; 8th floor)
17:30	Pizza & Games Night			Pusterommet (1st floor)
16 April				
9:00 - Noon	Workshop Making a Technical Film About Your Research	Film group list	Lauren Murphy	HPL lecture hall (8th floor)
Noon - 13:00	Lunch Break			Kantinen (1st floor)
13:00 - 15:00	Writing Critique Groups Groups 1 - 2	Group List Critique Rubric	Michael Alley Lauren Murphy	Peisestua (room 802; 8th floor) HPL lecture hall (8th floor)
15:15 - 17:15	Writing Critique Groups Groups 3 - 4	Group List		

By 17:15	Schedule Film Coaching Session with Lauren	Sign up for film coaching		
17 April				
10:00 - 12:00	Writing Critique Groups Group 5	Group List Critique Rubric		Nordmarka (room 243; 2nd floor)
10:00 - 12:00	1:1 Film Consultations (20 minutes per group)	Sign up for film coaching	Lauren Murphy	HPL lecture hall (8th floor)
12:00 - 13:00	Lunch			Kantinen (1 floor)
13:00 - 17:00	Workshop The Craft of Scientific Posters	<i>Resources to come</i>	Michael Alley	HPL lecture hall (8th floor)
18 April				
10:00 - 12:00	Presentation Coaching Sessions: Groups 1 - 2 Participants make a 10-15 minute proposal presentation and receive feedback	Group List	Michael Alley Lauren Murphy	HPL lecture hall (8th floor) Peisestua (room 802; 8th floor)
12:00 - 13:00	Lunch			Kantinen (1st floor)
13:00 - 15:00	Presentation Coaching Sessions: Groups 3 - 4 Participants make a 10-15-minute proposal presentation and receive feedback	Group List	Michael Alley Lauren Murphy	HPL lecture hall (8th floor) Nordmarka (room 243; 2nd floor)
15:15 - 17:15	Presentation Coaching Sessions: Group 5 Participants make a 10-15-minute proposal	Group List	Lauren Murphy	Nordmarka (room 243; 2nd floor)

	presentation and receive feedback			
19 April				
10:00	Films Due	Film submission folder Complete film details		
11:00 - 12:00	Film Watch Party			HPL lecture hall (8th floor)
12:00 - 12:30	Course Wrap-up		Michael Alley / Lauren Murphy	HPL lecture hall (8th floor)
12:30	Lunch			Hallway outside HPL (8th floor)

Course Texts

Michael Alley's *The Craft of Scientific Presentations* and *The Craft of Scientific Writing* are the texts for this course. **These will be provided to you and available to pick-up on the first day of class at Simula.**

Alley, Michael (2012). *The Craft of Scientific Presentations*, 2nd ed. New York: Springer-Verlag.

Alley, Michael (2018). *The Craft of Scientific Writing*, 4th ed. New York: Springer-Verlag.

Recommended Text

Murphy, Lauren (2022). *The Craft of Scientific Films*, New York: Springer

Technical Recommendations

All Preparation Calls will occur on Zoom. The following guidelines will help you have the best experience in this virtual world.

1. **Download the latest version of Zoom to your computer.** [Click here for the latest version](#) for your operating system.

2. Please join the session from your computer rather than your phone for full Zoom functionality. Plan to have your camera on. This session will be interactive. In addition, this workshop is designed to equip you with tools to improve your virtual presentation skills. Body language and eye contact are part of this skill set.
3. Try to find a quiet place to join from. We understand this request may be challenging – just do your best).

About the Teaching Team



Michael Alley holds a Master of Science in electrical engineering and a Master of Fine Arts in writing and is a teaching professor of engineering communication at Penn State. He is the author of *The Craft of Scientific Presentations* (2003) and *The Craft of Scientific Writing* (2018), both of which have been translated to Japanese. Over the past twenty years, he has taught scientific writing and presentations at Penn State, the University of Texas, and Virginia Tech. His professional communication workshops have been held around the world. Sites include Sandia National Laboratories, United Technologies, the Army Corps of Engineers, the Environmental Protection Agency, Simula Research Laboratory, the Institute for Energy Technology, Kaust (Saudi Arabia), the European Space Agency (Chile), the University of Barcelona, Shanghai Jiao Tong University, Seoul National University, the University of Oslo, and Punjab University (India). Alley is the lead editor for the popular websites “Writing as an Engineer or Scientist” (craftofscientificwriting.org), “Rethinking Presentations” (assertion-evidence.com), and “The Craft of Scientific Posters” (craftofscientificposters.com).

Christine Haas has over 15-years of experience working at the intersection of science and communication. Before launching Christine Haas Consulting, LLC in 2012, Christine held positions as director of marketing at Drexel College of Engineering and director of operations at Worcester Polytechnic Institute Engineering. Since founding Christine Haas Consulting, Christine has traveled around the world teaching courses to scientists and engineers on presentations, slide design, writing, and storytelling. She teaches clients across higher education, industry, and government including Stanford, Netflix, The North Face, Texas Instruments, Medtronic, Center for Disease Control and Prevention, Sandia National Laboratory, and the European Southern Observatory (Chile). Christine received her M.B.A. in marketing and international business from Drexel University, her B.A. in English and film from Dickinson College, and holds a certificate in User Experience from the University of Pennsylvania. www.christinehaasconsulting.com



Lauren Murphy is a professional in the film and television industry, an engineer through schooling, and an advocate of sharing amazing ideas through better communication. For nearly ten years, Lauren has used this unique combination of skills to travel the world and teach engineers and scientists to communicate their ideas through the creation of their own videos. Lauren has a B.A. in film/video and B.S. mechanical engineering from Penn State University and works as a cinematographer in New York City. Her portfolio spans commercials, documentaries, narratives, and television, including the number one show on Discovery+, *Ghost Adventures*. She believes creative videos can tell stories to help communicate technical ideas in an educational and enjoyable way. <https://www.whitepaper-video.com/>

