

# Science Communication

## Syllabus

*"We have also arranged things so that almost no one understands science and technology. This is a prescription for disaster. We might get away with it for a while, but sooner or later this combustible mixture of ignorance and power is going to blow up in our faces."*  
– Carl Sagan

**Course Description.** For students seeking to develop practical skills in communicating science across broad platforms. Students will be asked to think critically about science outreach strategies and actively participate in class discussions. Course topics include science writing, crafting effective presentations, matching audience and form, and using online media for science communication. The course will culminate in student-led science communication projects. *Prerequisites: 100 level majors science class. 3 credits.*

### Course Meetings.

Monday, Wednesday, Friday      12:30 – 1:20 pm      ISC 137

**Instructor.**      Dr. Mackenzie Gerringer      ISC 255      [gerringer@geneseo.edu](mailto:gerringer@geneseo.edu)

**Office Hours.**      Mon. 2:00–4:00 pm, Wed. 1:30–2:30 pm, and By Appointment

Office hours are your time for getting questions answered, course expectations clarified, advise on pursuing opportunities or careers in science and more. Please email me ([gerringer@geneseo.edu](mailto:gerringer@geneseo.edu)) or chat before/after class if you have questions or would like to set up a meeting outside of office hours.

**Course Materials.** *Writing Science*. Joshua Schimel, 2011. There is a copy available on four-hour reserve in Milne Library. We will explore additional readings, videos, and podcasts, all provided via Canvas. You are encouraged to seek and interact with science media on their own throughout the semester, including reading science news and blogs.

Throughout this course, students will:

- Learn and implement **inclusive, accessible** ways to communicate science **to diverse audiences**.
- Understand and use **storytelling** techniques across multiple platforms.
- Gain confidence, experience, and practical strategies for **presentations**.

# COURSE OBJECTIVES

- Hone **writing, editing,** and **peer review** skills.
- Develop strategies for the **critical consumption** and evaluation of **science news**.
- Engage with new outlets for **science communication**.

*"It would be possible to describe everything scientifically, but it would make no sense; it would be without meaning, as if you described a Beethoven symphony as a variation of wave pressure."*

– Albert Einstein

**Course Expectations.** Much of the value of this course will come from our in-class activities and discussions. Therefore, attendance is required and active participation will be part of your course grade.

For nearly all course assignments, you will focus on a science topic of your choosing. You will read and evaluate primary literature on the topic, then synthesize your knowledge in writing, illustration, and presentation. Further details on expectations, strategies, and resources will be provided in class and on Canvas. Please do not hesitate to reach out if you have any questions.

## Assignments & Grading.

Course grades will be based on the following, out of a total of 300 points.

Introductions	Aug. 30 <sup>th</sup>	<i>15 points</i>
Compose one thoughtfully-written paragraph introducing yourself and your interests and goals in science.		
Semester Topic Proposal	Sept. 13 <sup>th</sup>	<i>20 points</i>
Write a two-paragraph summary of your semester topic, referencing at least one scientific journal article you will use as a source.		
Mini-Paper		<i>80 points</i>
Write a mini-literature review on your topic from three studies, focusing on the skills outlined in Dr. Schimel's book. The paper will be short to give you time to thoughtfully revise your writing.		
Three References	Sept. 20 <sup>th</sup>	<i>15 points</i>
Mini-Paper Introduction	Sept. 27 <sup>th</sup>	<i>10 points</i>
Mini-Paper	Oct. 4 <sup>th</sup>	<i>30 points</i>
Mini-Paper Peer Reviews	Oct. 11 <sup>th</sup>	<i>10 points</i>
Mini-Paper Revision	Nov. 1 <sup>st</sup>	<i>15 points</i>
Figure Design	Oct. 18 <sup>th</sup>	<i>25 points</i>
Create a beautiful and informative figure or infographic to visualize your topic.		
Sound Bite & Elevator Pitch	Oct. 25 <sup>th</sup>	<i>20 points</i>
Use short-form communication to distill your topic and engage your audience.		
SciFi as SciComm Response	Dec. 6 <sup>th</sup>	<i>10 points</i>
Write a short response to a piece of science fiction or climate fiction and reflect on its potential and limitations in communicating science.		
SciComm Project		<i>90 points</i>
How will you communicate your topic beyond written papers and presentations? Define your audience and design a SciComm project to engage them with your topic. You will give a five-minute talk during the final		

period, introducing your topic and summarizing your project. Students who wish to may work in pairs for the final project. See me for expectations.

Project Pitch	Nov. 8 <sup>th</sup>	<i>15 points</i>
Project Post	Nov. 15 <sup>th</sup>	<i>15 points</i>
Project Update	Nov. 22 <sup>nd</sup>	<i>10 points</i>
Final Talks	Dec. 12 <sup>th</sup>	<i>40 points</i>
Final Talk Reviews	Dec. 12 <sup>th</sup>	<i>10 points</i>
Participation	Every Class	<i>40 points</i>

Earn full credit for participation by attending class and engaging in discussions and activities. You will not be evaluated on whether your insights are “right” or “wrong” during discussions, think critically and be actively involved.

## Resources & Policies.

Library Research Help. Milne Library has an award-winning staff trained in finding the best information. They have created online research guides, self-help databases, and are available for individual consultation. Research Librarians are available for walk-in consultations and students may request appointments with staff experts in particular fields. Full information on Milne Library research resources, hours, and consultation options is available at [www.geneseo.edu/library/ask-us](http://www.geneseo.edu/library/ask-us).

Academic Integrity and Plagiarism. Milne Library offers frequent workshops to help students understand how to paraphrase, quote, and cite outside sources properly. These sessions are meant to educate about the importance of using original ideas and language, and how to incorporate paraphrases and quotes into writing. The complete list of library workshops can be found at [www.geneseo.edu/library/library-workshops](http://www.geneseo.edu/library/library-workshops).

Academic dishonesty includes cheating, knowingly providing false information, plagiarizing, and any other form of academic misrepresentation. Academic dishonesty will not be tolerated in this course. College policies and procedures regarding academic dishonesty are available at [www.geneseo.edu/handbook/academic-dishonesty-policy](http://www.geneseo.edu/handbook/academic-dishonesty-policy).

Computer and Technology Support. For assistance with your computer or mobile device, visit the CIT HelpDesk in Milne Library. CIT provides self-help guides on a range of computer issues, including access to the campus network, Canvas, printing, software guides, and other resources. The CIT Self Help Guides at [wiki.geneseo.edu/display/cit/CIT+Self+Help](http://wiki.geneseo.edu/display/cit/CIT+Self+Help) can be helpful in finding quick solutions to basic technology issues.

CIT also provides free access to over 7,500 online tutorials for software, digital tools, web development, programming, and design through [linkedin.com/learning](http://linkedin.com/learning).

Course Accessibility. SUNY Geneseo will make reasonable accommodations for persons with documented physical, emotional, or cognitive disabilities. Accommodations will be made for medical conditions related to pregnancy or parenting. Requests for accommodations including letters or review of existing accommodations should be directed to the Office of Disability Services in Erwin Hall 22 or [disabilityservices@geneseo.edu](mailto:disabilityservices@geneseo.edu) or 585-245-5112. Students with letters of accommodations should submit a letter to each faculty member at the beginning of the semester and discuss specific arrangements. Additional information on the Office of Disability Services is available at [www.geneseo.edu/dean\\_office/disability\\_services](http://www.geneseo.edu/dean_office/disability_services).

Student Well-Being is a priority in this class, to support the achievement of academic goals and alleviate stress. Concerns about academic performance, health situations, family health and wellness (including the loss of a loved one), interpersonal relationships and commitments, and other factors can contribute to stress. Students are strongly encouraged to communicate their needs to faculty and staff and seek support if they are experiencing unmanageable stress or are having difficulties with daily functioning. Please feel free to reach out to me if you have questions or concerns. The Dean of Students (585-245-5706) can also assist and provide direction to appropriate campus resources. For more information, see [www.geneseo.edu/dean\\_students](http://www.geneseo.edu/dean_students).

Mental Health Resources. As a student, you may experience a range of challenges that can impact your mental health and thus impact your learning; common examples include increased anxiety, shifts in mood, strained relationships, difficulties related to substance use, trouble concentrating, and lack of motivation, among many others. These experiences may reduce your ability to participate fully in daily activities and affect your academic performance.

SUNY Geneseo offers free, confidential counseling for students at the Lauderdale Center for Student Health and Counseling, and seeking support for your mental health can be key to your success at college. You can learn more about the various mental health services available on campus at [health.geneseo.edu](http://health.geneseo.edu).

Food Security. SUNY Geneseo students who find themselves in a position of food insecurity and do not have the financial resources to support their food and nutrition needs can access the Geneseo Groveland Food Pantry located at the First Presbyterian Church, 31 Center Street in Geneseo. Students can utilize the pantry once with no referral or contact with the College. At this visit they will be provided items that will address their basic needs for several days. If a student continues to face difficulties providing for their own nutritional needs beyond their first visit to the pantry they should connect with Susan Romano, Director of Financial Aid to receive a brief letter that they will present to the staff at the pantry that verifies their need. If students do not have a FAFSA on file for any reason they should contact Dr. Leonard Sancilio, Dean of Students, to discuss their particular situation and options. The Geneseo Groveland Food Pantry is open on the following days and times:

Tuesday: 10 AM - 2 PM

Wednesday: 4 PM - 6:30 PM

Thursday: 10 AM - 2 PM

If you have any questions please contact Dr. Leonard Sancilio, Dean of Students at: [sancilio@geneseo.edu](mailto:sancilio@geneseo.edu) or 585-245-5706.

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# BIOL 288: SCIENCE COMMUNICATION

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## SCHEDULE

### Week 1: Science Communication

Aug. 26	Welcome to Science Communication	
Aug. 28	The Scientific Method	<i>Schimel Ch. 1</i>
Aug. 30	Perceptions of Scientists	
	Due: Introductions	

### Week 2: The Audience

Sept. 2	<i>Labor Day, No Classes</i>	
Sept. 4	Knowing Your Audience	<i>Schimel Ch. 20</i>
Sept. 6	Meet Them Where They Are	<i>Hendricks, The Conversation</i>

### Week 3: Story & Narrative

Sept. 9	Story	<i>Schimel Ch. 2</i>
Sept. 11	Narrative	<i>Schimel Ch. 3</i>
Sept. 13	Storyboarding	<i>Schimel Ch. 4</i>
	Due: Semester Topic Proposal	

### Week 4: Writing & Rewriting

Sept. 16	Science Writing	<i>Freeling et al. 2019, PNAS</i>
Sept. 18	References & Reference Management	
Sept. 20	Revision, Concision, & Critique	<i>Schimel Ch. 17</i>
	Due: Three References for Mini-Paper	

### Week 5: Writing & Rewriting

Sept. 23	Titles, Openings, & Jargon	<i>Schimel Ch. 5</i>
	<i>Bring Example Paper to Class</i>	
Sept. 25	Challenge & Action	<i>Schimel Ch. 7</i>
Sept. 27	The Resolution	<i>Schimel Ch. 9</i>
	Due: Mini-Paper Intro	

## Week 6: [Writing & Rewriting](#)

Sept. 30	Distilling, Not Dumbing Down	
Oct. 2	Communicating Risk & Uncertainty	<i>Schimmel Ch. 18</i>
Oct. 4	Ethics in Science Writing	
	Due: Mini-Papers	

## Week 7: [Data Visualization](#)

Oct. 7	The Power of Visualization	
Oct. 9	Infographics	<i>BBC Infographics Guide</i>
Oct. 11	Build a Figure Activity	<i>Bring Laptops to Class</i>
	Due: Mini-Paper Peer Reviews	

## Week 8: [Presentations](#)

Oct. 14	<i>Fall Break, No Classes</i>	
Oct. 16	Public Speaking & Short-Form Talks	<i>Olson Storytelling (Video)</i>
Oct. 18	Performance Workshop	
	Due: Figure or Infographic	

## Week 9: [Presentations](#)

Oct. 21	Sound Bites & Elevator Pitches	<i>Elevator Pitch Podcast</i>
	<i>Mid-Semester Evaluations</i>	
Oct. 23	Conference Talks	
Oct. 25	Talk Tip Sheets	
	Due: Sound Bite & Elevator Pitch	

## Week 10: [Science News](#)

Oct. 28	Science Journalism	<i>The Atlantic, Dr. Bouman</i>
Oct. 30	The Same Old Story	
Nov. 1	Science Blogs	
	Due: Revised Mini-Paper	

## Week 11: [Climate Change: Communication, Controversy, & Crisis](#)

Nov. 4	Climate Change	<i>IPCC Report for Educators</i>
Nov. 6	Climate Change in the News	

Nov. 8            Discussion: Communication & Controversy            *Climate News Reading*  
Due: SciComm Project Pitch

Week 12: **Digital Media**

Nov. 11            Social Media for Science Communication            *Science Twitter*  
Nov. 13            Apps & Games  
Nov. 15            Discussion: Digital Tools  
Due: SciComm Project Post

Week 13: **Documentaries & Museums**

Nov. 18            Documentaries  
Nov. 20            Science Museums            *Friedman 2010, Physics Today*  
Nov. 22            Children's Books: Interview with Author Lydia Lukidis  
Due: SciComm Project Update

Week 14: **The Unconventional**

Nov. 25            Unconventional Avenues for Science Communication  
Nov. 27-29        *Thanksgiving Break, No Classes*

Week 15: **Science Fiction & Science Communication**

Dec. 2            Science Fiction and Science Communication            *GATTACA (Film)*  
Dec. 4            Climate Fiction  
Dec. 6            Discussion: SciFi/CliFi as Communication Mechanisms  
Due: SciFi/CliFi Response

Week 16: **The Resolution**

Dec. 9            Reflection: Communicating Science  
Dec. 10            *Study Day, Extended Office Hours*  
Dec. 12            Project Presentations, 3:30 – 6 pm  
Due: Final Talk Slides; Final Talk Self & Peer Reviews