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

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) 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**.

- 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. 30th 15 points
Compose one thoughtfully-written paragraph introducing yourself and your interests and goals in science.

Semester Topic Proposal Sept. 13th 20 points
Write a two-paragraph summary of your semester topic, referencing at least one scientific journal article you will use as a source.

Mini-Paper 80 points
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. 20th 15 points

Mini-Paper Introduction Sept. 27th 10 points

Mini-Paper Oct. 4th 30 points

Mini-Paper Peer Reviews Oct. 11th 10 points

Mini-Paper Revision Nov. 1st 15 points

Figure Design Oct. 18th 25 points
Create a beautiful and informative figure or infographic to visualize your topic.

Sound Bite & Elevator Pitch Oct. 25th 20 points
Use short-form communication to distill your topic and engage your audience.

SciFi as SciComm Response Dec. 6th 10 points
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 90 points
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.

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<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Points</th>
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<tbody>
<tr>
<td>Project Pitch</td>
<td>Nov. 8th</td>
<td>15 points</td>
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<tr>
<td>Project Post</td>
<td>Nov. 15th</td>
<td>15 points</td>
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<tr>
<td>Project Update</td>
<td>Nov. 22nd</td>
<td>10 points</td>
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<tr>
<td>Final Talks</td>
<td>Dec. 12th</td>
<td>40 points</td>
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<tr>
<td>Final Talk Reviews</td>
<td>Dec. 12th</td>
<td>10 points</td>
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**Participation**

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 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.

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.

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.

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 or 585-245-5706.
BIOL 288: SCIENCE COMMUNICATION

SCHEDULE

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

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

Week 3: Story & Narrative
Sept. 9   Story  Schimel Ch. 2
Sept. 11  Narrative  Schimel Ch. 3
Sept. 13  Storyboarding  Schimel Ch. 4
          Due: Semester Topic Proposal

Week 4: Writing & Rewriting
Sept. 16  Science Writing  Freeling et al. 2019, PNAS
Sept. 18  References & Reference Management
Sept. 20  Revision, Concision, & Critique  Schimel Ch. 17
          Due: Three References for Mini-Paper

Week 5: Writing & Rewriting
Sept. 23  Titles, Openings, & Jargon  Schimel Ch. 5
          Bring Example Paper to Class
Sept. 25  Challenge & Action  Schimel Ch. 7
Sept. 27  The Resolution  Schimel Ch. 9
          Due: Mini-Paper Intro
Week 6: Writing & Rewriting
- Sept. 30  Distilling, Not Dumbing Down
- Oct. 2   Communicating Risk & Uncertainty
- Oct. 4   Ethics in Science Writing
  Due: Mini-Papers

Schimel Ch. 18

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

Week 8: Presentations
- Oct. 14  Fall Break, No Classes
- Oct. 16  Public Speaking & Short-Form Talks
  Olson Storytelling (Video)
- Oct. 18  Performance Workshop
  Due: Figure or Infographic

Week 9: Presentations
- Oct. 21  Sound Bites & Elevator Pitches
  Elevator Pitch Podcast
  Mid-Semester Evaluations
- Oct. 23  Conference Talks
- Oct. 25  Talk Tip Sheets
  Due: Sound Bite & Elevator Pitch

Week 10: Science News
- Oct. 28  Science Journalism
  The Atlantic, Dr. Bouman
- 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
  IPCC Report for Educators
- Nov. 6   Climate Change in the News
### Week 12: Digital Media

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<th>Date</th>
<th>Topic</th>
<th>Reading</th>
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<tr>
<td>Nov. 8</td>
<td>Discussion: Communication &amp; Controversy</td>
<td><em>Climate News Reading</em></td>
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<tr>
<td></td>
<td>Due: SciComm Project Pitch</td>
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<td>Nov. 11</td>
<td>Social Media for Science Communication</td>
<td><em>Science Twitter</em></td>
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<td>Nov. 13</td>
<td>Apps &amp; Games</td>
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<td>Nov. 15</td>
<td>Discussion: Digital Tools</td>
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<td>Due: SciComm Project Post</td>
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### Week 13: Documentaries & Museums

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<th>Date</th>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td>Nov. 18</td>
<td>Documentaries</td>
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<tr>
<td>Nov. 20</td>
<td>Science Museums</td>
<td><em>Friedman 2010, Physics Today</em></td>
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<td>Nov. 22</td>
<td>Children’s Books: Interview with Author Lydia Lukidis</td>
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<td>Due: SciComm Project Post</td>
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### Week 14: The Unconventional

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<th>Date</th>
<th>Topic</th>
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<tr>
<td>Nov. 25</td>
<td>Unconventional Avenues for Science Communication</td>
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<td>Nov. 27-29</td>
<td><em>Thanksgiving Break, No Classes</em></td>
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### Week 15: Science Fiction & Science Communication

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<tr>
<th>Date</th>
<th>Topic</th>
<th>Film</th>
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<tbody>
<tr>
<td>Dec. 2</td>
<td>Science Fiction and Science Communication</td>
<td><em>GATTACA (Film)</em></td>
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<td>Dec. 4</td>
<td>Climate Fiction</td>
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<td>Dec. 6</td>
<td>Discussion: SciFi/CliFi as Communication Mechanisms</td>
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<td>Due: SciFi/CliFi Response</td>
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### Week 16: The Resolution

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<th>Date</th>
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<tr>
<td>Dec. 9</td>
<td>Reflection: Communicating Science</td>
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<td>Dec. 10</td>
<td><em>Study Day, Extended Office Hours</em></td>
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<td>Dec. 12</td>
<td>Project Presentations, 3:30 – 6 pm</td>
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<td>Due: Final Talk Slides; Final Talk Self &amp; Peer Reviews</td>
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