Science Communication Lab Workshop Guide

The Science Communication Lab hosts workshops that prepare young scientists to effectively communicate their work with the public and others in their field. Participants in our workshops range from high school students to graduate researchers and postdocs. We individualize each workshop to help participants overcome their own science communication challenges in everything from posters and presentations to elevator pitches and science blogs. Our workshops involve interactive practice with the introduced sci comm tools, which often include storytelling, data visualization, and design. We invite attendees to bring their current projects to the workshop or to individual coaching sessions in the Sci Comm Coaching Lab to practice these tools in their own work.

Full Length SCL Workshops

The Science Communication Lab (SCL) offers some pre-established 60-90 minute workshops described in the following section.

Using Science to Advocate for Change

Time: 90 minutes

Description: During this session participants explore the unique role that scientists play in creating change. Have you ever wondered how to use your scientific literacy and critical thinking to educate others and advocate for positive change? Participants learn how to effectively communicate scientific information to advocate for positive social change using science storytelling.

Sections:

- What is the Science Communication Lab?
- Purpose of public science communication
- Importance of storytelling
- How to tell science stories
  - Well-defined audience
  - ABT narrative arc
  - Engaging details
  - Jargon
- Breakout room practice
  - Activity: Science Storytelling in Immortal Fans Campaign
  - Activity: Jargon Translation and ABT in *The Atlantic* Article

Communicating your Science: A Brainstorming Workshop for New Science Communicators

Time: 60-90 minutes

Description: Participants in this workshop develop a plan for a science communication or outreach project through an interactive presentation and corresponding worksheet. The project plans developed in this workshop outline the intended purpose, audience, and format. Participants learn about the essential elements of an effective science communication project, as well as how to overcome bias issues to reach their intended audience.

Sections

- Review from "Using Science to Advocate for Change" (if presenting in series)
- Brainstorming your sci comm purpose
  - Purpose of public science communication
- Brainstorming your sci comm audience
  - Types of bias
  - Overcoming bias
- Brainstorming your sci comm format
  - Possible UMN opportunities
  - Inclusive science communication

Storytelling in Science: Academic Posters

Time: 90 minutes

Description: This workshop discusses the importance of poster design and data visualization in conveying scientific findings to poster session audiences. The workshop transforms a "bad" poster example into a more effective communication tool by exploring strategies for better poster titles, methods, results, key findings, and overall design. Attendees have the chance to practice new skills in interactive activities during the workshop and may apply these skills to their own posters in the Sci Comm Coaching Lab.

Sections

- What is the Science Communication Lab?
- Considering the goals of a poster session
- Title
  - Jargon
- Methods
  - Flow charts, diagrams, and images
- Results
  - Data visualization
- Key finding
- Design Basics

Storytelling in Science: Applications and Proposals

Time: 90 minutes

Description: This session provides tools for proposal and application writing, especially for UROP and REU applications. The tools, including the ABT narrative device and editing strategies, help participants share their personal science story. The workshop features interactive activities using example proposals and students' original work. Students do not need to bring any pre-written work to the workshop, but may attend the Sci Comm Coaching Lab following the event to improve their own proposals and applications.

Sections

- What is the Science Communication Lab?
- Importance of storytelling
- How to tell science stories
  - Specific example
  - ABT narrative arc
  - Concise writing & active voice
- Breakout room practice
  - Editing practice on individual writing and provided examples

Getting to Know Your Sources

Time:

Description:

Sections:

- Types of bias
- Bias in research
- Analyzing sources

Possible Workshop Series

Professional Science Communication

Two-part series that focuses on science communication with other scientists

1. Storytelling in Science: Academic Posters
2. Storytelling in Science: Applications and Proposals

Public Science Communication

Two-part series that focuses on communicating science with the public. The series focuses on how to effectively engage audiences across ideologies on critical issues like climate change, healthcare, and more.

1. Using Science to Advocate for Change
2. Communicating your Science: A Brainstorming Workshop for New Science Communicators

Bioline Bootcamp

Week 1 | 10,000' view of inclusive scicomm, practice identifying/translating jargon.

Week 2 | Explore the power of story, identify/translate jargon in selected articles.

Week 3 | Talk about your science with a story and ditch the single elevator pitch.

Week 4 | Role of social media in scicomm and evals.

Sci Comm Modules a la carte

Module Series: The Basics

What is the Science Communication Lab?

Time: 3-5 minutes

Description: This module introduces participants to the Science Communication Lab by explaining who we are and what we do.

Activities: None

Suggestions/variations: Ideal for the start of any workshop with participants who are not familiar with SCL.

Purpose of Public Science Communication

Time: ~6 minutes

Description: This module explores the importance of public science communication, from targeting misinformation to informing policy.

Activities: Share/write down your personal purpose in science communication.

Suggestions/variations: Fits well at the start of a workshop for any public-facing science communicators to establish participants' goals.

Importance of Storytelling

Time: 4-7 minutes

Description: This module describes the research and history behind storytelling as a means of sharing information.

Activities: Can listen to the 12 minute "Your Brain on Storytelling" (Short Wave) prior to the workshop.

Suggestions/variations: Additional slides available to relate storytelling to proposal writing via its memorable and convincing qualities.

Coaching Lab

Time: 3 min

Description: A short module to explain the Coaching Lab and invite members to make appointments.

Activities: none

Suggestions/variations: Best placed at the end of the workshop.

Module Series: How Do We Tell Science Stories?

Specific Example

Time: ~5 minutes

Description: Providing a specific example, rather than generalizations, makes a story more memorable and engaging. The module shows examples of both specific and general stories

Activities: Brainstorm a specific example/story from their own life to answer a prompt

Suggestions/variations: Best placed at the start of the "How to tell science stories" series.

ABT Narrative Arc

Time: 8-10 minutes

Description: The ABT (and, but, therefore) framework is a simple and effective structure for storytelling. The module shows ABT story examples compared to AAA (And, And, And) and DBY (Despite, But, Yet).

Activities: Write a short ABT story using either four unrelated images or a personal example (brainstormed in the specific example module).

Suggestions/variations: ABT story examples can vary based on workshop topic. Some options include elevator pitch, personal story, and research abstract.

Engaging Details

Time: ~10 minutes

Description: Adding humor, emotion, imagery, and metaphor can help audiences further engage with an ABT story. This module gives examples of all four engaging details

Activities: Add in engaging details to the ABT story written in the ABT module.

Suggestions/variations: Must be presented after ABT. Some slides in this module can also be used in the Importance of Storytelling module.

Jargon

Time: 5-10 minutes

Description: Translating jargon is an essential part of science communication. This module provides motivation and strategies for jargon translation.

Activities: Analyze the jargon translation between a peer-reviewed journal abstract and related general audience article.

Suggestions/variations: There are many variations for the activities because we have multiple article options. Time varies based on how much practice versus just explanation of jargon strategies is desired.

Concise Writing and Active Voice

Time: 4 minutes (add 8-10 min for activity)

Description: Scientists often rely too heavily on passive voice and wordy expressions in their writing. This short module discusses the importance of active voice and straightforward communication.

Activities: Compete against one another to edit a paragraph down to the fewest words possible without losing the original meaning. Edit personal writing for passive voice and nominalization.

Suggestions/variations: If more time is available, breakout rooms/ small groups that focus on writing critiques could be helpful here.

Activity: Science Storytelling in Immortal Fans Campaign

Time: 7 min

Description: The Immortal Fans Campaign is a successful organ donor registration campaign in Brazil. Workshop participants watch a 3 minute Youtube video and discuss elements of science storytelling in the campaign

Suggestions/variations: Best for workshops that include the ABT Narrative Device, Engaging Details, and Well-defined Audience modules.

Activity: Jargon Translation and ABT in The Atlantic Article

Time: 10-15 minutes

Description: Analyze a peer reviewed journal abstract and a related *The Atlantic* article for evidence of jargon translation and ABT story structure.

Suggestions/variations: Best completed in break-out rooms and discussed in a large group afterwards. If short on time, breakout rooms can assign one question to each member and then share answers, rather than having each member answer every question.

Module Series: Connecting with your Audience

Well-defined Audience

Time: 3-8 minutes

Description: Science communication for a well-defined audience can incorporate more specific values and interests. This module provides examples of well-defined audiences and allows participants to define their own audience.

Activities: Fill out an audience profile to explore the types of people participants want to reach in their science communication. They may also watch a 3-minute youtube video and

discuss the success of the featured organ donor campaign based on its well-defined audience.

Suggestions/variations: The organ donor campaign video also shows elements of storytelling and engaging details, so it is a great activity to do at the end of a workshop featuring these modules.

Types of Bias

Time: 7-10 minutes

Description: This module explains types of biases that are important to consider when trying to connect with audiences, as well as biases that contribute to misleading or unethical research.

Activities: Brainstorm issues one may run into in science communication based on the audience's bias.

Suggestions/variations: This module can either relate to audiences or to research, depending on the theme of the workshop.

Overcoming Bias

Time: 12-15 minutes

Description: This module provides strategies for overcoming bias and connecting with challenging audiences. The three strategies are to establish trust, include identity, and consider framing.

Activities: Brainstorm specific strategies based on trust, identity, and framing to overcome the bias issues highlighted in the Types of Bias module activity

Suggestions/variations: Must be presented after the Types of Bias module.

Other Modules

Inclusive Science Communication

Time: 6-10 minutes

Description: This module highlights a few general strategies for inclusive science communication.

Activities: Brainstorm strategies that apply to one's own science communication projects to ensure inclusivity.

Suggestions/variations: This could be expanded to a more in-depth conversation or stand alone workshop.

Data Visualization

Time: 20-25 minutes

Description: Data visualization is an important tool for visual science storytelling. This module informs participants of important considerations when graphing and visualizing their research.

Activities: Practice effective visualization with example data or improve existing graphs based on the content covered in the module.

Suggestions/variations: This module can be expanded into a stand alone workshop. There is a lot of potential to add more interactive activities. The existing activity is best completed in breakout rooms or small groups to encourage discussion.

Design Basics

Time: ~15 min

Description: This module provides an introduction to design concepts that apply to visual science communication projects, including color, white space, typography, and Gestalt principles.

Activities: Practice visual communication and problem solving skills by creating a poster with assets given.

Suggestions/variations: The module can incorporate specific design examples based on the workshop theme (posters, slides, infographics, etc.)