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Introduction to Your Science Communication Portfolio

What is a science communication portfolio and why do you need one?

Are you working on a research manuscript, grant, annual report, or project summary that requires technical language? Do you feel that your finding, if communicated properly, could be useful to people beyond your professional network? This communication-training document for scientists is designed to help you do just that – on your own time and for a variety of verbal and written communication styles.

After completing this short 4-step introductory section, modules can be finished independently, and in any order, depending on your communication needs. All of the modules are designed to communicate your research to a more general audience. Therefore, once your technical document becomes public, you will already have your science communication portfolio ready.

Step 1: What are your communication goals?

To begin your communication portfolio, consider your personal goals. They may be to:

- Build trust and respect within a community
- Better your awareness of public perception
- Get others excited about your science
- Improve your communication skills
- Increase public engagement
- Add meaning, relevance and/or value to your work
- Demonstrate effort in broader impacts

Step 2: Understanding your audience

Before communicating, consider who you are to planning communicate with. Depending on the module, this may change. Appendix I is a printable image of the following, for easy reference.

- **Who are they?**
Who are you trying to engage? Teachers? Doctors? Relatives? A broader, more general audience? *What prior knowledge (if any) might they have regarding your topic?*
- **Why are they here?**
What do they hope to learn from you? How will this impact their lives or inspire their curiosity? Are they coming with an open mind, preconceptions, or an agenda?
- **Why should they care?**
What does your audience value? What keeps them awake at night? *How is your work important to them?* Remind them that we are all in this together, and demonstrate that you empathize with their needs, both as a scientist and as a person.
- **What will you send them away with?**
Can you leave them with a good dinner conversation topic? An action item they can share with friends? Word-of-mouth is still an effective communication strategy.
- **How can you best reach them?**
People vary in how they receive information. How might you best connect with your audience? Are there images or stories they might identify with?
- **What might they be hesitant to hear?**
Remember, everyone has opinions. Be aware of concepts, ideas, and action items that may cause your audience to dismiss or downplay your take-home messages.

Step 3: Defining your “take-home” messages

These are the 2-3 main messages, concepts, and/or conclusions from your work that you want to communicate well enough to your audience that they will “take them home”. The messages you choose, and the order you introduce them, will depend on your audience. If your audience isn’t familiar with your topic, one or two of your messages may actually need to be background information. These foundational concepts will be necessary if your audience is going to understand your final take-home message, the new information you wanted to communicate.

Messaging Templates

Once you know your main messages, let’s develop them into talking points for two common communication situations. The first template is useful for research that has a new specific finding; the second is useful for research that has direct bearing on public policy or people’s personal choices.

New research findings

1. Refer to the basic science
2. Briefly summarize major findings and results of new research
3. Discuss the implications for scientists or society

Scientific findings that suggest actions people or institutions should take

1. Describe the problem
2. Share a solution (“We found that...”)
3. Offer an action that should be taken
4. Relay the benefits from taking action

Step 4: Establishing your “And, But, Therefore” statement

The term “ABT” was coined by Randy Olson, a scientist-turned-filmmaker and author on science communication. The ABT statement is designed to transform normal science communication, which tends to be a series of exposition statements linked by a silent “and”, into a story. The ABT statement reduces those “science does this and this and this...” statements into ~2 background sentences, and then introduces a “But” statement. A simple “But” introduces conflict, a sense of tension, and turns your science exposition into a story. The “But” statement is followed by a “Therefore,” which establishes a sense of resolution. An ABT statement is fantastic for those times when you have less than 60 seconds to communicate what you do to someone (e.g., a networking event or the end of a conference presentation).

Your ABT statement is also a perfect introduction to longer science communication pieces, such as a blog post (see the Blog Module). Start with a hook (an introductory statement that pulls in the reader) and then lead into the ABT statement to give your reader an overview of your story arc (for more on story arcs, also see the Blog Module). By giving your audience a sense of where you’re leading them, they can more easily follow along and remain engaged.

In four sentences, think about your ABT:

- *Statement 1...*
- *And statement 2...*
- *But, ...!*
- *Therefore.*

Verbal Module: Sound Bites

What is a sound bite?

A sound bite is a way to communicate your message in a short, quotable form for the media. Good sound bites are memorable and evoke an emotion or image that helps your audience understand your message. This section will help you craft one or more sound bites that convey your talking points.

Preparing your sound bites

Prepare your sound bites much as you would any form of communication. First, determine your goals, then figure out which angle will resonate most with your audience.

You may be using a report, a manuscript, or years of work as the background for your interview, but you need to review your take-home messages and make them into 2-3 short, main points. In a few sentences, what are the most important things you want people to remember?

Make sure that when you're preparing your sound bites, you consider not only the message that you want to say, *but also what you do not want to say*. This will help you stay on track if the interview drifts away from your main points, or if the interviewer is pressing you to say something you're not comfortable with. Practice your main points, rule out what you do not want to say in advance, and you'll be less likely to be misquoted.

Strategies for success

- Don't use jargon. If you must use technical words, explain what they mean.
- Repeating myths and misinformation only gives them more credibility. If you need to address misinformation, share the facts first, back it up with proof, *then* address the myth, and be sure to close your statement by reaffirming the facts.
- Repeat, repeat, repeat. Begin with your talking points in summary form, then explain the specific reasons behind your points, and summarize your points again at the end.
- Remember to ask yourself, "*Why does my audience care?*"
- Good sound bites include analogies and metaphors, quotes that put numbers in perspective, witty quips, or references to pop culture.
- You can also use comparisons to everyday experiences and objects to get your point across. This is especially useful when talking about numbers, which is called "*social math*."
- Connect with your audience, both as a scientist and as a person.

Verbal Module: Elevator Pitch

What is an elevator pitch?

An elevator pitch is a short, succinct speech aimed at sparking people's interest in a particular topic or in your work in general. As a rule of thumb, an elevator pitch should last less than 30 seconds. This communication style, which is regularly used in business, is also relevant for scientific experts who are trying to communicate their research to other people with busy schedules, such as representatives from funding agencies. Aim for your pitch to be the start of a longer conversation or the beginning of a good science story.

Preparing your pitch

The key to an elevator pitch is putting your main point up front – making your pitch engaging enough that your audience wants to hear more. Your main point should address the “*Why does my audience care?*” And, why they should care about this? This may require a bit of research and preparation prior to your delivery. Preparation is essential for an effective elevator pitch.

Before you craft your pitch, remember to 1) identify your goal for this interaction, and 2) understand your target audience(s). If your goal is to reach a few different audiences, then your pitch may need to change slightly for each. What challenges (e.g., level of background knowledge, understanding of jargon) do you face with each audience? Adjust as necessary.

Strategies for success

Think of your pitch as the beginning of a story. If your audience is interested, they will follow up with you and you'll get to tell them more. The initial pitch shares the main point and gives a hint of what is to come.

- Start with a question, such as “Did you know...?” or “Have you ever...?”
- Do or say something they don't expect.
- Focus on *why it matters to them*. Make it personal, make that connection.
- Your main point must be within your first 2 sentences, as you may not have more time.
- If you have additional time, ask questions to figure out how much they know, then build upon what they already know.
- Try to leave them with an action item (refer to your messaging templates). Should they follow up with you? Do you want them to share your messages with friends/co-workers?
- Keep it short and simple. Remember, simple is elegant, simplistic is dumbed down.
- Practice! You don't have time to get distracted.

Verbal Module: 3-Minute Talk

What is a 3-minute talk?

The “3MT” started out as competition called the “3-Minute Thesis” (see Appendix III for more information), but 3MTs have turned out to be a versatile presentation style that can:

- Prepare you for a “Lightning Talk” (typically 3-5 minutes) at a conference of your peers.
- Provide an easy presentation-style format to address non-specialists within your university, institute, or funding agency.
- Promote your research online. Record your 3MT, splice in a few visuals, and post it to YouTube.
- Help you develop ways to accurately and succinctly speak about your research in a manner that is both engaging and relevant to a wider audience.

Preparing the Script

The main goal of the 3MT is to get the audience interested by *making your research question important and relevant to them* as individuals, all while communicating your take-home messages. Your script should be written so that the first 60 seconds establishes the relevance and/or importance of your research. The next 90 seconds introduces your 2-3 take-home messages. And the final 15-30 seconds wrap up by 1) reminding us of the importance/relevance of your topic and 2) what your take-home messages were.

Strategies for Success

Establish interest at the beginning, then share your messages as an engaging story, and finish by reminding everyone of the relevance and main points at the end. Here are a few tips on putting it all together.

- Focus on 2-3 main points. You don’t have time for more.
- Set up the scientific question in a way that establishes its relevance for your audience. For example, consider why you, as a member of society, are so excited about it?
- Explain what you have discovered (or expect to, if you are starting a new project). Be sure to stay engaged with your audience. Develop an analogy to something familiar, personalize your characters, or connect your topic with popular media, if you can.
- You are doing the discovering *and the presenting*. Infuse it with personality and action words. Briefly describe your experience with some particularly harrowing weather in the field, or long nights in the lab or on the computer, fueled only by microwave noodles and soda. These personalize your story and make it relatable.
- Finish with important outcomes or implications, which should lead you back to the relevance of your research and your take-home messages.

Verbal Module: Formal Presentation

When might you do a more formal presentation?

As scientists, we are familiar with presenting to our peers at conferences, department seminars, etc.; therefore, we are quite comfortable with a particular science presentation style. Presentations to funding agencies, your organization's administrative staff, government officials, or local community members at town hall meetings or community lectures are situations where you will be presenting to a more general audience. For these occasions, the standard science presentation style will not be as effective. Instead, consider communicating your message(s) in the same way you would tell a story. A lot of your hard work is already done - you have defined your goals and your audience, established 2-3 take-home messages, and perfected your ABT. If you have done some of the other modules, you might even have a snappy title and a hook. This module will prepare you for a verbally and visually engaging presentation to a general audience.

Preparing your talk – the art of storytelling

As with many of these modules, you need to tell your audience where you are going or you risk losing them. Remember to ask yourself, “*Why does my audience care?*” Then, use your ABT and take-home messages to introduce the story as well as summarize it again at the end. The middle is where you develop the story and give life to your take-home messages.

After you hook your audience and let them know where your story is going, set up the story with relevant (to you and your audience) background information. Remember, for a general audience, you may need to establish some important take-home concepts as background. Use these messages to build suspense and anticipation for your final take-home message, and be sure to lead your audience along the way by saying, “this is important, keep it in mind for later.”

Once you reach the climax of your story, unveiling your final take-home message, remember bring it back to where you started. Be sure to review your take-home messages and reconnect them to something relevant and important for your audience. One way to do this might be to give them an action item or question to share with friends, family, and co-workers. This can help keep them engaged and extend your communications efforts to another audience.

Strategies for Success

After you establish your story, reinforce it with visuals that help convey your message. Remember, no detailed science data (i.e., complex graphs and tables)! The visuals should reinforce your message with just a glance. Also, can you add in fun facts or picture and tales of daring fieldwork to keep your audience engaged?

Finally, do a jargon check on your script and ask a representative audience member to help you, as not all of your jargon will be obvious to you. And of course, practice, practice, practice!

See Blog Module for a Story Arc and Appendix II for Ground Rules for Presentations.

Written Module: Twitter

Why Twitter?

Twitter lets you connect with a large number of people based on common interests. Unlike Facebook, your Twitter audience likely contains many people that you have never met in person. It is a rapidly expanding social media platform, with about 250 million active monthly users. Before you tweet, read through some social media best practices compiled by UCS to get started on Twitter (link below and in Appendix III).

Preparing your tweet

Review your goals and your audience before you start tweeting. Tweets can only be 140 characters long, including links, hashtags (#), and 'mentions' (@twitterhandle). Hashtags are keywords that help organize conversations on Twitter (e.g., #cdnsoci identifies posts related to science issues in Canada). Using relevant hashtags can help you reach an audience that is interested in similar issues. You can also include someone else's Twitter handle (e.g., @SciNetUCS is the UCS Science Network) to make sure they see you mentioned them in your tweet. Also, tweeting pictures can be a successful way to interact with people on Twitter.

Strategies for success

A successful tweet is often less about the exact wording and more about who sees your tweet. Do your homework by building a following, researching relevant hashtags, and finding out who the influential tweeters are. Then, consider a few suggestions for composing tweets:

- Aim for 120 characters or less, to make it easier for people to retweet.
- Find out what works for you. Your audience may like puns or clever quips, or prefer just the facts. When you notice a trend in what content gets retweeted, do more of it.
- If you start a tweet with a mention (@SciNetUCS check out this report...), only people following both accounts will see the tweet. For everyone to see it, start with tweet with another character (.@SciNetUCS check out this report...).
- You can use tools like TweetDeck or Hootsuite to help you schedule tweets and manage your Twitter account.

For more: ucsusa.org/sites/default/files/attach/2014/10/ecs-social-media.pdf

Written Module: Facebook

Why Facebook?

Facebook is the most popular social media platform, with over 1.3 billion monthly users worldwide. It is a good platform to maintain relationships with people you already know in person, such as friends, family, and co-workers, so make sure you re-consider your audience (in this case, your Facebook friends). Before you post, read through some social media best practices compiled by UCS (link below and in Appendix III).

Preparing your post

What is your audience's level of knowledge on the subject you're sharing? If your audience is not that familiar with your subject, you may consider easing them into the subject. Start with fun facts and cool images. Audiences that are more familiar with your subject may appreciate it if you pull important quotes, or if you are sharing a link to something else. They may also appreciate (and understand) an attempt at humor on the subject.

What are you sharing with your audience? Videos, pictures, and other types of visually compelling content perform very well on social media. Links with attention-grabbing headlines can also draw people into your post (you can edit headlines in Facebook). Personal status updates with no links or pictures can also get traction if it has a compelling first line and is tailored to your audience.

Strategies for success

Think of Facebook posts as a pitch to get people to click on the link or content that tells more about your research or whatever it is you're sharing. Again, *"Why does my audience care?"*

- Facebook posts should be succinct. Try to get your point across in 1-2 sentences.
- Start with a question. (Did you know...? Have you ever...?)
- Connect to your audience with images and pop culture.
- Infuse it with your enthusiasm, both as a scientist and as a person.

For more: ucsus.org/sites/default/files/attach/2014/10/ecs-social-media.pdf

Written Module: Memo for Policymakers

What is a memo for policymakers?

Memos are the primary communication tool for informing policy and are fundamentally different in tone and style than academic writing. Therefore, it is essential for scientists interested in informing policy to familiarize themselves with how to write strong memos.

When should I prepare a memo?

Memos can be used in many contexts. If a policymaker or decision maker asks for your advice as a scientist, you may want to quickly prepare a written memo in which you use your scientific expertise to answer their question as concisely as possible. In addition, memos can be useful tools for making recommendations to policy makers about issues you care about. In this instance, you want to make a strong case for your position and provide the memo upfront in order to start more in depth conversations about the issue. You may also present memos at meetings with policy makers, or simply send it to them in an email. A helpful memo will answer the policymaker's main questions around the science behind an issue, without getting bogged down in details or methodology.

Preparing your memo

"For policymakers, you need to get the right information to the right people at the right time - and it has to be on one page." This quotation from Cliff Singer at the University of Illinois UC sums up the strategy behind writing a memo for decision makers.

If a policy maker is requesting information, it is important that you provide the "right information" by being accurate, which also means admitting when you don't know. Policy makers will rely on a memo from an expert as quotable fact. Also, if they are asking, it is because they need the information soon, so the "right time" is usually the same day, if not the same hour. If you're making your own recommendation to a policy maker, then the "right person" is someone who cares about the policy your recommending and has the ability to do something about it and the "right time" is during a moment when there's political will to address the issue.

Most importantly, your memo needs to be one page or less, with the most important point at the top. Putting your bottom line up front will ensure that policymakers will not miss it!

You do not have to indicate support for, or against, a specific bill or issue in your memo. Depending on your position and your level of comfort being a policy advocate, it is entirely appropriate to just provide scientific background on the issue.

Strategies for success

- Remember BLUF: Bottom Line Up Front. Think of it as the reverse of a scientific manuscript - put your conclusion at the top, then supporting facts below.
- You have limited space to get your point across (< 1 page), so don't get bogged down in details and methodology. Use straightforward language and avoid jargon.
- You can use footnotes or a short list of resources at the bottom to provide more details to support your main points.

Written Module: Op-Ed

Why Write an Op-Ed?

Op-eds are a way to share your knowledge on a current topic in print or online newspapers. They are "opposite to the editorial page," where you can share your opinion on a topic of interest to you.

It can be difficult to get an op-ed published in larger publications. Editors are looking for a unique perspective (can you offer a different angle based on your expertise or personal experience?), as well as compelling and colorful writing.

Preparing your op-ed

Just like a story, an op-ed needs an introduction, body, and conclusion. Think about your ABT statement, then focus on your main points, which will make up the body of your story. Start the introduction with a hook that will grab the attention of the reader. Flesh out your 2-3 take-home messages with details and facts in the body paragraphs. Aim for one main point per paragraph, and no more than 3 body paragraphs total. Your conclusion should refer back to the introduction, review your take-home messages, and offer a "final thought" or an action for readers to consider.

Op-eds are short and to the point, usually between 500 and 750 words. Submitting a longer piece means you risk having the editor cut it down, or not having your piece considered at all.

This is a personal viewpoint-based piece; you should clearly delineate the facts from your views, in order to both inform and persuade. For example, consider prefacing your viewpoints with a statement such as "As a scientist, I know the facts. As a citizen, I believe we need to act."

Strategies for success

Before you start, find out the process for submitting an op-ed, as it may vary from paper to paper and from print to online.

- Make your introduction "attention grabbing" as well as relevant. The first sentence will determine whether people keep reading.
- Why are you writing this? If you're an expert on the subject, or have a personal experience relating to the topic, include this in the op-ed.
- Include your name and contact information at the end of the op-ed for the editor to contact you with questions and to verify your identity.

For more: ucsus.org/action/science_network/writing-op-eds.html#.VL1-KEfF-So

Written Module: Blog

What is a Blog?

Like several other modules, a blog follows the same basic steps: identify your goals, defining your audience, drafting your take-home messages, and creating your ABT statement. A blog can establish your online presence, as well as give you an opportunity to refine your writing and communication skills. Unlike some of the shorter forms of communication, it requires a few extra pieces. However, effective communication is a skill that must be practiced and blogging is a great way to practice and refine your communication skills.

Preparing your Blog

Your **title** should be “attention grabbing”. You might already have a good start if you have done the Twitter, Facebook, or op-ed modules, but now you can be bigger, bolder, and even more intriguing because you have more space to back it up. Can you come up with a good pun or throw out a surprising statistic? Other good options are to convert your take-home messages into a list (e.g. the top 3 things we know about X), or propose a question that piques curiosity. You don't have to write your title first, but if you do, come back to it after you've finished writing to make sure it still makes sense.

Next, you need an **opening line** – the hook! What does your headline lead into? Your first line could be a pressing issue that connects with your audience, including an intriguing fact or question, or the beginning of a story or analogy that might bring out your personality or the curious wonders of your research. After you hook them, lay out your **ABT statement** so the audience knows where the blog article is going.

The bulk of the blog should focus on your **take-home messages**. This is where you can get creative and really delve into your knowledge. But don't go overboard! Aim for a post between 400-800 words..., unless you are sure that you can hold your reader for all 1200 words! If you are just starting, try a story arc (see below).

After drafting your story and getting your take-home messages laid out, think about how to **make it more interactive**. Images help people visualize your science. Short internal headlines can break up large sections, making them easier to read. Add links to resources (remember your audience – don't only link to research articles. Make sure your personality, analogies, pop culture, etc. are present throughout the piece, and don't drift back into traditional science writing!

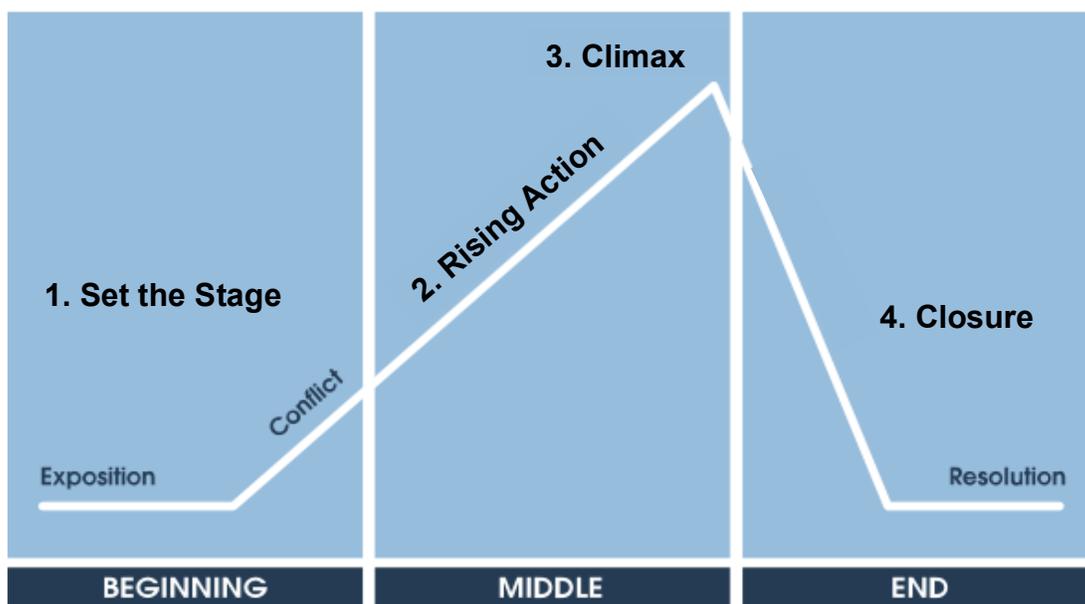
Almost there, but don't skip **quality control**. Double-check your spelling, grammar, and punctuation. Cite your sources and hyperlink text within the blog (do not include as footnotes). Check the copyright on all images, videos etc. (For creative commons license: search.creativecommons.org). Screen for jargon and think about asking a non-specialist colleague to review your blog to help you catch words that may not seem like jargon to you.

Finally! **Posting your blog**. Consider the timing of when you publish - do you want it to complement the release of your publication?

Strategies for Success

Creating your story arc

1. Set the Stage: Develop characters or plot, whichever best sets the storyline for your take-home messages
 - Create an analogy
 - Give personality to your characters and/or visuals to the scene
 - Look for pop culture references or videos, something “mainstream”
2. Rising Action: Bring in your questions (conflict) and methods/analysis (action)
 - Infuse your personality, your curiosity, the trial and tribulations of an everyday scientist. Bring them on your journey to find the truth.
 - Be descriptive without being meticulous. A 5L collection vessel can be a white bucket. Seriously.
3. Climax: Exciting new results and discoveries
 - Maintain personality and excitement
 - Be very conscious of avoiding jargon
4. Closure: What does it all mean?
 - Revisit the why this is relevant to your audience
 - Is there something they can do with the information you have given them?
 - Capitalize on any potential to set up a sequel



Plot diagram created for www.StoryboardThat.com - Creative Commons License (100% free use)

Places to share your blog may include:

- The Equation blog.ucsusa.org (email submissions to sciencenetwork@ucsusa.org)
- AgEco Blog (CGIAR Research Program on Water, Land and Ecosystems) wle.cgiar.org/blogs/
- Your alumni association(s), department, or organization’s website
- Twitter
- Facebook
- Other people are blogging about science as well - start exploring!

Appendix I: Understanding Your Audience

Print this page and post for quick reference

Understanding Your Audience

1 Who are they?

Who are you trying to engage? Teachers? Doctors? Relatives? A broader, more general audience? *What prior knowledge (if any) might they have regarding your topic?*

2 Why are they here?

What do they hope to learn from you, as an expert? How will this impact their lives or inspire their curiosity? Are they coming with an open mind, preconceptions, or an agenda?

3 Why should they care?

What does your audience value? What keeps them awake at night? *How is your work important to them?* Remind them that we are all in this together, and demonstrate that you empathize with their needs, both as a scientist and as a person.

4 What will you send them away with?

Can you leave them with a good dinner conversation topic? An action item they can share with friends? Word-of-mouth is still an effective communication strategy.

5 How can you best reach them?

People vary in how they receive information. How might you best connect with your audience? Are there images or stories they might identify with?

6 What might they be resistant to hear?

Remember, everyone has opinions. Be aware of concepts, ideas, and action items that may cause your audience to dismiss or downplay your take-home messages.

Appendix II: Ground Rules for Presentations

- Font: ≥ 24 point, san serif (Calibri, Ariel). For a dark room, use light text on dark background.
- Colors: Many people are red/green color blind, so convert to greyscale to see contrast.
- Text: No more than 3-4 points per slide, 40 words max.
- Visuals: A picture is still worth 1000 words, but they should communicate your message quickly. *Don't* use complex figures with axes in small font that you have to explain point by point. *Do* use your take-home message to think about how to visualize your point. Try to take up as much space as possible with your figures.
- Move labels and keys onto the graphic itself. Use a graphic editing program or tools in your presentation software to label and animate parts of the graphic you want to highlight for your audience. This allows you to guide your audience through a graphic in a more engaging way than relying on a graphic and bullet-pointed text.
- Titles: Think “news headline”, not a label like “this slide shows...”. Action will engage your audience. In many cases, you can introduce a topic with a single slide and then drop title text from subsequent slides; this gives you more space to focus on graphics.
- *You are part of the presentation!* Practicing will get you away from relying too heavily on notes or on-screen text, giving you more confidence to move around. Imbibe your energy into the presentation and make eye contact with your audience. If humor comes naturally to you, embrace it. If not, try just pausing for effect – it allows more time for your audience to process what you were saying and the pause adds significance.
- Do not go over time (practice). Everyone, including non-scientists, hates that.

Appendix III: Sources and Resources

Communication 101: AAAS's guide for scientists and engineers, includes online resources
aaas.org/pes/communication-101-communication-basics-scientists-and-engineers

Take home messages

Citation: A Scientist's Guide to Talking with the Media store.nexternal.com/ucs/a-scientists-guide-to-talking-with-the-media-p1.aspx

ABT Statement

Randy Olson, Great Challenges Day - TEDMED talk
And, But, Therefore: youtube.com/watch?v=ERB7ITvabA4

Sound bites

Citation: Skeptical Science skepticalscience.com/

3MT

The 3MT (3 minute thesis) was developed by the University of Queensland (UQ) as a presentation competition. Find out more at threeminutethesis.org/

Twitter and Facebook

UCS: ucsusa.org/sites/default/files/attach/2014/10/ecs-social-media.pdf

UCS: youtube.com/watch?v=cXQILih3uY0&feature=youtu.be

Memo for Policymakers

Daniel Pomeroy, Science and Policy Change: Using your expertise to influence the policy-making process: youtube.com/watch?v=3xmsbMHYjrk&feature=youtu.be

Op-Ed

UCS: ucsusa.org/sites/default/files/attach/2014/10/ecs-op-ed.pdf

UCS: ucsusa.org/action/science_network/writing-op-eds.html#.VL1-KEfF-So

Blogging sources

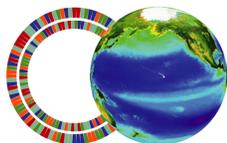
UCS: ucsusa.org/sites/default/files/attach/2014/10/ecs-blogging.pdf

How to promote your research through blogging, by Helen Eassom
exchanges.wiley.com/blog/2014/08/07/how-to-promote-your-research-through-blogging/

6 Characteristics of a Great Blog Post, by Cory Collins
pageonepower.com/2012/05/6-characteristics-great-blog-post/

How to Craft a Blog Post – 10 Crucial Points to Pause, by Darren Rowse
prologger.net/archives/2008/08/12/how-to-craft-a-blog-post-10-crucial-points-to-pause/

Great site for more blogging resources: socialnetworkingforscientists.wikispaces.com/Blogging



center for microbial oceanography: research and education

c.more *linking genomes to homes*

**[Union of
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