

# ESM 438 Week One

## General Public Speaking Skills

***Instructor: Alex Phillips***



UC SANTA BARBARA

Bren School of Environmental  
Science & Management

# ESM 438 is a five-week deep-dive into scientific public speaking

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- Let's normalize being nervous
- I'm not here to judge your science
- Please ask questions at any time
- You will get out what you put in
- I expect you to be an active listener
- We are going to try to build trust quickly



# ESM 438 is divided into 2 hour lectures and 3 hour labs

Course logistics:

- Schedule & Syllabus: Gauchospace
- Class: Tuesdays @ 5 -7 pm
  - *You will practice every class!*
- Labs: Fridays @ 9am or 1pm
  - *Assignments practiced before labs*
  - *Bring a cell phone for recording*
- Office Hours: Tuesdays & Thursdays @ 3pm
- Grading: Attendance & Participation

*Any questions?*



# By the end of this class you will have a completed 10-15 minute presentation

## *Lecture*

## *Lab*

General Public Speaking Skills	Movie Monologues & Elevator Pitches
Outlining Presentations	Draft Outline & Introductions
Slide Design	Powerpoint Roulette & Methods
Answering Questions	Conclusions with Q & A
Student Choice!	Full Presentations

“The only way to master the front of the room is to be at the front of the room. And the only way to learn to manage fear of the front of the room is to be afraid while there, because the goal is not to be fearless... **The goal is to learn to speak effectively while afraid.**”

*Friman 2014*



# The first step is to practice existing in front of a crowd



## **Activity!**

Task: Come to the front and introduce yourself, including:

- Your full name and your role at Bren
- A sentence or two about why you are taking this class and what you are hoping to learn

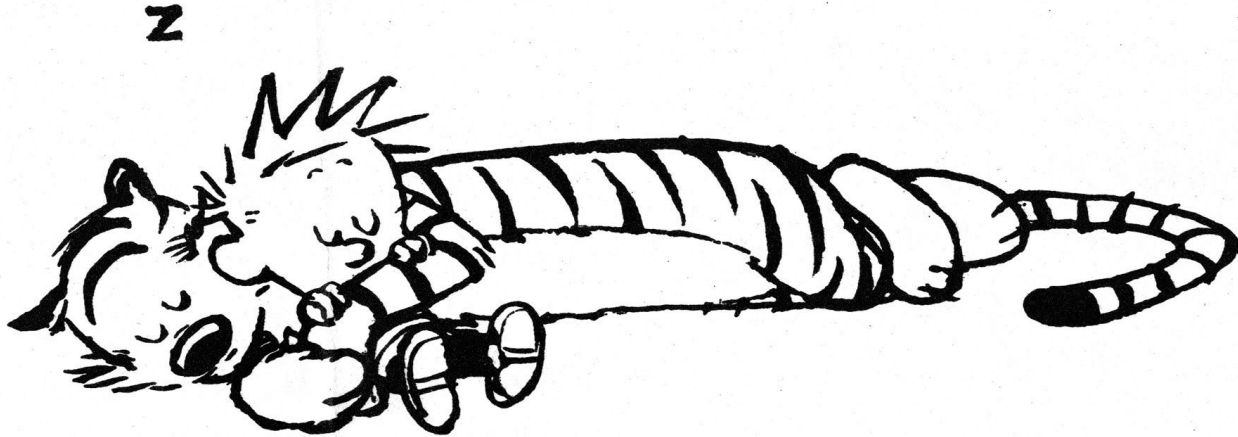
*I will give you ~2-3 minutes to brainstorm before we start.*

*Try not to think about your introduction during others.*

*Take note of how you are feeling during your turn.*

# Break!

*Take five to ten minutes for yourself.*



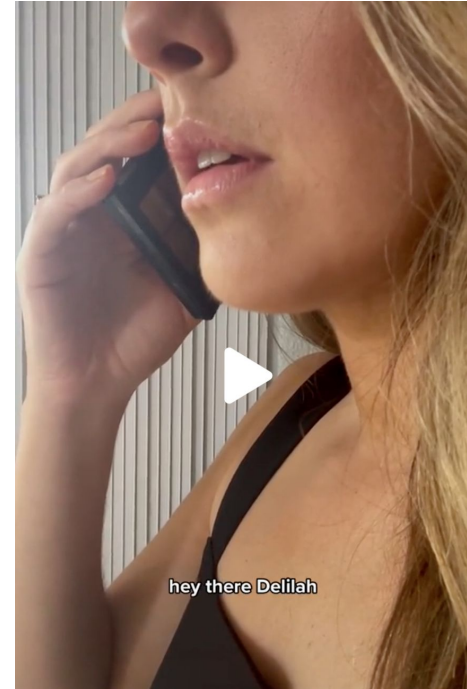
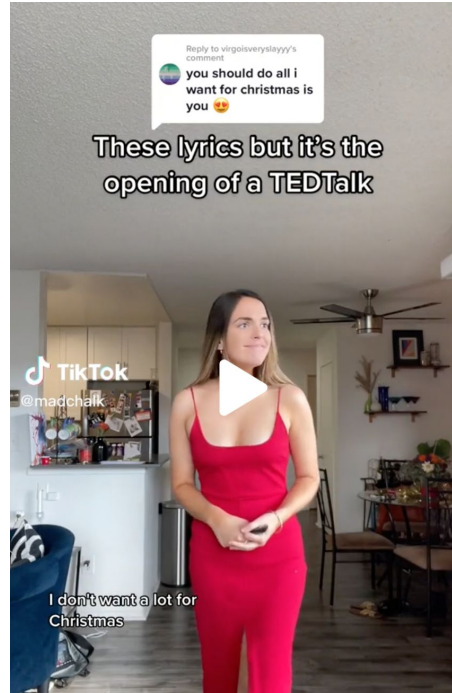
# Changing your tone, posture, and pacing has large impacts in public speaking

## Example: Madeleine Chalk

“All I Want for Christmas is You” as a TED talk

“Hey There Delilah” as a horror movie trailer

*How did she manipulate posture, tone, and pacing?*



# Your tone during presentations should be engaging, appropriate, and confident

## ***Tone Tip #1: Speak at a lower pitch***

- Adrenaline and anxiety make your voice higher
- Lower pitch is associated with higher credibility, prestige, and admiration (unfortunately)
- Higher pitches strain your vocal cords in long talks



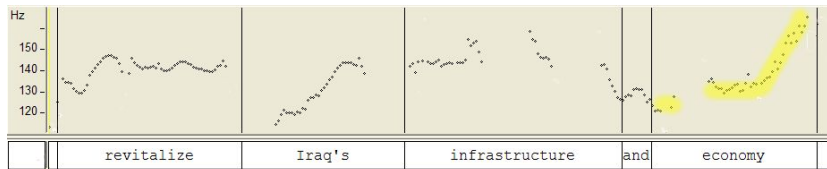


# Varying inflection leads to improved engagement

***Tone Tip #2: Be aware of “uptalk”***

Uptalk is a common tendency for ending sentences with inflection, as if asking a question.

*Example: President Bush speech clip*





# Minimizing filler words will improve perceptions around your public speaking

## *Tone Tip #3: Hear and cut filler words*

Filler words can be sounds, words, or phrases that disrupt speech

- Excessive use of filler words lowers science credibility & messages
- People that use filler words are judged as less educated
- There seems to be a “tipping point” where use becomes damaging

# Minimizing filler words will improve perceptions around your public speaking

## *Tone Tip #3: Hear and cut filler words*

Filler words can be sounds, words, or phrases that disrupt speech

- Excessive use of filler words lowers science credibility & messages
- People that use filler words are judged as less educated
- There seems to be a “tipping point” where use becomes damaging

Some ways to combat excessive filler word usage:

1. Immediate or delayed feedback in practices (watch recordings)
2. Maintaining silences during pauses & generally slowing down
3. Increasing preparation around problem areas (e.g., transitions)

# Varying tone changes the impact of a scientific message



## Activity!

Task: Practice a passage with tones that are...

1. low and monotonous
2. high pitch with upticks
3. varied and engaging

*“About 5 percent of total U.S. energy use currently comes from biomass such as corn and wood, which are renewable and absorb carbon dioxide from the atmosphere through photosynthesis as they grow. Many experts expect this percentage to continue rising, largely because of bioenergy’s flexibility.”*

# Posture should be confident, comfortable, and commanding

## *Tips for posture during science talks:*

- Wear something that you love and feel great in
- Limit fidgeting with hair, pointers, clothes, etc.
- Keep shoulders back with eyes on the audience
- Avoid gestures that make noise (clapping hands)
- Watch for “fig leaf,” “commander,” & “holding”
- Use occasional, natural hand gestures
- *Record yourself and keep practicing!*



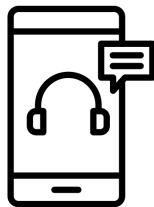
# **Your presentation pace should be about half of your conversational pace**

## ***Tips for controlling pace:***

- Take several deep breaths before you begin
- Plan strategic pauses in your slides
- Don't fill good silences with filler
- Practice with a forcibly slower pace than usual
- Focus on the start of your presentation
- Try taking a breath every time you “click”

*Remember that your audience is learning this for the first time - it takes a while to digest information!*

# Aim for 120–140 words per minute pacing in timed practices



Find a corner of the room, pull out your phone, and record the time it takes you to say the following 95 word passage. Repeat until it takes you about 50 seconds.

## **Activity!**

*This is a great chance to also practice tone and posture.*

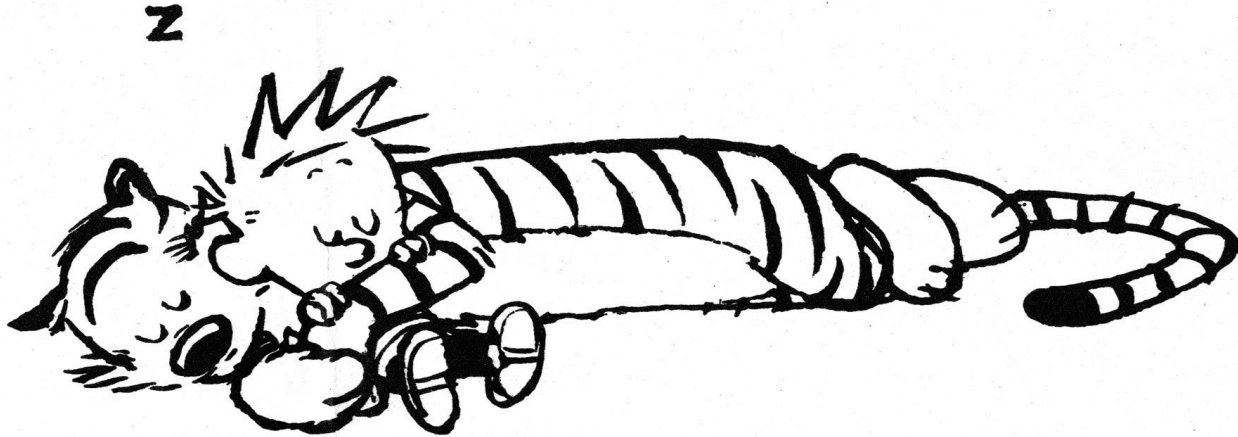
*“The very thing that distinguishes Indigenous peoples from settler societies is their unbroken connection to ancestral homelands. Their cultures and identities are linked to their original places in ways that define them, as reflected through language, place names, and cosmology or religion. In Indigenous worldviews, there is no separation between people and land, between people and other life forms, or between people and their ancient ancestors whose bones are infused in the land they inhabit. All things in nature contain spirit (specific types of consciousness), thus the world is seen and experienced in spiritual terms.”*

**Dina Gilio-Whitaker**

***As Long as Grass Grows: The Indigenous Fight for Environmental Justice***

# Break!

*Take five to ten minutes for yourself*





# Elevator pitches should be about one minute and introduce someone to your work

## ***Components of an elevator pitch:***

1. Setting: Who are you and what are you doing? (1-2 sentences)
2. Problem: What is the big problem motivating the work? (1-2 sentences)
3. Approach: How are you finding a solution?(1-2 sentences)
4. Findings: What have you found so far? (2-3 sentences)
5. Big Picture: Why should they care/what are the next steps? (1 sentence)

*This is just one possible outline, feel free to experiment and play around!*

# Elevator pitches should be about one minute and introduce someone to your work

## ***Components of an elevator pitch:***

Setting: Who are you and what are you doing? (1-2 sentences)

*My name is Alex Phillips and I'm a scientist at UCSB where I study the chemistry of the ocean.*

# Elevator pitches should be about one minute and introduce someone to your work

## ***Components of an elevator pitch:***

Problem: What is the big problem motivating the work? (1-2 sentences)

*The ocean stores 50 times more carbon than the atmosphere, but some carbon in the ocean stays there for a day and some stays for over 100,000 years. We don't understand why some carbon lasts so long, but that's exactly what we need to learn about to mitigate climate change.*

# Elevator pitches should be about one minute and introduce someone to your work

## ***Components of an elevator pitch:***

Approach: How are you finding a solution?(1-2 sentences)

*I collect samples in the deep sea, where a lot of this mysteriously old carbon is, and bring them back to the lab for analysis. Specifically, I'm using a new method I developed to look at the amount of sulfur in the dissolved ocean carbon, which we think will offer new insights into aging processes.*

# Elevator pitches should be about one minute and introduce someone to your work

## ***Components of an elevator pitch:***

Findings: What have you found so far? (2-3 sentences)

*So far, by taking this new look at the sulfur content, we were able to narrow down the sources of really old carbon and disprove a leading hypothesis. We thought a majority of old carbon might come from sediments at the bottom of the ocean, moving into the deep sea over time - but it looks like old carbon is actually mostly coming from marine organisms in the surface ocean.*

# Elevator pitches should be about one minute and introduce someone to your work

## ***Components of an elevator pitch:***

Big Picture: Why should they care/what are the next steps? (1 sentence)

*These findings are really important for combating climate change, especially around understanding how to use ocean carbon storage to reach our emission goals.*



***Stephen DelSignor***



***Karen Colbert***

Task: Listen to the two elevator pitches. What worked and what didn't work? Who do you think was the intended audience?

# The goal of an elevator pitch is to start an engaging conversation

## *Tips for good elevator pitches:*



- Make yourself and your work the star
- Speak conversationally, but clearly
- Practice at different lengths and for different audiences
- Don't memorize every word of your pitch
- Limit scientific jargon, even with technical audiences



# Jargon muddles messages, especially when words have double meanings

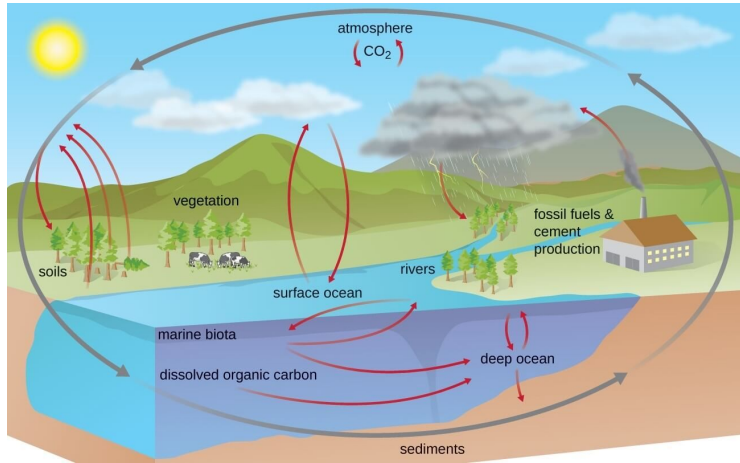
*Cycling*

*scientific meaning?*

*public meaning?*

# Jargon muddles messages, especially when words have double meanings

## Cycling



*scientific meaning*  
movement of nutrients



*public meaning*  
riding bicycles

# Jargon muddles messages, especially when words have double meanings

*Culture*

*scientific meaning?*

*public meaning?*

# Jargon muddles messages, especially when words have double meanings

## Culture



*scientific meaning*  
growth of microbes



*public meaning*  
taste in history/arts

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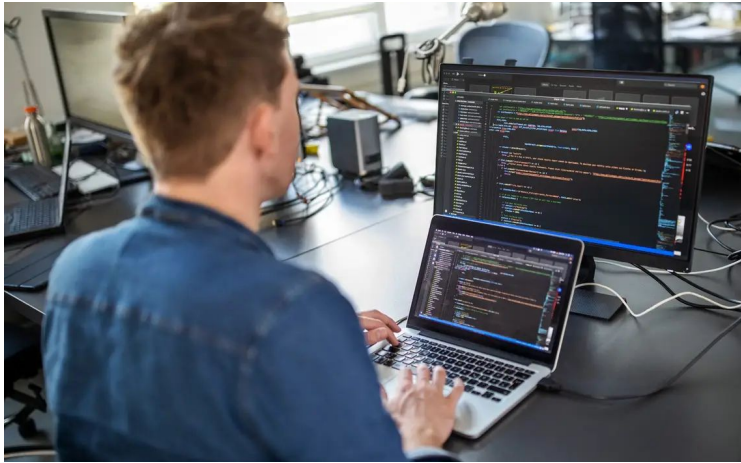
*Model*

*scientific meaning?*

*public meaning?*

# Jargon muddles messages, especially when words have double meanings

## Model



*scientific meaning*  
computer simulation



*public meaning*  
someone in fashion

# Jargon muddles messages, especially when words have double meanings

*Dating*

*scientific meaning?*

*public meaning?*



# Jargon muddles messages, especially when words have double meanings

## *Dating*



*scientific meaning*  
determining an age



*public meaning*  
romantic involvement



# Jargon muddles messages, especially when words have double meanings

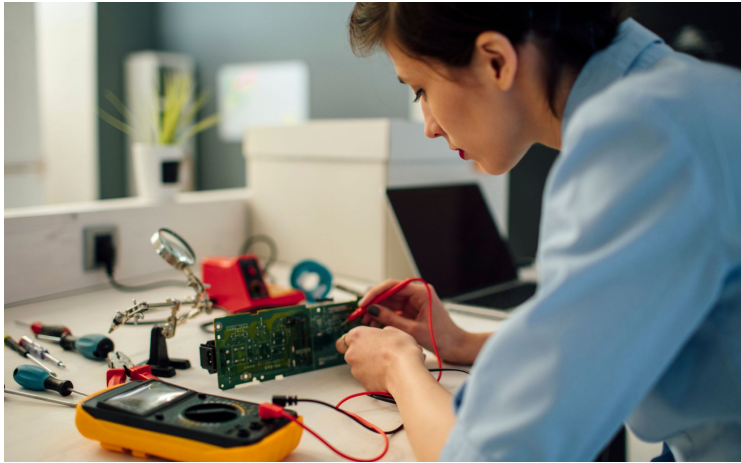
***Resistance***

*scientific meaning?*

*public meaning?*

# Jargon muddles messages, especially when words have double meanings

***Resistance***



*scientific meaning*  
opposition of flow in circuit

# Jargon muddles messages, especially when words have double meanings

## *Resistance*



*scientific meaning*  
antibiotic defense



*public meaning*  
opposing force

**Think of removing jargon as “expanding your audience” not “dumbing down your science”**

Microvesicle-derived microRNAs are important for  
intermolecular signaling in tumorigenesis

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***Without jargon:***

*Cancer cells communicate through a new molecular messenger*

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We present materials, mechanics, and integration schemes that afford scalable pathways to working arthropod-inspired cameras with nearly full hemispherical shapes

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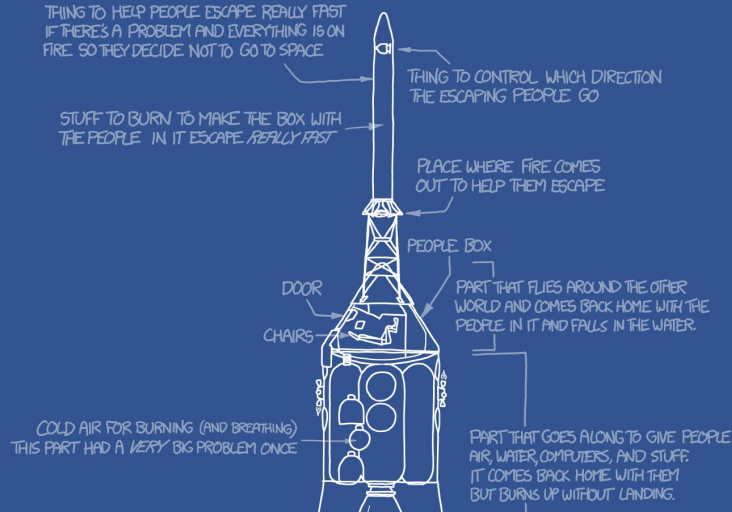


***Without jargon:***

*New, high-tech digital cameras mimic bug eyes*

# US SPACE TEAM'S UP GOER FIVE

THE ONLY FLYING SPACE CAR THAT'S  
TAKEN ANYONE TO ANOTHER WORLD  
(EXPLAINED USING ONLY THE TEN HUNDRED  
WORDS PEOPLE USE THE MOST OFTEN)



## Can you describe your science with only common words?

### Activity!

Task: Using the Up Goer 5 text editor,  
write about your research.

*Share with a partner and then we will  
hear from a few groups!*





**Dr. Sabine Stanley, Johns Hopkins**

## Can you describe your science with only common words?

Example from planetary scientist discussing NASA InSight Mars mission:

*A Space Computer Named In Sight Landed on the Red World Last Year and Here Is What We Found So Far*

# Lab one will include an activity for tone, pacing, and posture, plus elevator pitch practice



## ***Assignment One***

Practice one of ten famous movie monologues and perform it for the group (no memorization needed).



## ***Assignment Two***

Prepare two elevator pitches (one general, one scientific) and practice in different pairs.



**Any questions?**

***Next class: storytelling and outlining***