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Abstract

Despite the increasing importance of effectively communicating scientific ideas and results to the general public, graduate students in STEM related fields often do not receive extensive opportunities to practice these crucial oral communication skills. This research presents a novel oral communication curriculum that is being developed and tested with STEM graduate students at Montana State University. The program, called the "STEM Storytellers Program," uses a transformative approach to training graduate students that pulls knowledge from the journalism and performing arts community. Our program has three components: 1) creating jargon-less podcasts; 2) receiving training from an improvisational actor on stage presence; and 3) presenting at "curiosity cafes" to audiences from the general public. We will discuss the program, the curriculum and rubrics we developed, and the recruiting process. We'll also reflect on our initial experiences and offer advice for others interested in offering similar opportunities for graduate students.

Applicant Pool

- N=19 STEM Graduate students
- All students are seeking doctoral degrees
- ~1/2 male, 1/2 female
- Departments represented:
 - Physics
 - Chemistry
 - Chemical Engineering
 - Mechanical and Industrial Engineering
 - Health and Human Services
 - Ecology
 - Earth Sciences
 - Microbiology and Immunology
 - Mathematical Sciences

Motivation to Apply

- "As a short female I am not the typical engineer so it is hard for me to get respect in my field when speaking and I feel that skills in stage presence will help me to better show my knowledge in the field."
- "I would like to be a fantastic teacher."
- "If selected, I would strive to increase STEM awareness and interest among underrepresented populations such as females and other minorities through focusing on children."
- "I struggle to find the balance between personable and professional, and I hope this fellowship will help me develop my personal "brand" as I also develop my skills."
- "I would also like to gain the confidence to ask questions at departmental seminars."

Website | Advertising

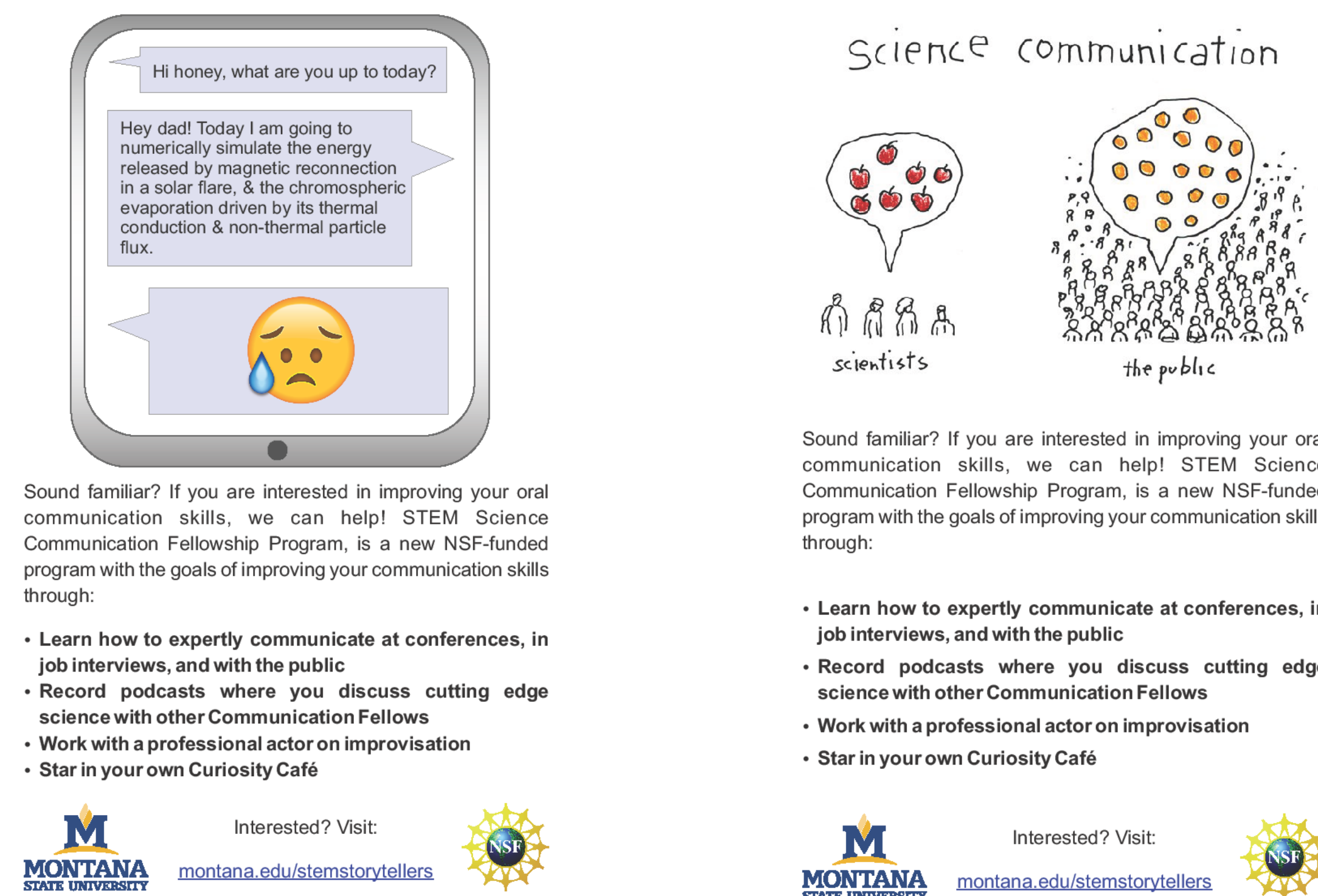


Figure 1: Fall and spring semester posters respectively.

- Posters put up in all STEM departments fall and spring semesters.
- PI met with STEM department heads and graduate student groups
- Emails were sent to alert students and faculty of this opportunity
- An email address was set up to field questions from prospective applicants

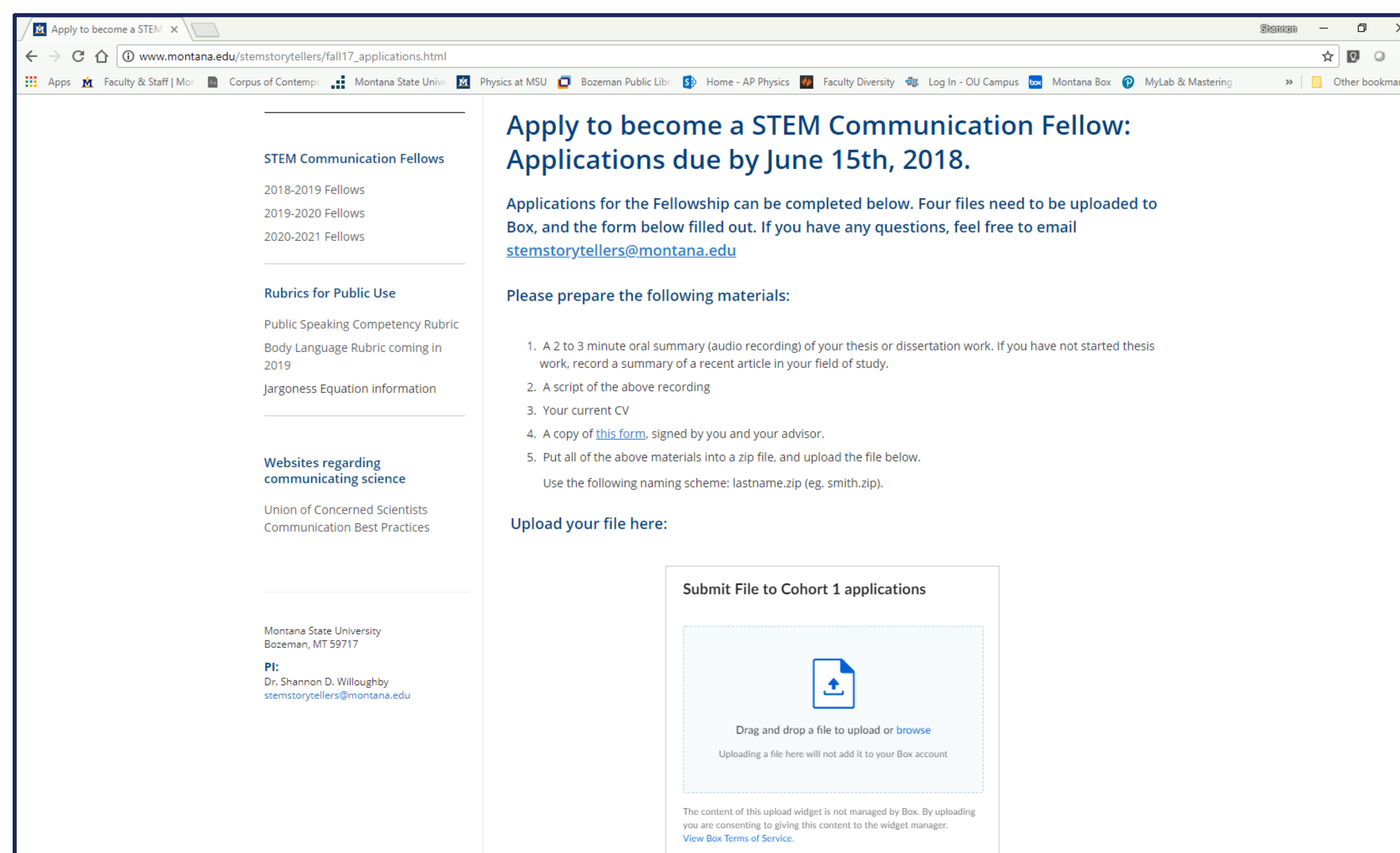



Figure 2: Application website



Programmatic Goals

Fall semesters: record a podcast

- Reduce use of jargon → $Jargonness = \begin{cases} \log\left(\frac{frequency_{scientific}}{frequency_{general}}\right) & (frequency_{general} > 0) \\ 3 & (frequency_{general} = 0) \end{cases}$
- Learn how to use of storytelling techniques regarding research → And, but, therefore...
- Learn improv techniques from a professional actor → 

Fellows record podcast summarizing a recent article in an open access STEM journal

Spring semesters: Curiosity Cafes

- Improve stage presence → Development of a body language rubric for oral communication
- Improve public speaking skills → 
- Continue learning improv techniques → 

Fellows present a summary of their thesis at a Curiosity Cafe