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.