LOH DOWN ON SCIENCE COMMUNICATION
Science Communication Skills for STEM Scientists

Mini-course offered by UC Irvine GPS-STEM
3 week course; Starting Oct 12, 19, 26 (Mondays); 12PM - 2PM

The public traditionally views scientists as introverts who speak in jargon. Conversely, a few scientists make a point of describing their research to general audiences. However, by fall 2020 we are in a “new normal.” A worldwide pandemic, global climate change, catastrophic fires, floods: rather than hidden away in a lab, science’s stories—bringing fearsome challenges, and tantalizing solutions—are everywhere. Public interest in science is soaring. If there is a silver lining, here is an opportunity for scientists to vividly communicate the importance and wonder of what they do to rabidly curious lay audiences. On a personal and professional level, whether soliciting funding, giving talks, or doing job interviews, excellent communication skills give their scientific practitioners a significant edge. Good news: we think these can be taught—the methods are, indeed, a science!

UCI’s Graduate Professional Success in S.T.E.M (GPS-STEM) is offering an online Science Communication Skills course with Sandra Tsing Loh, best-selling author, performer, and host of the popular syndicated daily KPCC radio “minute”/NPR/Google News podcast “The Loh Down on Science.” During this three-week intensive, PhD students and postdocs will learn how to engage and inform lay audiences succinctly and effectively. Sandra and trainers will also offer performance coaching and tips. The course will culminate in a short NPR-ready piece performed by each participant!

In keeping with the current transition to remote learning, we are offering this course online. GPS-STEM (previously called GPS-BIOMED) recorded online learning modules, which will be used as reference for all the classes. The 2020 offering of the course is going into “Flipped Classroom” * format, where participants will watch online video modules first and then attend in-person tutorial sessions by Sandra Tsing Loh.

Teaching Format:
- “Flipped classroom” – Instructional videos (3 mins each) to be viewed before the class
- Online workshops with interactive student feedback over Zoom
- Max 30 students in 5 Pods of 6, with a master student trainer assigned to each pod
- Peer presentations in Zoom “breakout rooms”
- Cloud drive will serve as central hub for uploading and viewing
- Each student will complete
  - a 90-second “elevator pitch” (radio script)
  - outline for a mini-TED talk (6-18 mins, expand or collapse at will)
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| 0 (Before first class) | Sketch talk based on your research  
- Title  
- The problem your research is trying to solve (2 sentences. Max 60 words total)  
- How your research is attempting a **NOVEL** solution (3 sentences. Max 90 words total)  
- Question: What is the new **WOW** of your research (a.k.a: the special new innovation that has not been tried before)?  
- If your research succeeds, potential **real-world application(s)** (1-3 examples) | **Assignment 1** due one week before Session 1 (upload to Google drive) |
| 1 | **Sandra Tsing Loh: Welcome & Course Overview**  
Conventional Introduction to our Holistic “Flipped Classroom”  
- Train the trainees  
- Train the trainers  
**Science Communication – Why?**  
**Lightning Rounds:**  
30 students share their Assignment 1 results with the group.  
Round Robin (individually assigned) live chat response:  
- What was particularly memorable?  
- What did you not understand (terminology)?  
- Instructor feedback. **Jargon Diagnostic of Assignment 1**  
**Student Response** (10 mins)  
- Questions (re: Videos), Thoughts, Notes  
Sandra Live (5 mins)  
**Closure:**  
- Thematic and practical  
- Assignment for next week  
- SPIN opening, MIDDLE bullet points  
**Sandra “Post-Show” with Trainers** (10 mins) | **Watch video modules - Trainee version**  
0: Science Communication – Why?  
1: Towards a Better Science Talk Structure – Inversion  
2: Five-Part” Mini-TED” Talk Structure  
3: S.P.I.N Opening  
4: Towards Better Language  
7: The Middle  
8: Metaphors & how to use them  
**Assignment (for session 2):**  
- Write a **S.P.I.N Openi**ng for your talk (150 words max)  
- Upload the text on Google drive  
- Record a Selfie Video and upload it on Google drive (for Sandra to watch)  
- Draft **MIDDLE** (bullet points only), upload the text on Google  
Trainers will watch modules specific for training (Series Two) |
| 2 | **1st Hour: Breakout groups (5 pods of 6) presenting their assignments (trainers mentor, Sandra visits each pod)**  
- SPIN opening  
- MIDDLE bullet points  
- Anonymous vote for two “winners”  
**2nd Hour: Sandra live (10 mins) re: performance etc.**  
- Student tape and performance coaching  
- Ten “winners” perform their SPINs for the group | **Watch videos –**  
5: Hacking Jargon  
6: How Smart Is My Audience?  
10: Wrap-up – Pre-Conclusion, Big Finish Visuals  
Appendix F: Notes on Performance (review) |
| Mid-wk | **Midweek sessions:**
| | 30 students get 10-minute one-on-one sessions with Sandra (Zoom & Google drive for docs) |
| 3 | **1st Hour:** Breakout groups (5 pods of 6) presenting their radio scripts (possibly with teleprompter) (trainers mentor, Sandra visits each pod)
| | ● Anonymous vote for two “winners” Work with peers on “big-beats” (S.P.I.N Openings, MIDDLE, Pre-Conclusion, Big Finish)
| | ● Trainers give individual tips on performance
| | ● Supportive comments given in real-time, teambuilding
| | **2nd Hour: Sandra live (10 mins) re: performance etc.**
| | ● Ten “winners” (who did not go in Session Two) perform their radio scripts for the group (possibly with teleprompter)
| | Sandra does online interactive performance coaching
| | Sandra Live: 15 mins
| | **Call to Action** Sandra Wrap Up |
| | **Appendix G - Writing for Radio (review)**
| | **Upload:**
| | ● Write a 180-word radio piece based on your research
| | ● Update MIDDLE, sketch pre-conclusion + Conclusion

*Flipped Classroom:* The flipped classroom is a novel teaching strategy that “flips” traditional in-class vs. at-home activities. Lectures are available online, to be viewed—and, if need be, reviewed—at home Student practice/delivery of course concepts—previously been considered “homework”—moves into the classroom, for live one-on-one teacher/trainer mentoring.