You can help bridge the gap between science and society

STEM AMBASSADOR PROGRAM
BRIDGING SCIENCE & SOCIETY

The **STEM Ambassador Program** (STEMAP) is a public engagement training program that promotes open-minded exchange between members of the public and the scientific community.

Being a STEM Ambassador is about creating human connections. Scientists have diverse identities, opinions, and interests, and STEMAP trains scientists to draw on these identities to spark crucial conversations that bridge the divide between science and society.

When Dr. Shrinivasan 'Cheenu' Raghuraman stood in front of a room full of senior citizens for the first time, he was nervous. "What can I possibly teach someone who has more experience in life than I have?" he thought to himself. As a cellular neuroscientist, he was used to giving presentations to other specialists, but talking at the Friendly Senior Center in Salt Lake City felt like a whole new challenge.

As it turned out, Cheenu was not there to teach. After sharing his slides and stories about the history of neuroscience and finding himself in deep conversation with an elderly lady, he realized that he was there, not as a lecturer, but as a human being. "I have learned that science communication is an art, where scientists use science as a language to communicate and connect with people," he says.

Cheenu was at the Friendly Senior Center because sharing his work with the public is important to him. Helping him to get there was the STEM Ambassador Program (STEMAP), an NSF-funded program that trains scientists in public engagement.

A DIFFERENT APPROACH TO SCIENCE COMMUNICATION

Traditional STEM communication venues such as museums and science centers do not cater to everyone, especially those who face barriers due to health, language, or socioeconomic status. STEMAP brings science to the people, wherever they are, be that in prisons and youth in custody facilities, out riding horses, or at the local brewery.

WHO IS INVOLVED IN STEMAP?

Since it started in 2016, STEMAP has grown to a community of over 170 researchers at all stages of their careers. STEM Ambassadors come from diverse fields, from evolutionary biology and condensed matter physics to renewable energy and urban planning, but they are united in their desire to form meaningful relationships with communities outside of academia.

WHAT DO STEM AMBASSADORS DO?

The key to science communication is finding a creative way to connect with your target audience. STEMAP supports its Ambassadors through a personalized training program to develop a public engagement event that resonates with them, their research, and the community they want to engage. The results so far have seen live pigeons at a secure youth facility, a mathematician dangling from a climbing rope, as well as games, books, talks, musical performances, and blogs.

WHY BECOME A STEM AMBASSADOR?

As a STEM Ambassador with STEMAP, you could be the friendly smile that turns science from an intimidating and exclusive institution into what it should be: a curiosity-driven exploration of the universe. As you build trusting relationships with new communities, you will help demystify the process of research and, in return, will discover new ways of knowing and understanding the world.

Furthermore, discussing STEM with public audiences can provide you with new perspectives on your field and how it contributes to society.

WHAT DOES STEMAP TRAINING INVOLVE?

STEMAP training consists of five modules, which a cohort of interdisciplinary scientists complete over the course of an academic semester. The training includes interactive group workshops and one-on-one meetings with STEMAP staff. The program guides researchers through the design, implementation, and evaluation of public engagement events with community groups of their choosing.

MEET SOME OF THE AMBASSADORS

Krista Carlson
Associate Professor

University of Nevada, Reno (UNR), USA
unr.edu/cme/people/krista-carlson

DISCIPLINE
Materials Engineering

ACADEMIC LEVEL DURING STEMAP TRAINING
Assistant Professor

COMMUNITY FOCAL GROUP
Youth in Custody

When I first looked up STEMAP, I really liked how it was different from most outreach programs. It provides training and tools to build a broader impact trajectory so that it is more than just a one-off activity. I was also drawn to the idea of community engagement, something I did not know how to do before.

I have always loved interacting with potential students – people who are or could be interested in my field of study – but STEMAP was a way to interact with a new audience for no other reason than the interaction itself. I was not aware of the possibility to work with Youth in Custody before the STEMAP workshop. The idea appealed to me because I realize how few opportunities these youth have. The STEMAP team is passionate about finding new ways to engage with "hard-to-reach" populations.

I conducted weekly, hands-on activities at a Girls Transition Center. For the first two weeks, most of the students were shy and did not say much. However, on week three, they started to say, 'Hi Krista', and by the end of the workshop, everyone was participating. Lectures became dialogues and there was a lot of laughter, too.

> Programs like STEMAP are more important than ever, now that we live in a world where a growing portion of the population has little to no confidence in science and scientists.

Upon completion of STEMAP's formal mentorship program, I realized I did not want to stop participating in the engagement activities. The spirited dialogues I had with people in these controlled facilities were thought-provoking and enjoyable, and often led to my forgetting about the restrictive surroundings. The most significant personal change has been my shift in attitude from "I'm giving back to the community" to recognizing that all people should have access to a good education. I believe education is a fundamental right and should not be a privilege.

Programs like STEMAP are more important than ever, now that we live in a world where a growing portion of the population has little to no confidence in science and scientists.

Read about Krista's experiences in the STEMAP newsletter:
tinyurl.com/ym94vvhu

STEMAP's motto 'bridging science and society' resonated with me. The idea that STEMAP is an exchange program, where science communicators and community partners mutually benefit from interactions, was one of the major reasons I joined this program.

I was grateful for STEMAP's suggestions for different community partners to interact with. When I honed my storytelling skills during their training sessions, it seemed apt to tell stories to senior members of our society. I believed they would be more forgiving of my mistakes. My very first engagement was extremely satisfying, and I decided to visit other senior centers in the valley.

No matter how much I prepared, I would always get a question I couldn't address, and I would go back home to research better ways to answer these questions. I also became aware of the issues that matter to people, which has helped me become a smarter and more responsible scientist.

I used to view science communication as an opportunity to teach science. STEMAP's outreach events have turned this view on its head. After my presentations, people would share their personal stories of life and loss with me. These powerful stories helped me realize my responsibility as a scientist – this was an opportunity to give hope to a mother whose son had suffered a stroke, for example, or alleviate older people's fears of dementia. It wasn't about teaching or learning anymore, it was about connecting with people.

> You will be amazed at how much it will transform you into a better scientist and human being.

Every outreach event has been a unique learning experience for me. I have improved my interpersonal and communication skills, which has definitely helped me in job interviews and other hiring processes.

My advice to anyone considering joining STEMAP is to just do it. Don't analyze it; don't think about what you will reap out of this program, do it with an open heart and open mind. You will be amazed at how much it will transform you into a better scientist and human being.

Read about Cheenu's experiences in the STEMAP newsletter:
tinyurl.com/ym94vvhu

Shrinivasan "Cheenu" Raghuraman
Research Associate Professor

School of Biological Sciences, The University of Utah, USA

DISCIPLINE
Biology (Neuroscience)

ACADEMIC LEVEL DURING STEMAP TRAINING
PhD student

COMMUNITY FOCAL GROUPS
Salt Lake City Senior Centers, Youth in Custody

Pratiti Tagore
UXD Research Fellow

Center for Antiracist Research, Boston University, USA

DISCIPLINE
Social Science (City and Metropolitan Planning)

ACADEMIC LEVEL DURING STEMAP TRAINING
PhD Student

COMMUNITY FOCAL GROUPS
Oxbox Jail, Youth in Custody

Social science is about understanding the nuances of human responses and behavior in different contexts. As a social scientist, I am naturally inclined to connect the bridge between research and application. When I applied to the STEM Ambassador Program, I was researching water-saving behaviors and I was interested in taking my research out to the community.

I got involved with STEMAP because I wanted to quash misinformation about water-saving. I also wanted to highlight the need for water-conservation professionals to facilitate the training and growth in this area, so that we have professionals working in yard landscaping and providing low water consumption options for homeowners.

> **Communicating with incarcerated men and teenage girls in a transition center is a unique experience, which has helped my career in social science.**

At Oxbow Jail and the Girls Transition Center, I spoke about the different ways people can get involved in water-saving practices. I also spoke about possible careers in water conservation and why we need water scientists, desert-landscaping professionals, and so on.

After one of my interactive presentations, the staff at Oxbow Jail invited us to a two-hour 'happy hour' food celebration. They told us that the inmates had become interested in water conservation and it is rewarding to know that I personally contributed to this positive outcome.

STEMAP has helped me grow professionally and personally, enabling me to polish my public speaking and communication skills. Communicating with incarcerated men and teenage girls in a transition center is a unique experience, which has helped my career in social science.

If you are wondering whether STEMAP is for you, I would say it is an excellent opportunity to grow and connect. The program allows Ambassadors to learn about themselves and the important research they are doing, but from a community's perspective.

BECOME A STEM AMBASSADOR

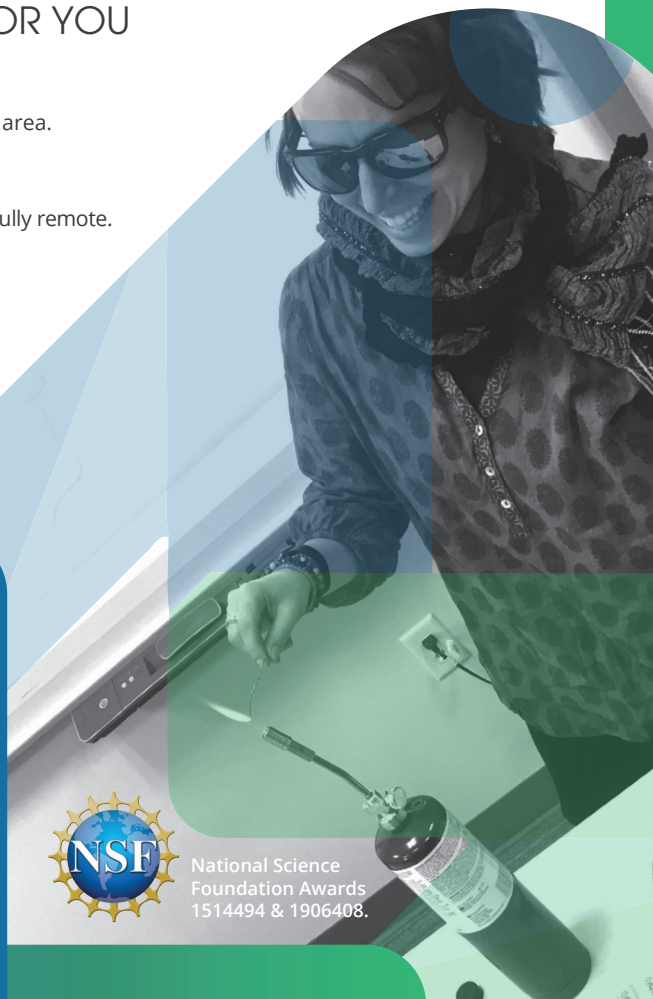
DISCOVER WHICH TRAINING FORMAT IS BEST FOR YOU

IN-PERSON COHORTS
The STEMAP team leads in-person training cohorts for scientists in the Salt Lake City area.

VIRTUAL COHORTS
Join an upcoming STEMAP cohort composed of researchers from around the country – fully remote.

HYBRID COHORTS
Institutions with multiple Ambassadors may be interested in our hybrid training structure. Individual and group meetings will take place virtually and Design and Engage workshops will take place in person at the Ambassadors' institution.

Training costs are determined on a case-by-case basis depending on the selected format and training location. Please contact the STEMAP team for a quote.



Useful Resources

Contact the STEMAP Team:
Associate Director, Andrew George: Andrew.George@utah.edu
Faculty Director, Sara Yeo: Sara.Yeo@utah.edu

Visit the STEMAP website: stemap.org

Join us on social media:

View testimonials from STEMAP alumni and community partners here.

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