

STEM AMBASSADOR PROGRAM

BRIDGING SCIENCE & SOCIETY



What we do

Bridge science and society through open-minded exchange between scientists and community members, emphasizing those who cannot or do not engage with science via traditional outlets.



STEMAP Director Dr. Nalini Nadkarni delivers an ecology lecture to inmates at a state prison

About



Science thrives on diverse ideas and perspectives. However, variations in education, language, health, and other factors keep some people from engaging with science through traditional outlets (e.g., by visiting a science center). The STEM Ambassador Program (STEMAP) addresses this challenge by training scientists to engage in open-minded discussions with community members in venues outside traditional science education settings. Scientists thus foster synergistic interactions between science and society while engaging those who cannot or do not engage with science in conventional ways.

STEMAP trains scientists to be “Ambassadors” by developing their skills to link the scientific community with other facets of society. An Ambassador integrates his/her research, personal interests, experiences, and desired social impacts to define his/her “impact identity.” The Ambassador then identifies a focal group, or a community gathered around a shared interest, circumstance, or experience, that resonates with that impact identity. The Ambassador designs engagement activities informed by the focal group, which take place in venues where group members naturally gather.

STEMAP is directed by Dr. Nalini Nadkarni at the University of Utah, and was developed with funding from the Advancing Informal STEM Learning program at the National Science Foundation (NSF).

“If science is going to fully serve its societal mission in the future, we need to both encourage and equip the next generation of scientists to effectively engage with the broader society in which we work and live.”

-Alan Leshner, CEO Emeritus
American Association for the Advancement of Science



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Training



The goal of each STEMAP engagement activity is to facilitate open-minded exchange with the public, with an emphasis on engaging those who cannot or do not engage in traditional settings. Ambassadors are provided with five objectives:

- demonstrate that scientists and focal group have shared values
- reveal that scientists have identities outside science and respect for the identities of others
- manifest that scientists care about the community's well-being
- demonstrate that scientists wish to understand and learn from others
- increase accessibility of scientists to community members and the community to scientists

Ambassadors receive training in achieving these objectives by participating in five modules.

Module 1: Connect - Ambassadors participate in an interview with STEMAP staff to develop their impact identity and identify focal groups.

Module 2: Immerse - Ambassadors receive training to connect with and learn about the values, culture, and communication pathways of the focal group they wish to engage.

“From the immersion, I learned the dynamics of the community I plan to work with, which influences potential engagement formats.”

-STEM Ambassador, 2018

Module 3: Design - Ambassadors receive training to design an effective engagement activity based on what they learn about the focal group.

Module 4: Engage – Ambassadors receive evidence-based science communication training to implement their activity in venues where focal group members naturally congregate. They share their engagement activities with focal group representatives and incorporate feedback.

Module 5: Reflect - Ambassadors reflect on and share their engagement activity.

Resources



STEMAP provides the following resources:

- introductory public engagement workshops for professional society meetings and conferences
- in-depth workshop series for graduate students, post docs, and faculty in science technology, engineering, and math (STEM) offered online and in-person
- guidance for principal investigators to develop and implement innovative Broader Impacts activities to fulfill NSF criteria
- website with engagement activities and publications
- public engagement newsletter featuring Ambassador reflections, engagement opportunities, resources, and events
- evaluation tools for public engagement activities



STEM Ambassador discusses his ornithology research and bird-friendly plants at local garden sale

Outcomes

Since STEMAP began in 2016, the program has provided training and resources to scientists seeking to implement innovative public engagement activities.



Participation and Trainings

- Over **50 scientists** trained as STEM Ambassadors
- Over **2,000 members of the public reached** through 116 events in over 45 venues
- Offered workshops at the Ecological Society of America Annual Meeting, National Alliance for Broader Impacts Summit, iUtah Broader Impacts Forum (NSF EPSCoR program), and Fulbright Lab to Market Seminar
- Trained three cohorts of scientists at the University of Utah
- Provided online training for one cohort of scientists nationwide
- Provided online and in-person training for scientists at the University of Washington
- Assisted six Principal Investigators in developing robust Broader Impacts activities
- Received funding to train one cohort of 13 scientists in an NSF funded Center for Chemical Innovation to fulfill Broader Impacts requirements (training underway)



STEM Ambassador shares her interest in geology with an activity at a summer camp

Evaluation



Ambassador Feedback

- Over **95%** rated their experience in the program as valuable or highly valuable
- Over **90%** reported gaining new skills in public engagement
- Over **90%** reported that staff support provided by STEMAP was important to their success in the program

Focal Group Feedback

- Over **95%** felt the STEM Ambassador did a good job communicating
- **90%** reported learning something new during STEMAP engagement activities

"It was an excellent program and I thoroughly enjoyed working with the staff. They were helpful both in thinking outside the box to find a group to engage with, and were very critical in the revising of my presentation to make it appropriate for different audiences."

-STEM Ambassador, 2017



STEM Ambassador engages youth in a hands-on activity

Engagement

The following are a subset of Ambassador engagement activities.



A microbiologist who enjoys fermentation cooking partnered with a chef at a cooking school to co-lead a fermentation cooking class. The chef provided fermentation recipes while the microbiologist shared the microbiology behind the fermentation process.

An atmospheric scientist presented hands-on activities, distributed air quality brochures, and provided pollution protection masks at a summer festival hosted by a non-profit organization that provides services to low-income families. Materials and activities were presented in both English and Spanish—the primary languages spoken by the families the organization serves.



A neuroscientist visited seniors at county-run senior centers where he discussed the history of neuroscience and answered questions related to aging and brain health.



Engagement



An urban planner studying water conservation engaged inmates in a horticulture training program in a discussion about water conservation practices in the landscaping industry. She provided resources on water-wise landscaping and certification programs. Horticulturalists led a hands-on activity where inmates learned to test the efficiency of irrigation systems.

An ornithologist drew on her skills as a musician to deliver a musical performance at a Kansas coffee shop inspired by the lives of the birds and people that inhabit the prairie.



A biochemist met with youth in a residential treatment center to discuss how scientists use symmetry in chemical structures to develop more effective drugs. She then shared her enthusiasm for crafting by working with students to apply the principles of symmetry to create a pop up greeting card.

Support



There are a three ways to support STEMAP:

- **Become an Ambassador:** STEMAP recruits scientists to participate in our trainings. Subscribe to our newsletter for notice of upcoming recruitment cycles.
- **Host a training:** STEMAP offers trainings for a fee to a variety of organizations including professional societies, universities, academic departments, research centers, agencies, and lab groups. Contact us if you would like to bring STEMAP to your institution.
- **Connect:** Subscribe to our STEMAP newsletter at www.stemap.org and follow us on Twitter @stemapteam.



STEM Ambassadors and community partners at the STEMAP graduation

Contact



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Partners

