

Substantive training in Indigenous history and engagement is a necessary step towards equity in Arctic Observing

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Scientists spend years in full-time post-secondary education developing the necessary skills and understanding to contribute to their fields. Indigenous Knowledge holders spend a lifetime learning from Elders, their communities, and the environment. Indigenous methodologies means developing methods rooted in Indigenous Knowledge and cultural ways of doing research, with their own concepts of credibility and peer-review process. And yet, the Arctic research community relies on hour- to day-long workshops to prepare scientists to bridge these ways of knowing and lived realities. There is a significant need for dedicated, substantial, and expert-designed training for everyone working in the spaces between scientific research, management agencies, and Indigenous communities in the Arctic. Pursuit of Equity in Arctic Observing (see the Equity short statement by Nguyen et al.) requires the scientific community to come prepared to engage meaningfully: this means having the necessary education and background to approach these conversations in a respectful manner, with thoughtfulness and humility.

Successful co-production of knowledge requires relationships built on trust and mutual respect. No amount of classroom training can substitute for the time investment in building relationships and getting to know a community, but trainings can prepare researchers to approach these relationships with adequate background knowledge. Training can also teach the co-production of knowledge and Indigenous engagement principles, protocols, and best practices proven to develop trust and successful projects. Scientists who don't understand the context in which Indigenous communities exist – the millennia of connection with the land and waters and the century of colonial violence – are unprepared to even start building those relationships.

There are existing training efforts that acknowledge the desperate need for capacity building among the science community.

- First Alaskans Institute hosts dialogs and trainings for organizations and groups meant to foster equity and understanding.
(<https://www.firstalaskans.org/dialogues-hostings-trainings>)
- Kawerak, a non-profit tribal consortium in the Bering Strait Region, hosts trainings and discussions around a number of topics, including Traditional Knowledge and Coproduction of Knowledge (e.g., “Different Ways of Knowing:

Successful Examples of Co-production of Knowledge in Arctic research”
<https://kawerak.org/co-production-of-knowledge-in-research-valuing-traditional-knowledge/>)

- The Navigating the New Arctic Community Office (NNA-CO) hosts regular webinars and training sessions, including some related to data sovereignty, Co-production of Knowledge, Indigenous evaluation methods, and science communication (<https://nna-co.org/past-events>)
- TEK Talks (Traditional Ecological Knowledge) is a recorded lecture series developed by two graduate students at the University of Alaska Fairbanks in 2020-2021 to foster understanding among scientists in regard to working with Indigenous Peoples. (<https://sites.google.com/view/tektalks/home>)
- Respectful Research developed by two Iñupiaq sisters, Cana Uluak Itchuaqiyaq and Corina Qaaqraq Kramer. Their program includes a Equitable Arctic Research Guide, a newsletter, and an Effective Community Engagement Course (<https://respectfulresearch.com/>)

These trainings typically total 2-10 hours, over one or more days. Participants may have readings and videos to watch before the session, and experts in Indigenous Knowledge and community-relevant research lead the workshops. Participants often describe these trainings as “eye-opening” and deeply insightful. Few of these trainings are able to assume prior knowledge, however, so they rarely are able to get into deeper content.

There have been some recent efforts towards developing course materials in this vein. A recent example that points towards a more in-depth approach is “Indigenous Stewardship & Meaningful Collaboration” - an 11-week course for professionals and students offered by Northern Latitudes Partnerships in partnership with the U.S. Fish and Wildlife Service and Alaska Pacific University (APU). The NNA-CO recently hosted a 10-week class, “Arctic Research is Relationship: Foundations of Collaborative, Community, & Indigenous-centered Research” that will be developed as an online toolkit available through their website (nna-co.org). APU regularly offers “Indigenous Knowledges and the Sciences”, as well. University of Alaska Fairbanks hosts several courses within the College of Rural and Community Development (CRCDD) built for Alaska Native graduate, undergraduate, and associate students. Topics include Indigenous Knowledge and culture, colonization, tribal governance, rights and policies, methodologies, etc., and courses from other departments include co-production of knowledge and decolonization. Some federal agencies are adopting a ‘community of practice’ (CoP) approach toward generating ongoing capacity and relationship building between agencies and tribes. NOAA recently launched a monthly CoP on Indigenous Engagement, with scientific research and regulatory decision-making being areas of keen interest.

These are a good start, but the scientific community needs more options. Full classes, designed for broad participation rather than for enrolled university students, on the order of time investment similar to what we would spend in an academic class setting, would provide the minimum necessary background and context for non-Indigenous scientists to be prepared to most effectively learn from Indigenous experts. The curriculum should include

- 1) Arctic Indigenous Peoples and language groups

- 2) History of colonial occupation and human rights abuses in the region
- 3) Indigenous worldviews and knowledge systems, including holistic approaches to understanding
- 4) Tribal governance systems and issues of food sovereignty
- 5) Ethical research practices that also correspond to Indigenous worldview-based ethics
- 6) Principles of co-production of knowledge; contextualization of local ways of knowing and doing
- 7) CARE principles and Indigenous data sovereignty

The resources necessary to develop a new course of this nature in every graduate program are not feasible. Further, it is not only early career researchers who would benefit from this information: senior scientists, agency personnel, funding program managers, and observers of all sorts would benefit from improved understanding of Arctic Indigenous history and context. Online learning technology has improved significantly over the past decades, and developing a course with this content to be available as a MOOC (Massively Open Online Course) or similar platform would make it widely accessible. Existing trainings, courses, and resources could be leveraged in the design of the curriculum. Projects, research groups, graduate cohorts, or individuals could work through the provided material and lectures together, filling this critical gap in their educations.

There are examples of large-scale and widely-adopted training related to how the scientific community operates, with very practical applications. The URGE Program (Unlearning Racism in Geoscience, <https://urgeoscience.org/>) provides an excellent example of cohort engagement with a curriculum, with “pods” serving as discussion and accountability groups. There is precedent for funding agencies requiring training of funded projects. The National Science Foundation (US) requires that all participants in projects funded since 2023 complete a [Responsible and Ethical Conduct in Research](#) training. While the number of researchers engaged in Arctic science is smaller than in the entirety of Geoscience or NSF-funded research, there are enough people in science, management, and research to make the investment in developing curriculum worthwhile.

Training and education serves as the bedrock of the scientific process. Early career researchers learn methods, background, and skills through years of formal education. If the Arctic Observing community is to make progress towards equity, we must dedicate time and resources towards training scientists in Indigenous engagement, history, and methodologies as well.

This short statement is part of a collection of three focusing on the common theme of “equity” in Arctic observing by the RNA CoObs team, with the statement “Equity in Arctic Observing” presenting an overview and “Evaluating Equity in Arctic Observing In Practice” focused on measures of equity.