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Lisa Villa

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ACS Cover Art Series Editorial

Celebrating Native Chemists and Encouraging More Native Talent in STEM

Lisa M. Villa
lvilla@holycross.edu

The opportunity to create a design for the ACS Cover Art Series was met by my imagination with immediate intrigue and inspiration, and within ten minutes an idea had formed. Another few minutes (perhaps a bit longer) on the Internet affirmed my concept and decision to submit art that would feature Native American/First Nation/Indigenous chemists. Numerous factors influenced my design. One is my personally-heightened awareness of North American indigenous people due to both my own ancestral heritage, and my institution's current examination of its relationship to its local environment and the indigenous people who once lived there. More importantly, though, is the recognized lack of scientists who identify as Native American/First Nation/Indigenous, particularly chemists, in the scientific community.

This lack can be largely attributed to the fact that Indigenous representation in higher education has been challenged by centuries of political, social, and educational inequities. As a result, there is a deficit, compared to other ethnicities, of graduate students entering STEM fields.¹ This then leads to a deficit of models and mentors for younger students. Another contributing factor is that science, or at least the way it is commonly taught and practiced, is often at odds with the knowledge, worldviews, Native science and even learning styles of Indigenous people.² From such discordance can emerge conflicted, or worse, negative perceptions of science, further impeding interest and entrance into scientific fields.

Several prominent chemists, who are also strong advocates for increasing the number of Native American/First Nation scientists, are working diligently to raise awareness of these issues and attract interest in scientific fields among members of their community. They acknowledge how cultural beliefs may often be in contention with scientific conversations, but have been working to engage and encourage Native American talent in the STEM fields.

- [Dr. Jani Ingram](#) is Regents' Professor of Chemistry and Biochemistry at Northern Arizona University. Her research of environmental contaminants with respect to health, specifically chronic uranium exposure and cancer risk, is influenced by her membership in the Navajo tribe. Among other initiatives, she serves as Director of the Bridging Native American Students to Bachelor's Degree (BRIDGES) program.

¹ National Science Foundation. Graduate students in science, engineering, and health in all institutions, by field, citizenship, ethnicity, and race: 2011–16.

https://ncesdata.nsf.gov/gradpostdoc/2016/html/GSS2016_DST_13.html(accessed 2023-05-05)

² Cajete, G. On Science, Culture, and Curriculum: Enhancing Native American Participation in Science-Related Fields. Tribal College Journal of American Indian Higher Education February 21, 2020 <https://tribalcollegejournal.org/on-science-culture-and-curriculum-enhancing-native-american-participation-in-science-related-fields/> accessed 2023-05-05

- [Dr. Joslyn Lee](#) is currently an Assistant Professor of Chemistry at Fort Lewis College. Her excitement about teaching science and her desire to see more underrepresented people is reflected in her work. She developed an undergraduate research experience targeted for American Indian and Alaskan Native students and created a toolkit of recommendations for bringing the worlds of Native culture and academia together.
- [Dr. Naomi Lee](#) is a tenure-track Assistant Professor in the Department of Chemistry and Biochemistry at Northern Arizona University. She applies her expertise in biomedical research to improve the health care of American Indians and Alaska Natives (AIAN) and is involved in STEM education and mentoring programs aimed at increasing representation of AIAN students.
- [Dawn Pratt](#) is an educational technologist with a Master's Degree in Chemistry whose mission is to lead the way of Indigenizing STEM. She founded Askenootow STEM Enterprise Inc., which develops lesson activities that intertwine STEM content with cultural, linguistic and land-based teachings.
- [Dr. Erik J. Sorensen](#), the Arthur Allan Patchett Professor in Organic Chemistry and Professor of Chemistry at Princeton University, has identified several cultural challenges that limit attraction and retention of Native talent. He notes the need for more role models, which requires a more diverse faculty. He also suggests the importance of those already working in the sciences to share with Native students, who are often so deeply connected to their homes and cultures, the value of a STEM career and the benefits it could have for Native communities.

Recognition of these chemists and other Native scientists, as well as an awareness of numerous professional societies and a growing body of literature specifically addressing issues of Native American/First Nation/Indigenous representation in scientific fields, including environmental science and technology, will hopefully assist in raising the profile and numbers of this underrepresented community.



Lisa M. Villa is the Digital Scholarship Librarian at the College of the Holy Cross. She manages CrossWorks, the institutional repository for Holy Cross, supports scholarly communication services and programs, and assists with efforts for outreach and engagement. Having held a variety of positions in the Holy Cross Libraries, she is excited to work more closely with the Archives and Distinctive Collections department as their digital initiatives expand. Lisa received her M.L.I.S. from the University of Rhode Island, and her B.A. in English from the College of the Holy Cross.