A STEM graduate education model for American Indians and Alaska Natives (AI/AN)

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Goals

• Highlight AGEP findings and activities
  ➢ Alliance of eight universities
• Provide resources for future review
WASHINGTON STATE UNIVERSITY

- R1 Land Grant institution
- Five physical campuses + global campus
- >3,300 graduate students enrolled system wide
- 46 doctoral programs & 67 master’s programs

PULLMAN CAMPUS

- Located on Ancestral grounds of the Palus (Palouse) people
- Ceded lands of the Nimíipuu (Nez Perce) Tribe
The NSF AGEP-T proposal

• Alliances for Graduate Education and the Professoriate – Transformation
  • PNW-COSMOS
• Funded from 2014 thru 2019
• Goal: Develop, Implement, and Study a culturally congruent STEM graduate education and academic STEM career preparation model that supports American Indian/Alaska Native (AI/AN) students who enroll in and complete STEM graduate programs

PNW-COSMOS Alliance

• Pacific Northwest Circle of Success: Mentoring Opportunities in STEM
  • https://pnwcosmos.org/
• The Camas plant in logo
  • Native to PNW & Plateau regions
  • Growth requires vibrant community
  • Bulb is important food source
PNW-COSMOS

• Four alliance lead institutions
  • Washington State University
    • Lori Carris, former associate dean
  • Montana State University
    • Karlene Hoo (former dean) & Sweeney Windchief
  • University of Idaho
    • Jerry McMurty, dean
  • University of Montana
    • Blakely Brown, professor, Health & Human Performance

PNW-COSMOS

• Four partnering institutions
  • Heritage University (Toppenish, WA)
    • Jessica Black, Director of Center for Indigenous Health, Culture & Environment
  • Montana Tech (Butte, MT)
    • Beverly Hartline, Graduate School dean, Vice Chancellor for Research
  • Northwest Indian College (Bellingham, WA)
    • Emma Norman, Chair, Native Environmental Science
  • Salish Kootenai College (Pablo, MT)
    • Co Carew, COSMOS Coordinator
Why focus the AGEP on AI/AN?

- Constitute 0.7% of U.S. population
  National Center for Science and Engineering Statistics, 2019
- Earned only 0.4% STEM doctorates for U.S. citizens & permanent residents
  NSF Survey of Earned Doctorates, 2016
- Only 0.17% of T/TT faculty in top 100 research universities; only 38 T/TT STEM faculty

- In past decade, most under-represented populations have made gains in degrees awarded and professoriate positions, but AI/AN statistics have been remained flat or decreased.

Value of increasing AI/AN STEM scholars

- Improved ethnographic proximity
- Graduates are influential advocates in their community
- Unique perspective in STEM fields = new insights
  - TEK (Traditional Ecological Knowledge)
Particularities beyond the URM delineation

- Institutional disregard for unique indigenous identity formation & conceptualization of relationships
- Unique values (shared across multiple indigenous groups)
  - Being a good relative
  - Being responsible to the community
  - Reciprocal sharing of knowledge
  - Sharing knowledge with upcoming generations

Take home message on solutions

- Train the faculty – the focus of the AGEP activities
  - Recruiting students is only the start (e.g. REU program).
  - Student services that provide a welcoming environment, sensitive to cultural differences, is a core necessity, but not sufficient.
  - Faculty mentoring is essential to close the loop.
- Each institution has unique culture and history
- There needs to be an institutional leader to act as a champion and point of connection.
Major resource

- Compendium authored by PNW-COSMOS leaders

New Directions for Higher Education:
Volume Fall 2019, Issue 187
“Indigenous Communities and Access to Graduate Degrees in STEM”
Editors: Karlene Hoo & Sweeney Windchief

Available at Wiley Online Library

The Indigenous Mentoring Program

- Collective of dedicated faculty and administrators to address the lack of Indigenous mentors in STEM
- Replicate extended family structures within the culture of STEM graduate programs
- Familiarize faculty with on-campus services
- Consider faculty visits to home communities – upon invitation
- Support indigenous identities and scientific methodologies, *not* assimilate.
  - Importance of story, conversation and relationships

Blakely Brown, Barbara Komlos
Chapter 6
The Indigenous Mentoring Program

• The IMP is not a canned program. Transferability?

• The IMP is a resource for institutions to adapt to address the cultural divide between STEM faculty and their AI/AN graduate students

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Chapter 6

Institutional change recommendations

• More than resource allocation and piece-meal programs

• Decolonize higher education
  • Culturally sensitive curriculum
  • Recognize and value Indigenous scientific knowledge

• Provide a place for community building
  • E.g., WSU Plateau Center
  • Special Assistant to Director, Zoe Higheagle Strong

Mills et al Chapter 7
Institutional change recommendations

- Research mentors can reframe projects to reflect relevance to the indigenous community.
- Reconsider academic policies about the expertise to serve on a graduate student’s committee.
- Consider retaining and promoting your own graduates.
- Examine and remove barriers to indigenous research by indigenous researchers.
  - E.g. MOU, Tribal Liaison Officer and Tribal Research Protocols.

Institutional change recommendations

- Make the graduate training experience relevant and include professional development.
  - Many Al/AN are also first generation students.
  - Identify advocates at various levels of administration.
- Provide the opportunities for personal and community connections, including an extended community.
- Support interdisciplinary programs that tackle applied research questions.
  - E.g., natural resource management, health and wellness, and educational issues – all with connections to policy development.
Resources

https://pnwcosmos.org/

“Indigenous Communities and Access to Graduate Degrees in STEM”
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