Programs for Native Alaskan and Native Hawaiian Students

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Discussion Points

- Quick Introduction to Alaskan and Hawaiian Programs
- Barriers to Native Student Success
- Programmatic Principles
- Financial and In-Kind Support
- Program Success, Enrollment, and Graduation
- Indigenous Alliance
Alaska Native Science and Engineering Program (ANSEP)

- Founded in 1995
- UA Campuses plus more than 70 Partner Organizations
- More than $33M in financial support since inception
- College and Pre-College Programs
  - High School Computer Build
  - Acceleration Academy
  - Summer Bridge
- ~200 Baccalaureate Graduates to Date
- Complimented by the Rural Alaska Honors Institute and AISES

Native Hawaiian Science & Engineering Mentorship Program (NHSEMP)

- Founded in 2001
- Joint initiative of College of Engineering and Center for Hawaiian Studies
- College and Pre-College Programs
  - Na Pua Noeau Summer Institute for Gifted & Talented Native Hawaiian Children
  - College Summer and Transfer Bridge Program
  - NHSEMP Scholars Program
Main Barriers for Native Students:
- College Preparedness
- Financial Obstacles
- Cultural Differences

Guiding Programmatic Principles:
1. Break cultural barriers at the K-12 Level
2. The cohort on campus – academic community
3. Strong link between achievement and program benefits
4. Community and partner support
1. Break Cultural Barriers at the K-12 Level

- Summer programs provide additional academic opportunity beyond what may be available in rural/local schools.
- Engagement of students in hands-on activities with a strong link to academic achievement. Goal is for Native students to graduate from HS college- and calculus-ready with a clear, powerful vision of a future in engineering.
  - ANSEP HS students construct their own PCs from kits. Success in a suite of HS classes is required in order to keep the hardware.
  - NHSEMP summer program HS students complete fun design-build projects in afternoons after math courses.
1. Break Cultural Barriers at the K-12 Level

- Pre-college programs bring students in from their local communities to a baccalaureate campus or community college.
  - ANSEP Acceleration Academy
  - NHSEMP Summer Program
- Immersive college-like summer programs with supporting academic environment demonstrates to students that they can be successful in STEM fields.
- Students from rural communities are supported by their native peer group.
2. The Cohort on Campus – Academic Community

- Cultural identity forms the basis of the cohort group.
- Gathering areas for students in the program help promote the sense of identity.
- Regular tutoring and study group meetings are held to keep students engaged – some meetings are required.
- Students are co-enrolled in Engineering Learning Communities and attend key courses together.
- Native and non-native upperclassmen and graduate students serve as mentors and tutors for incoming student cohorts.
3. Academic Achievement ↔ Program Benefits

- Students are vetted locally before entering Pre-College programs to ensure they are capable of success in STEM fields.

- ANSEP HS Computer Build Program requires completion of key HS math and science classes in order for students to keep hardware.

- At the college level, ANSEP Students receive a scholarship so long as they:
  1. Maintain full-time course schedule and pass all courses with C or better.
  2. Attend weekly meetings.
  3. Participate in summer internship or bridge program.
  5. Participate in a professional organization.

- Additional GPA awards, travel awards, and participation awards.
4. Community and Partner Support

- Funding for facilities, scholarships, and program operation, totaling ~$33M from 70+ partner organizations.

- **REU Programs.**

- Internships with industry – mandatory for ANSEP students.

- NHSEMP Students graduate with at least 2 terms of research or professional internship experience and complete service learning and community service projects in Hawaiian communities each semester.

- **Strong Alumni support.**
Program Success
Pre-College

Alaska Native Science & Engineering Program
High School Graduates - Percent Passing Classes by Graduating Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Trig</th>
<th>Chem</th>
<th>Bio</th>
<th>Phys</th>
<th>Bio or Phys</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>75%</td>
<td>81%</td>
<td>4%</td>
<td>73%</td>
<td>77%</td>
</tr>
<tr>
<td>2009</td>
<td>70%</td>
<td>82%</td>
<td>67%</td>
<td>70%</td>
<td>92%</td>
</tr>
<tr>
<td>2010</td>
<td>68%</td>
<td>62%</td>
<td>78%</td>
<td>52%</td>
<td>88%</td>
</tr>
<tr>
<td>*2011</td>
<td>69%</td>
<td>67%</td>
<td>35%</td>
<td>47%</td>
<td>62%</td>
</tr>
</tbody>
</table>

4% National Average

*Partial data for 2011
Program Success
College enrollment and graduation

NHSEMP Enrollment

ANSEP Enrollment

STEM Degrees (cumulative)
Indigenous Alliance

- Formed in 2008 with an NSF Partnerships for Innovation Grant.

- Goal – extend the successful ANSEP/NHSEMP model to 6 additional states

- Member Institutions:
  University of Alaska Anchorage, University of Arizona, University of Colorado Boulder, University of North Dakota, University of Montana, University of Idaho, South Dakota School of Mines and Technology, University of Washington, University of Hawaii Manoa, Kapiolani Community College, University of Alaska Fairbanks, University of Alaska Southeast, Kuskokwim Community College

- Top Challenges Addressed:
  1. Many K-12 administrators and teachers do not believe minority students can do college preparatory math and science.
  2. Many minority schools do not have college preparatory math and science classes.
  3. Developing a financial base to support the effort beyond the NSF grant term.
Lessons Learned

- To improve the success of native students in baccalaureate programs, it is important to extend our reach and engage students at the K-12 level.

- The key is to develop programs that overcome barriers for Native students including:
  1. Perception that students are not capable of succeeding in STEM fields
  2. Lack of local academic support or HS course availability
  3. Financial constraints
  4. Improved success and retention at the college level

- Financial support from Corporate Partners and Governmental Agencies can be substantial.
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