Diversity in Aerospace

A&A Faculty Retreat
September 20, 2022

Kristi Morgansen
Why must we diversify?
Demographic targets:
For state universities and programs, mirror the state composition

**Gender**
- Female: 50%
- Male: 50%

**Race & Ethnicity**
(Sample distribution)
Diversity creates positive outcomes for innovation

Research Coordination Networks: Evidence of the Relationship between Funded Interdisciplinary Networking and Scholarly Impact

ALAN L. PORTER, JON GARNER, AND TODD CROWL

The Diversity–Innovation Paradox in Science
Bas Hofstra*1, Vivek V. Kulkarni, Sebastian Munoz-Najar Galvez, Bryan He, Dan Jurafsky*2, and Daniel A. McFarland*1
*Graduate School of Education, Stanford University, Stanford, CA 94305; 1Department of Computer Science, Stanford University, Stanford
and 2Department of Linguistics, Stanford University, Stanford, CA 94305


Effects of racial diversity on complex thinking in college students
Anthony Lising Antonio1, Mitchell J Chang, Kenji Hakuta, David A Kenny, Shana Levin, Jeffrey F Milem

Research Report
Effects of Racial Diversity on Complex Thinking in College Students
Anthony Lising Antonio,1 Mitchell J. Chang,2 Kenji Hakuta,1 David A. Kenny,2 Shana Levin,1 and Jeffrey F. Milem1

The Effects of a Female Role Model on Academic Performance and Persistence of Women in STEM Courses
Sarah D. Herrmann, Robert Mark Adelman, Jessica E. Bodford, Oliver Graudejus, Morris A. Okun & Virginia S. Y. Kwan

Dissertators with Distantly Related Foci Face Divergent Near-Term Outcomes
Kevin M. Kniffin, Andrew S. Hanks, Xuechao Qian, Bo Wang & Bruce A. Weinberg
Trends in aerospace diversity
Total degrees granted - 2020

Source: IPEDS/NCSES

- SpaceNews March 21, 2022

200,000 job openings in the space sector.
Underrepresented minority (URM) degrees in aerospace v all engineering programs

Source: IPEDS/NCSES, US Census 2020
Underrepresented minority (URM) degrees in UW A&A v nat'l aerospace programs

URM numbers nationally for Black/AA, Hispanic, AI/AN, HPI

Source: IPEDS/NCSES, US Census 2020, UW Profiles
URM degrees by race/ethnicity in aerospace programs and UW A&A

Source: IPEDS/NCSES, US Census 2020, UW Profiles

This is us!
Women degrees in aerospace v engineering programs

Source: NSF/NCSES derived from IPEDS
Women degrees in national aerospace programs v UW A&A

Source: NSF/NCSES derived from IPEDS, UW Profiles
Demographically underrepresented students innovate at higher rates than majority students, but their novel contributions are discounted and less likely to earn them academic positions. The discounting of minorities’ innovations may partly explain their underrepresentation in influential positions of academia.

The Diversity–Innovation Paradox in Science: Bas Hofstra, Vivek V. Kulkarni, Sebastian Munoz-Najar Galvez, Bryan Heb, Dan Jurafsky and Daniel A. McFarland (Stanford University), March 16, 2020
URM tenure-track faculty in aerospace v all engineering programs

Source: IPEDS/NCSES, US Census 2020
URM tenure-track faculty by race/ethnicity in aero programs

Source: ASEE Data System, US Census 2020
Women tenure-track faculty in aerospace v engineering programs

Source: ASEE Data System
Aligning for success
Stacked strategies

Employ
Prepare
Inspire

- Pre-College Interventions
- Fellows/Scholars Programs
- Events
- Internships
- Placement
- Mentoring

Industry plays a big part

Academia, government, non-profit play a big part

K-12
Post-secondary
Aero Graduates / Trained Workforce
College readiness programs make a difference

STARS Similar Students

Mean GPA

Calculus 1

General Chemistry 1

Physics 1

Comp Sci 1

UNIVERSITY of WASHINGTON Engineering STARS Program
Internships make a difference

% UW A&A Undergraduates Employed/Placed at Graduation (2019-2021)

Number of Internships

0% 25% 50% 75% 100%

0 1 2+

Career Center @ Engineering
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<th>Partner</th>
<th>Amplify Account</th>
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<th>Boost efficiency for internships, mentoring and employment</th>
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<td>Academia</td>
<td>ADCA Pledge for DEI in Faculty Merit; Readiness programs</td>
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<td>NASA STEM Engagement currently reaching 1.6M K-12, 192K higher ed</td>
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<td>Industry Associations</td>
<td>National awards should add requirement of DEI activity reporting</td>
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