

PARTNERING FOR SUCCESS: LEVERAGING EFFORTS IN DIVERSITY AND INCLUSION IN UNDERGRADUATE RESEARCH WITH LSAMP *MAKING A WORLD OF DIFFERENCE!* INTEGRATING RESEARCH, EDUCATION AND OUTREACH



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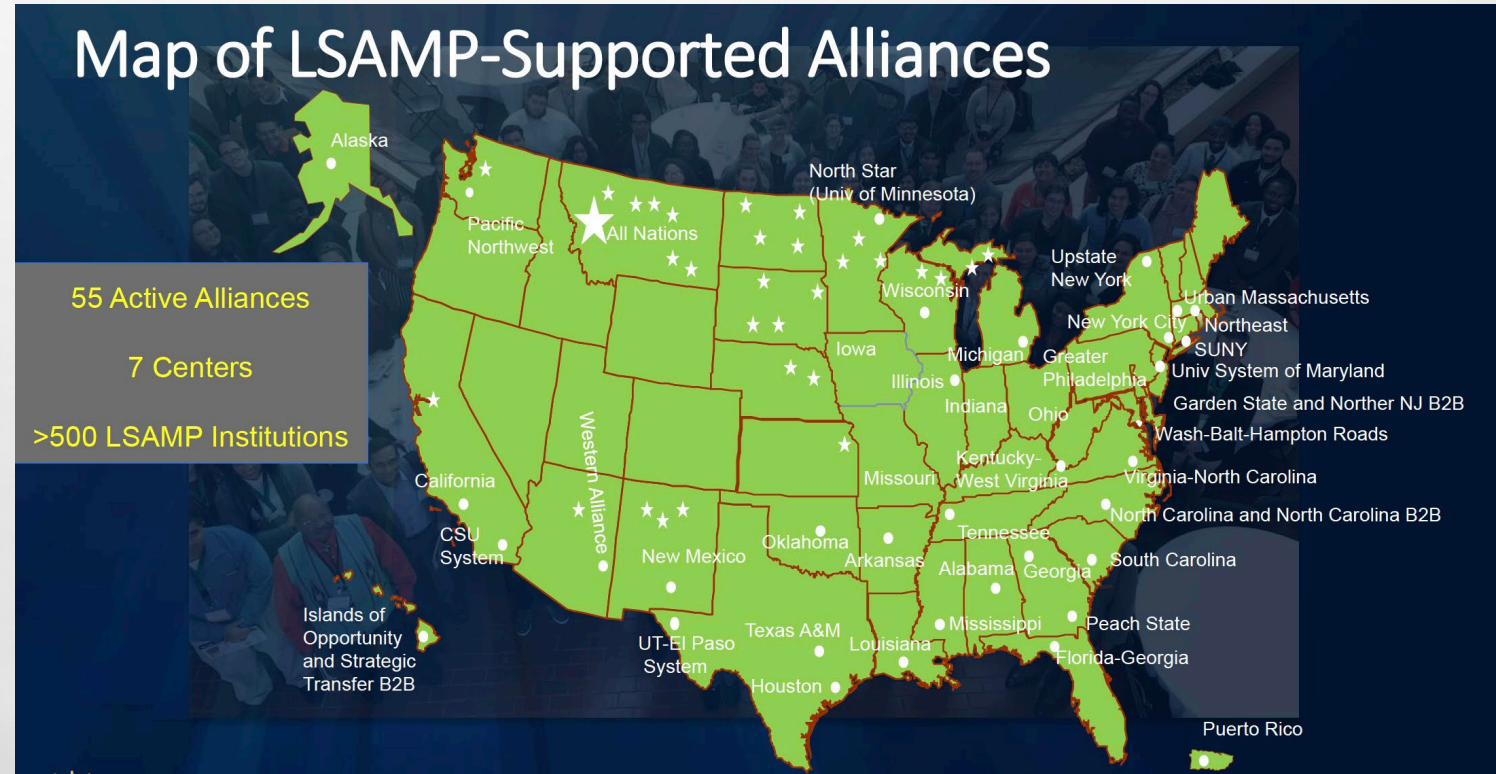


Carbonate Critical Zone RCN Virtual Workshop
Closing Plenary, September 29, 2020



THE NM ALLIANCE IS A SENIOR ALLIANCE: ACTIVE SINCE 1992 (28 YEARS)

- STEM PATHWAYS AND RESEARCH ALLIANCES: NEW MEXICO ALLIANCE FOR MINORITY PARTICIPATION
- HOST INSTITUTION, NMSU-



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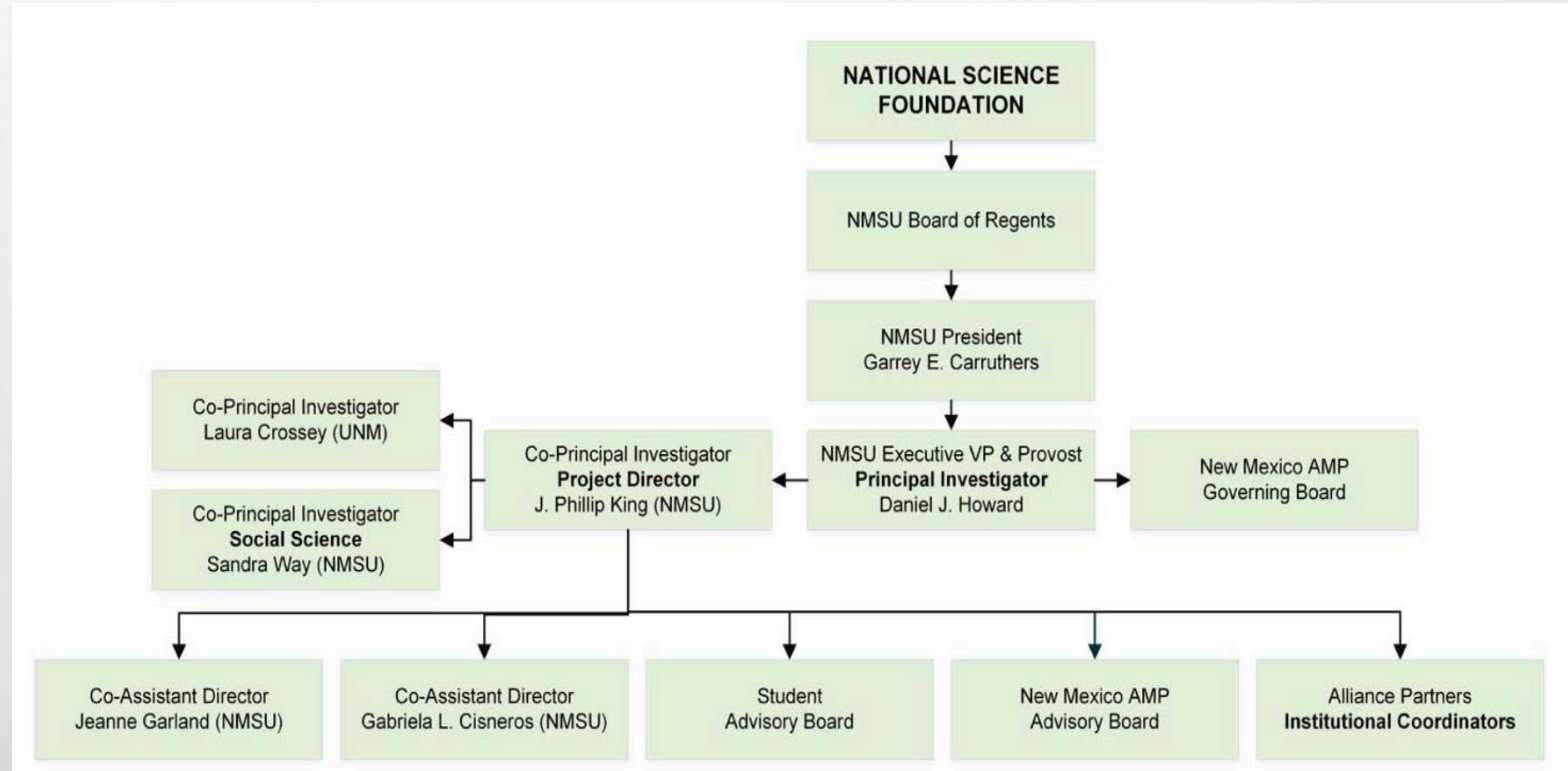
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Table 1. NM AMP Level I Partner Institutions	
Central New Mexico College (CNM)	New Mexico State University (NMSU)
Eastern New Mexico University (ENMU)	NMSU – Alamogordo (NMSU-A)
Luna Community College (LCC)	New Mexico Highlands University (NMHU)
NMSU – Carlsbad (NMSU-C)	Northern New Mexico College (NNMC)
San Juan College (SJC)	Western New Mexico University (WNMU)
Santa Fe Community College (SFCC)	NMSU – Dona Aña Community College (NMSU-DACC)
University of New Mexico (UNM)	New Mexico Institute of Mining and Technology (NMIMT)

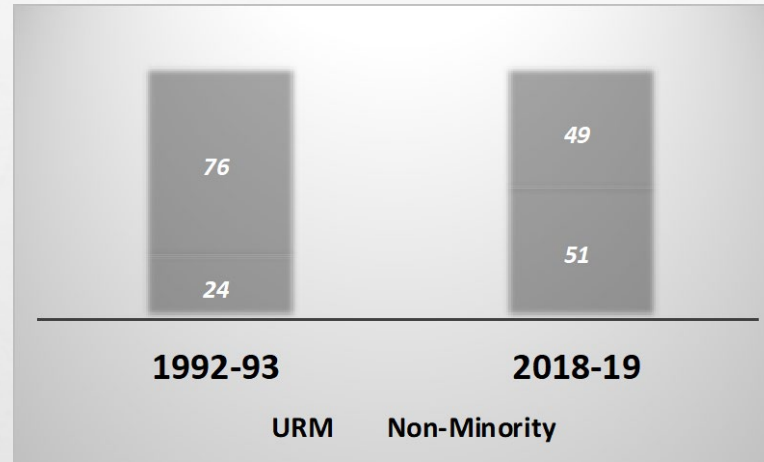
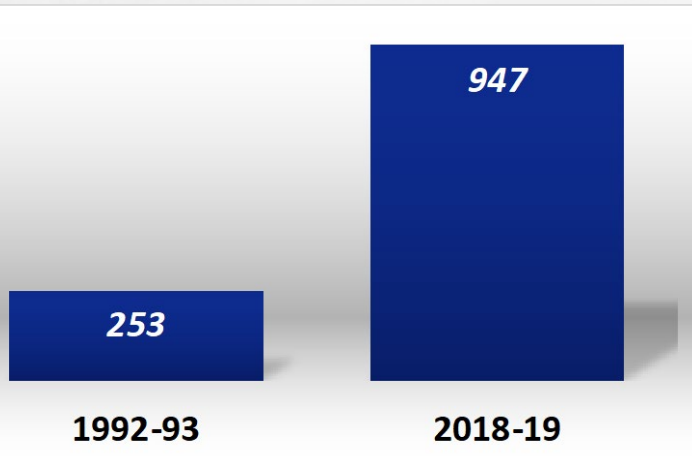
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Statewide AMP Structure

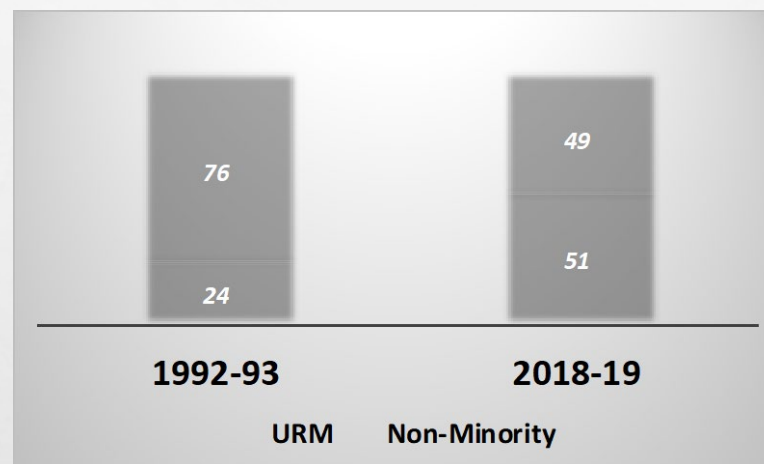
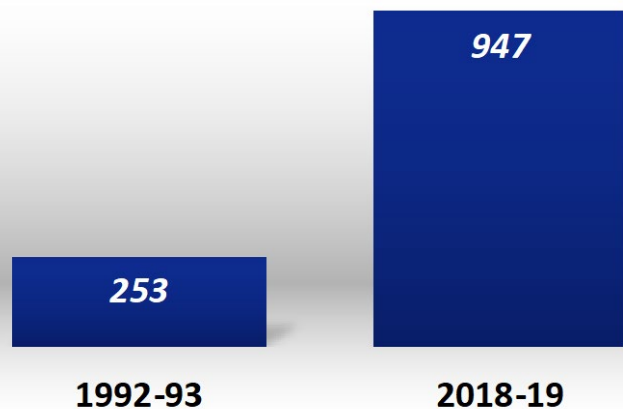


STATEWIDE IMPACT

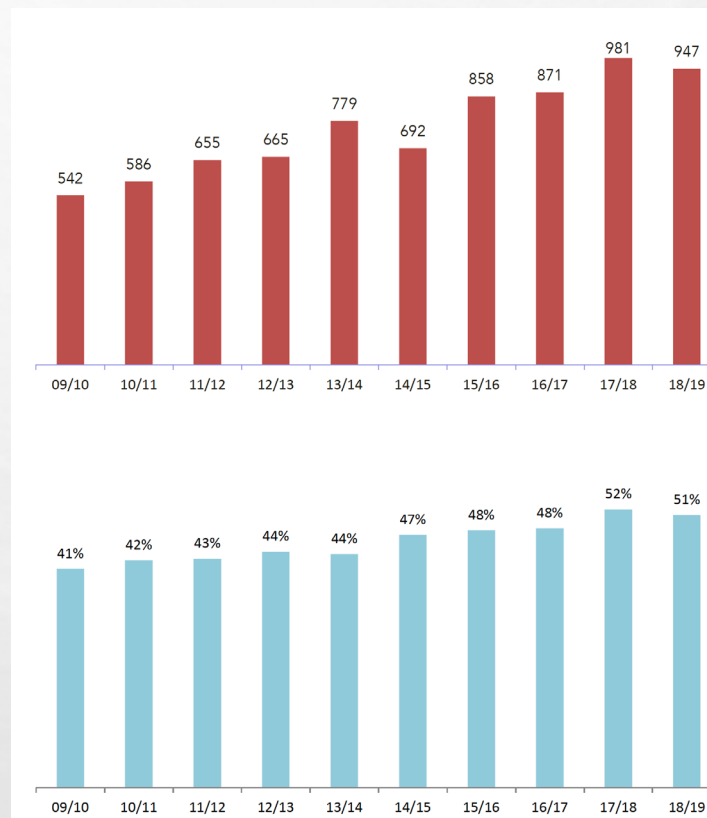


Over the lifetime of the NM AMP, the number of STEM B.S. degrees awarded to URM students has more than tripled. During the same time period, the percentage of B.S. STEM degrees awarded to URM students increased from 24 to 51 percent in 2019.

STATEWIDE IMPACT

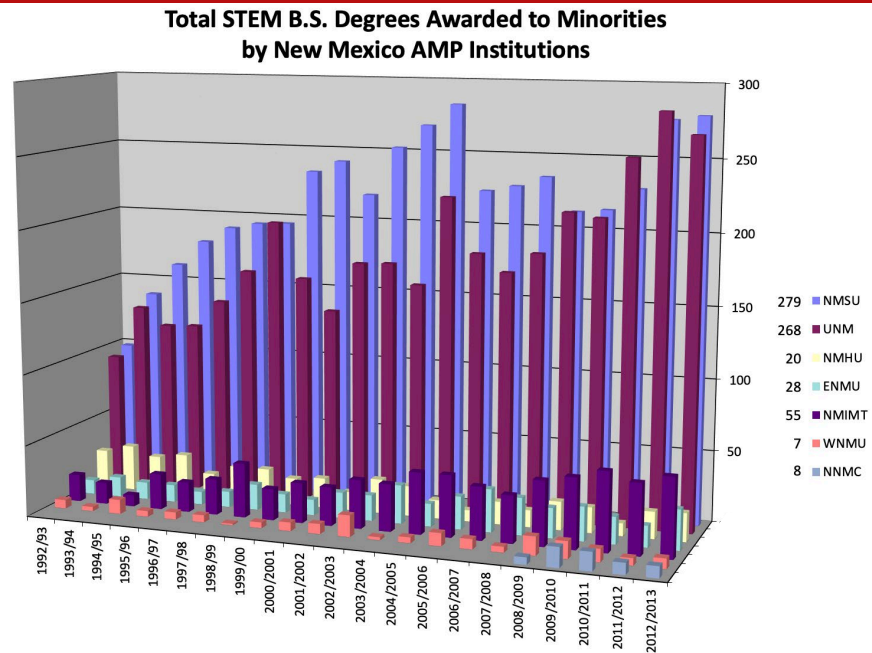


Past Decade



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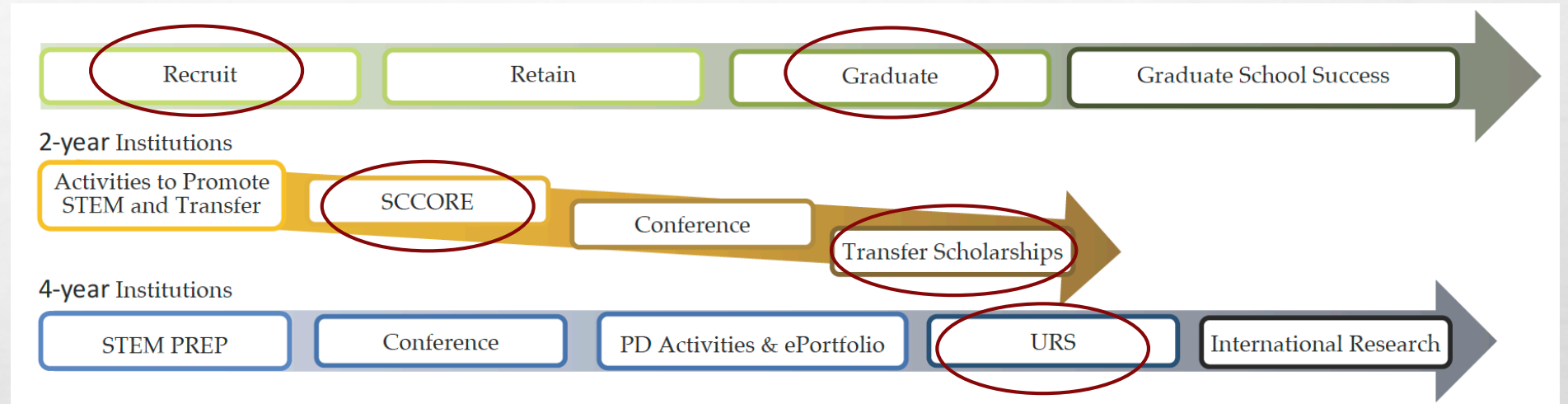
STATEWIDE IMPACT



Over the lifetime of the NM AMP, the number of STEM B.S. degrees awarded to URM students has more than tripled. During the same time period, the percentage of B.S. STEM degrees awarded to URM students increased from 24 to 51 percent in 2019.

THE NEW MEXICO AMP PATHWAY

**Community
Colleges are
Powerful Diversity
Partners**



WHY ENGAGE??

PERSPECTIVES FROM A PROFESSOR/RESEARCHER/ALLY ENGAGEMENTS BEYOND THE IVORY TOWER

- BALANCE TEACHING, RESEARCH & SERVICE MISSIONS
- INTEGRATE RESEARCH WITH TEACHING, MENTORING AND SERVICE!
- FIND THE RESOURCES (\$) WHEREVER YOU CAN
- FIND PARTNERS AND LEVERAGE EFFORT AND RESOURCES

Partner with other programs: GK-12, IGERT, NRT, EPSCoR, GRF, Career Awardees....

This includes networking, mentoring junior faculty, being active with Administration efforts (present at faculty orientation, **ADVANCE activities, **DEI** events, etc)**

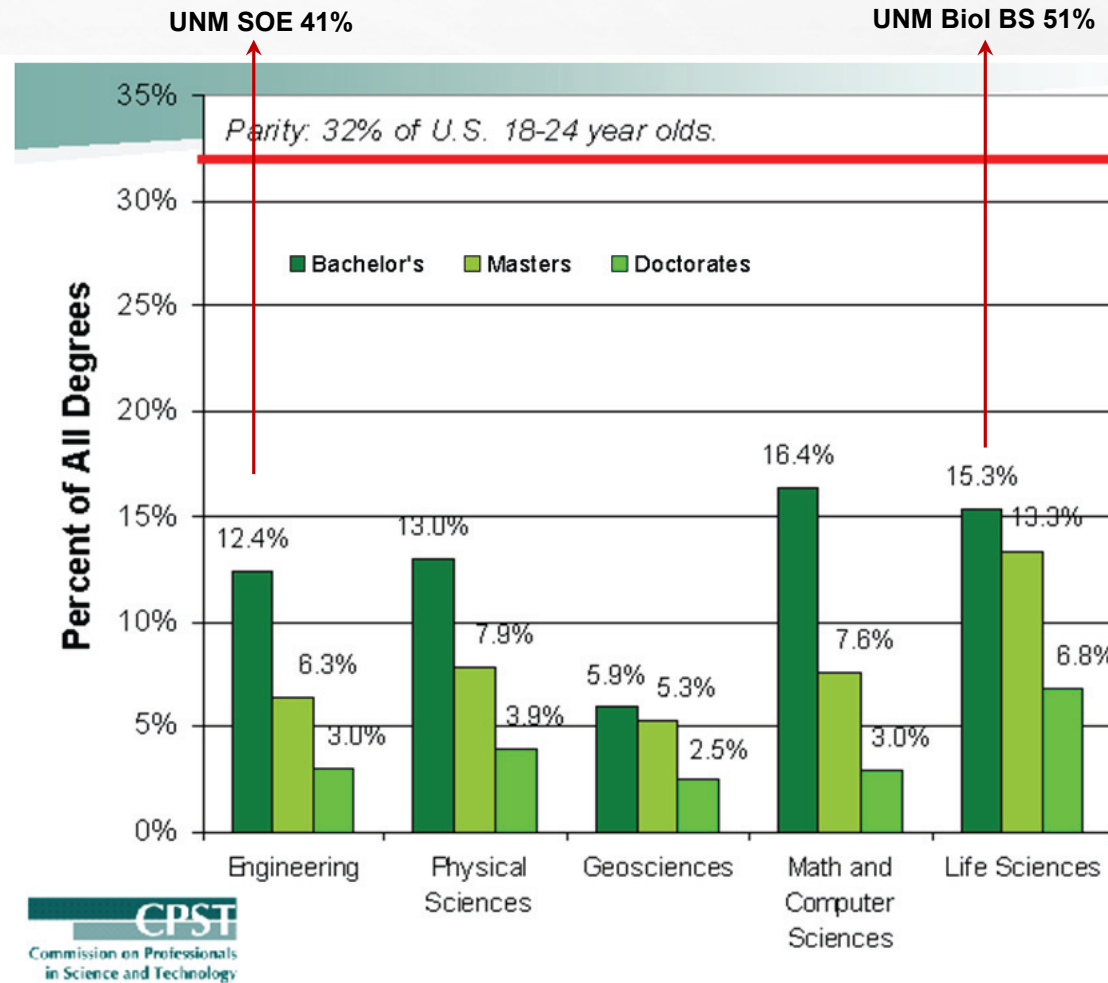
Ally Definition (**MW**): often now used specifically of a person who is not a member of a marginalized or mistreated group but who expresses or gives support to that group

GEOSCIENCES HAVE A LONG WAY TO GO!

National data demonstrate that STEM degrees awarded to underrepresented groups lags behind enrollment trends. UNM's life sciences BS is at parity with enrollment at 47%, but needs to improve at the graduate level. Other STEM disciplines need to improve at all levels.

Table 2: 2018/19 STEM B.S. Degrees to URM Students by New Mexico AMP Institutions and Discipline

Institution	All STEM B. S.		Broken down by Discipline					
			Science		Engineering		Math	
	#	%	#	%	#	%	#	%
NMSU	371	39.2	195	37.3	172	43.1	4	16.0
UNM	421	44.5	246	47.0	162	40.6	13	52.0
NMHU	19	2.0	18	3.4	0	0	1	4.0
ENMU	34	3.6	31	5.9	3	0.8	0	0
NMIMT	87	9.2	21	4.0	62	15.5	4	16.0
WNMU	5	0.5	3	0.6	0	0	2	8.0
NNMC	10	1.0	9	1.7	0	0	1	4.0
				% Total		% Total		% Total
Total	947	100	523	55.2	399	42.1	25	2.6



INDIGENOUS GEOSCIENCE EDUCATION – LINKS TO AN INDIGENOUS KNOWLEDGE BASE AND NEED (HYDROLOGY & AQUIFERS)

- 1) PLACE –BASED
- 2) CULTURALLY RESPONSIVE
- 3) DIRECT INVOLVEMENT OF NAVAJO, HOPI, HUALAPAI,
HAVASUPAI, & PIUTE PEOPLES

Charles
Resource Technician
Hualapai



Ted
UNM AMP URS
Petroleum Engineer, TX



Hualapai River Runners...
future students?

Karlstrom and Crossey run Geoscience training trip for the Hualapai River Runners

LEVERAGE RESEARCH ON PUBLIC LANDS



**Link the NSF-supported
university researchers...**

**Trail of Time Exhibit: GRCA,
NSF ISE \$2.3M, 2010**



**... to the National
Park Service...**

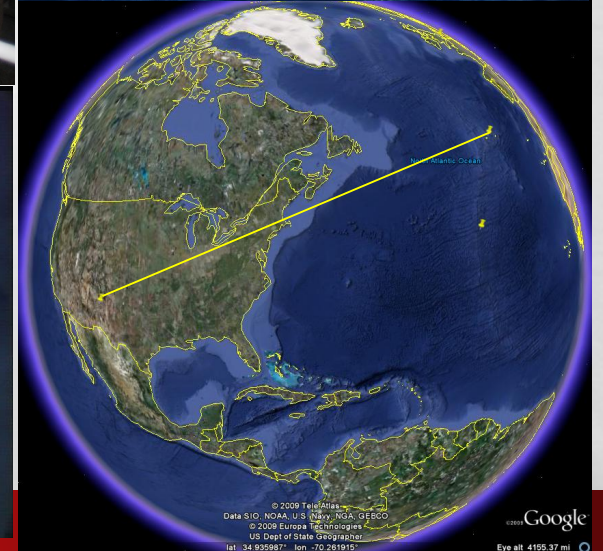


... to the 5 million visitors!

HOW FAR CAN I GO?

BRANDI CRON

FROM GALLUP, NM.
BEGAN AS WORK-STUDY
MCNAIR SCHOLAR
LS AMP URA 2007-08, AMP
BS, EPS UNM 2008
AMPBD FELLOW 2008-2010
MS EPS UNM 2011
NSF GRFP 2011-2013
PHD UNIV. MINNESOTA 2017
POST-DOC PENN STATE 2017-2020
POST-DOC NW INDIAN COLLEGE 2020- ...



QUESTIONS & DISCUSSION

THANKS!



REFERENCES

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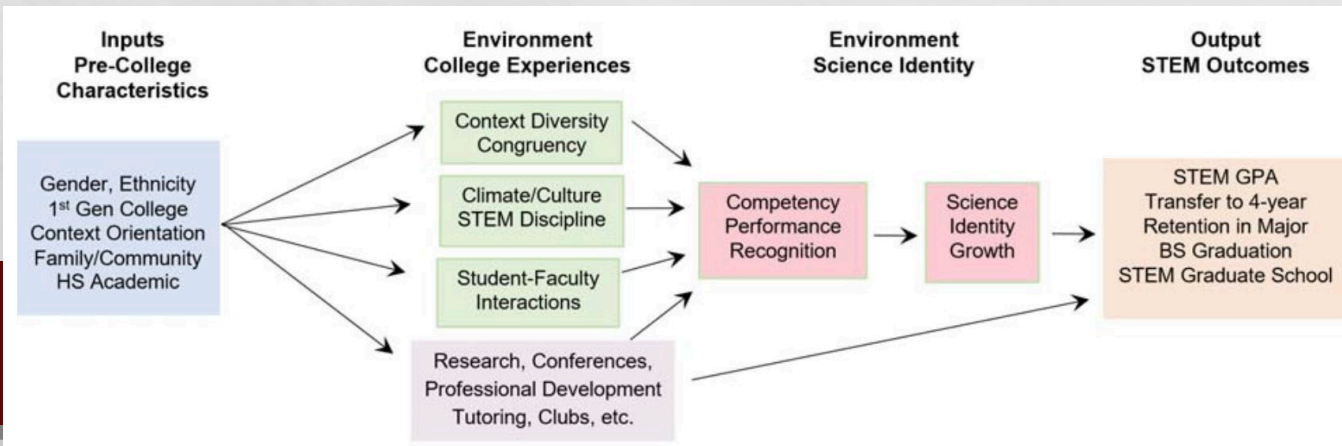
Dill, B. T., & Zambarana, R. E. (2009). Critical thinking about inequality: An emerging lens. In *Emerging Intersections : Race, Class, and Gender in Theory, Policy, and Practice* (pp. 1–21). New Brunswick: Rutgers University Press.

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Carlone, H. B., & Johnson, A. (2007). Understanding the science experiences of successful women of color: Science identity as an analytic lens. *Journal of Research in Science Teaching*, 44(8), 1187–1218. <https://doi.org/10.1002/tea.20237>

THE NEW MEXICO AMP PATHWAY

- We use context orientation as delineated in Robert Ibarra's **Multicontext Theory**.
- Grounded in ethnographic research on Latino/as in postsecondary educational settings, Multicontext theory contrasts “high context cultures” in which context surrounding information strongly shapes meaning, versus “low context cultures” that focus on words and facts.
- *Traditional academic cultures are low context (individualistic learning), potentially further marginalizing students who are adept at making meaning from contextual cues.*
- NM AMP introduction of context diversity workshops with faculty hold promise. As faculty consider multiple definitions for learning and knowing, they may increase opportunities for their students to perform STEM knowledge in multiple ways, develop and demonstrate STEM competence, and be recognized as high quality STEM students and future professionals.
- Furthermore, the Context Diversity workshops for faculty addresses Dill’s and Zambrana’s fourth element of Intersectionality which is to promote social justice by linking theoretical research and practice.



Ibarra, R. A. (2001). *Beyond Affirmative Action: Reframing the Context of Higher Education*. Madison, WI: University of Wisconsin Press.

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