

Increasing Success of Underrepresented STEM PhDs



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Overview of Texas A&M University

- • Land-, sea-, and space-grant status
- More than \$700 million in research expenditures
- 237 graduate degrees, including 17 degrees from 9 interdisciplinary programs
- More than 2,700 faculty, including recipients of the Nobel Prize, National Medal of Science, as well as members of the National Academies

Graduate and Professional Student Enrollment

- TAMU (Main Campus) Fall 2013 Graduate Enrollment – Total – 10,022
 - Doctoral 4,684
 - Master's 5,338
 - 3,958 (39%) international graduate students from 130 countries
 - 1,744 (17%) minority graduate students (African-American, Hispanic, Asian-American, American Indian)

- TAMU (Main Campus) 2012-2013 Graduate Degrees Awarded
 - Doctoral 726
 - Master's 2,221

Doctoral Program Totals *(as defined by CGS DIMAC project)*

- **STEM Programs**
- 49 Departments
- 62 Programs

Other Programs

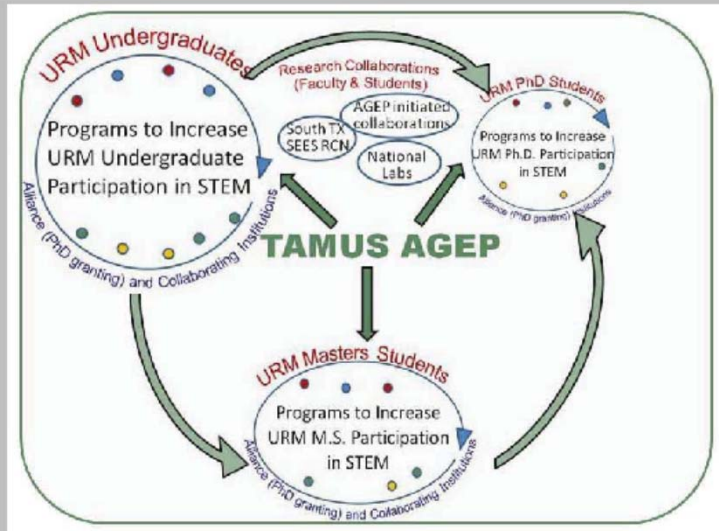
- 17 Departments
- 20 Programs



Institutional Commitment

- University Diversity fellowship
 - Stipend
 - Departmental assistantship
 - Tuition & fees
- Targeted Recruitment and Campus visits

Best Practices

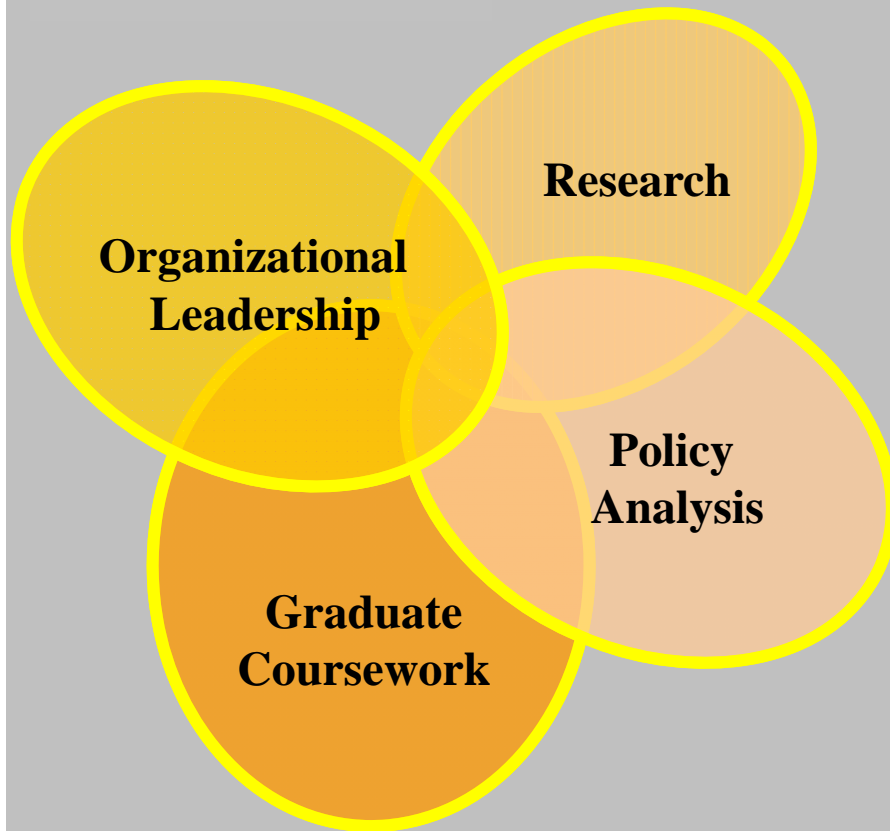


- Faculty-led small cohort-based programs
- Programs address lack of resources, support, and mentoring
- Also address social, cultural, and interpersonal factors that impact goals and persistence of URM students in STEM

Example TAMU Faculty Cohort Programs

Program	Targeted Populations
Tx A&M System LSAMP Bridges to Doctorate	URM Master's and PhD STEM students
Sloan Minority PhD Programs	URM PhD students (Colleges of Engr & Ag/Life Sci)
Hispanic Leaders in Ag & Environment	URM Master's and PhD students
IGERT: Applied Biodiversity Science – Bridging Ecology, Culture, and Governance for Effective Conservation in the Americas"	PhD students
S-STEM (2)	Science & Engr UGs
REU sites (16)	TAMU & non-TAMU UGs

Hispanic Leaders in Agriculture and the Environment (HLAE)



Goal:

Increase number of Hispanic leaders in governmental and non-governmental organizations, colleges and universities, and private industries related to “agriculture and the environment”

Faculty:

College of Ag & Life Science

Note: Program inclusive of all students with experience and interest in reaching U.S. Hispanic populations.

(courtesy of Dr. Manuel Pina)

Biomedical Engineering Dept. Sloan Minority PhD Program

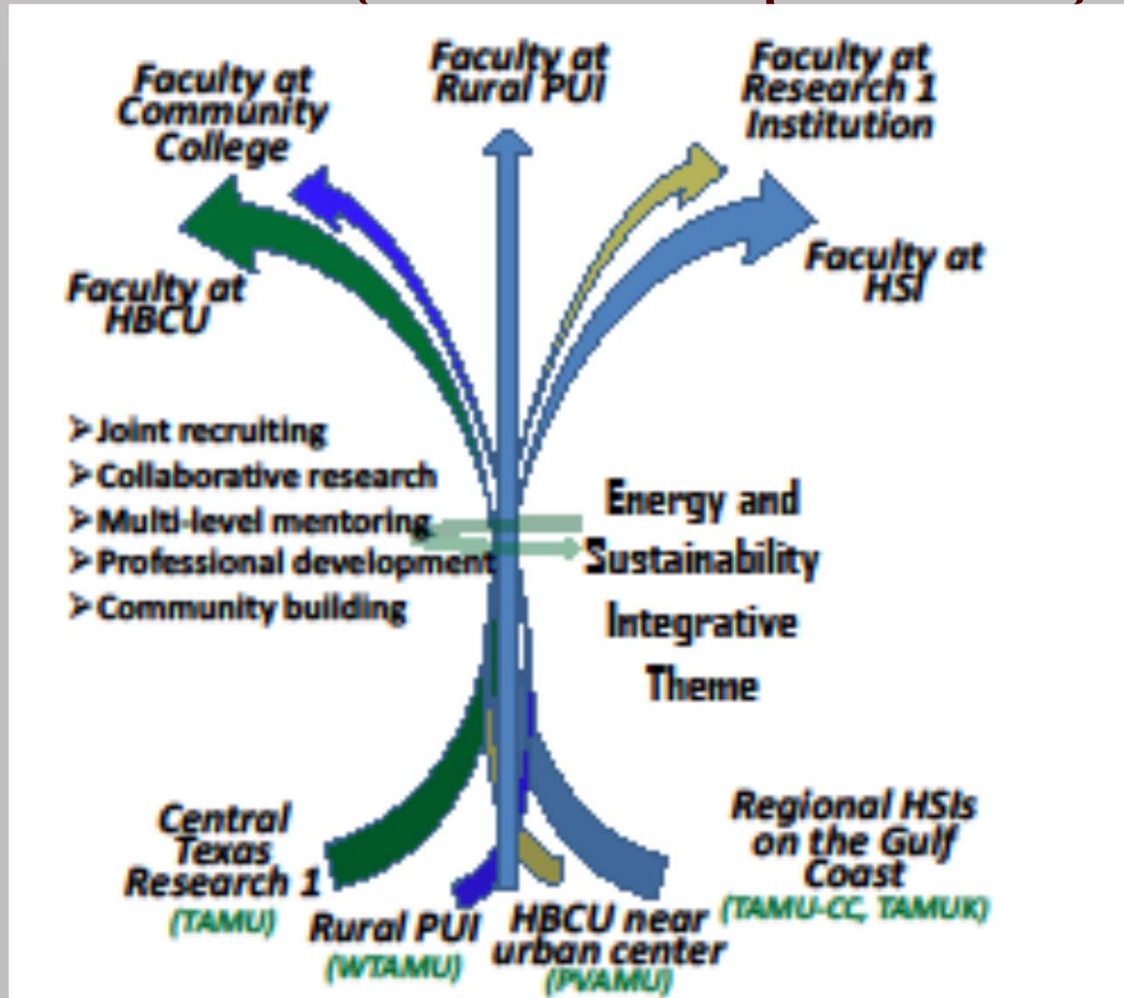
- Three URM students each year (2008-2012). Total of 15 Sloan scholars, 11 since 2008
- Other recruitment tools for URM outreach include:
 - GRE Search Service database, Graduate Invitational, Individual campus visits
- Current enrollment: 113 graduate students
 - 87 Ph.D. students 17 URM students
- Estimated Ph.D. graduates (since 1977): 16 URM (105 total)
- Former URM Ph.D. students received positions in industry and academia, working as post-doctoral students for both domestic and international universities as well as researchers & lecturers
- Multiple students have received recognition from the National Science Foundation as GRFP Fellows and Honorable Mention winners
- Students have been leaders of organizations including Society of Photo-optical Instrumentation Engineers (SPIE) and Graduate Student Council

(courtesy of Dr. Gerald Cote)

Texas A&M System LSAMP Bridge to Doctorate

- TAMUS LSAMP -- Since 1992 -- increase number of URM students participating in STEM fields
- LSAMP Bridge to Doctorate Program -- TAMU
 - Colleges of Ag/Life Sciences, Engineering, GeoSciences, Science
 - **Nurtured 2 years as a cohort community**
 - **Academic & personal development activities**
 - **Social support to sustain commitment**
 - 103 BD fellows, 19 received PhD, 51 currently pursuing PhD
- BD fellows feedback
 - Diversity of disciplines and the relationships they formed with each other
 - Financial support provided by program
 - First year seminars and insight they gave them into the PhD experience
 - Opportunity to present at seminars to develop skills
 - Being a role model for other students
- **Participant quote:** *“I was skeptical about getting a PhD, but BTD has really pushed me to get it. I have met so many that have done it, and this lets me know that getting the PhD is the right choice”*

Texas A&M System AGEP (started Sept. 2013)



Development of an interdisciplinary, shared academic and social community

Social Science Research

Dr. A. Carter-Sowell, Asst. Professor,
Psychology and Africana Studies

- Goals
 - Examine the impact of experiences of exclusion on the success of URM STEM graduate students
 - Recommend ways to promote retention through strategies that promote inclusion
- Example research questions
 - Do URM STEM graduate students experience their campus differently than their majority peers?
 - What effect does experiencing isolation or ostracism have on the productivity and progress of URM STEM graduate students and their intentions to continue to the professoriate?
 - What factors promote or mitigate against URM STEM students experiencing feelings of isolation or ostracism?

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