

A photograph of a university campus. In the foreground, a large stone pillar stands on a paved walkway. To the left, several students are walking. To the right, three students are sitting on a bench, looking at books or papers. The background shows a green lawn and trees under a clear sky.

Collaborative Efforts for STEM Pipeline

Collaborative Efforts for STEM Pipeline through Regional Math Alliances

Tuncay Aktosun
Department of Mathematics
University of Texas at Arlington
Arlington, TX 76019

aktosun@uta.edu





University of Texas at Arlington

- University of Texas System LSAMP
- 35,000 students
- Arlington in the Dallas-Fort Worth metroplex
- Feeder community colleges in Dallas/Fort Worth





UT Arlington Mathematics Department

- Department offers PhD, MS, MA, BS, BA degrees
- 23 faculty members
- 130 graduate students (75 PhD, 55 master's)
- 300 undergraduate majors

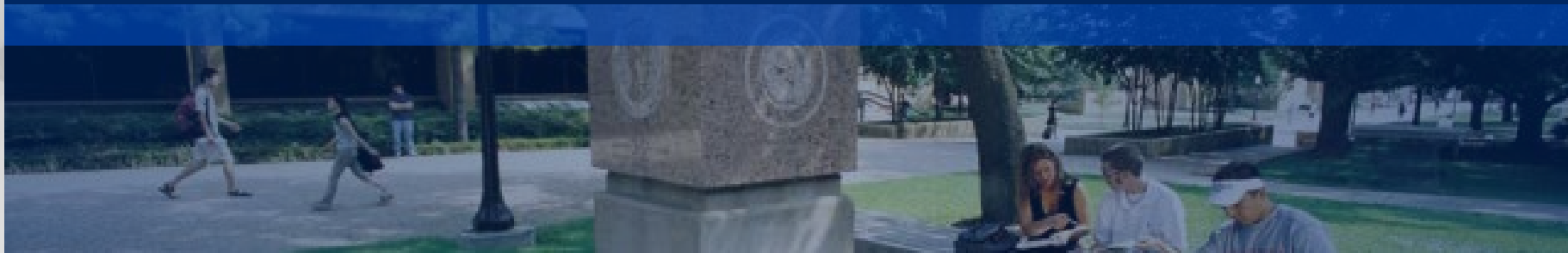




UT Arlington Mathematics Department

- Professor of Mathematics, since 2005
- LSAMP Campus Director, 2009-2014
- LSAMP-BD Campus Director, 2010-2013
- Mathematics ED GAANN Director, since 2006
- Mathematics NSF S-STEM Director, since 2008





UT Arlington Mathematics Department strategies

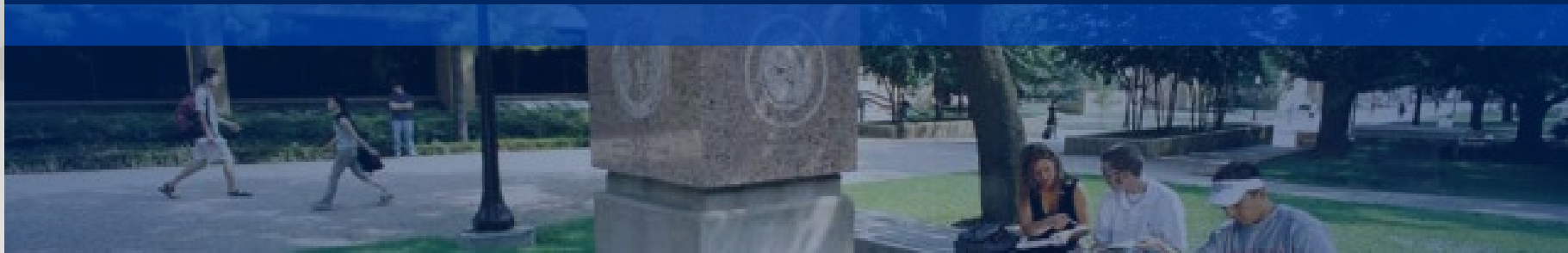
- Intensive undergraduate research in summer
- Leveraging resources (SACNAS conferences, etc.)
- Collaborations (Honors College, McNair, STEM faculty)
- Increase quality/quantity in grad/undergrad in STEM
- Diversification, URMs
- Recruitment, retention, mentoring, timely graduation
- Sustainability, pipeline





UT Arlington Mathematics Department

- Diversification in the graduate program
- Funding for PhD students (25 GTA, 25 Fellowships)
- Funding for math majors (NSF S-STEM)
- Maintain quality in grad/undergrad in mathematics
- Fellowships/Scholarships (GAANN, S-STEM)
- Student organizations (MAA, MAAA, SIAM, AWM)
- Outreach activities (math camps, Calculus Bowl, SK Day)



UT Arlington Mathematics Department

- Collaboration with the National Math Alliance
- Collaboration with other regional math alliances
- Gulf States Math Alliance (TX, LA, MS)
- Community partners (Freedom Schools, FW Rotary, etc.)
- Fort Worth (many URMs, many needy schools)
- Pipeline: middle/high schools, community colleges





Successes: UTA Mathematics Department

- Annual PhD production
- Recruitment and efforts to recruit URMs
- Diversification, URMs, women, domestic students
- Leveraging resources
- 2013 AMS Exemplary Program Award





UTA Mathematics Dept Annual PhD Production

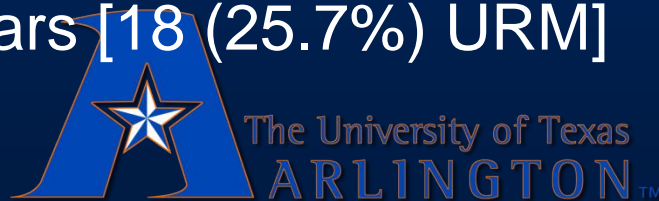
- 2015: 11
- 2014: 8
- 2013: 13
- 2012: 8
- 2011: 4
- 2010: 1
- 2009: 11
- 2008: 7
- 2007: 1
- 2006: 2
- 2005: 5
- 2004: 3
- 2003: 4
- 2002: 2
- 2001: 2
- 2000: 2





UTA Mathematics S-STEM Program

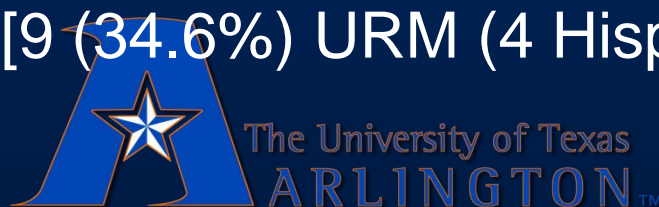
- NSF S-STEM funding Fall 2008-Fall 2017
- Current 19 (27.1%) scholars, timely progress to BS/BA
- 51 (72.9%) S-STEM scholars already received BS/BA
- 70 S-STEM scholars [41 (58.6%) men, 29 (41.4%) women]
- 70 S-STEM scholars [18 (25.7%) URM]





UTA Mathematics GAANN Program

- Continuous GAANN funding since Fall 2008-Fall 2018
- Current 16 GAANN fellows, timely progress to PhD
- 26 GAANN fellows already received PhD
- 26 GAANN PhDs [14 (53.8%) men, 12 (46.2%) women]
- 26 GAANN PhDs [9 (34.6%) URM (4 Hisp, 5 Afr Amer)]





Challenges: UTA Mathematics Department

- Maintaining momentum
- Constant recruitment
- Faculty size
- Sustaining funding
- Need based financial aid too small in S-STEM
- Lack of funding for master's students





Gulf States Math Alliance

- A regional alliance for National Math Alliance
- Building a community in Texas, Louisiana, Mississippi
- Facilitate transition: high school/college/graduate school
- Collaborations with other regional alliances
- Annual Field of Dreams Conference (Nov 6-8, 2015)
- Working with institutions (URM, limited opportunities)

