



# Broadening the Participation of Underrepresented Minorities in the Mathematics Programs at UT Arlington

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The University of Texas

LSMRCE, October 24-27, 2019, Indianapolis



## Outline

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- Info about UT Arlington
- Info about UTA Math Dept
- Info about Speaker
- Focus on URM: attract, recruit, retain, mentor, graduate
- S-STEM program, Bridge program, GAANN program
- Data related to the focus
- Efforts toward the focus
- Obstacles to overcome





# University of Texas at Arlington

- University of Texas System
- PhD, Master's, Bachelor's degrees
- 42,496 students (Fall 2018)
- 42,496 students (55% women; 45% men)
- 42,496 students (88.4% domestic; 11.6% int'l)
- 28,329 undergraduate (66.7%); 14,167 graduate (33.3%)
- 28,329 undergr (47.8% URM); 14,167 gr (30.3% URM)
- 47.8% (32.6% H, 15.2% B); 30.3% (16.5% H, 13.8% B)



# UT Arlington Mathematics Department

- Department offers PhD, MS, MA, BS, BA degrees
- 22 faculty members
- 120 GR (50% W; 50% M; 71 PhD students)
- 120 GR (71% domestic; 29% int'l)
- 120 GR (42 URM; 35% of GR; 49.4% of domestic GR)





# UT Arlington Mathematics Department

- 272 UG; 120 GR
- 272 (45.2% W; 54.8% M)
- 272 (93.4% domestic; 6.6% int'l)
- 272 (103 URM; 37.9% of all; 40.1% of domestic UG)





## Speaker at UTA Mathematics Department

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- Professor of Mathematics, since 2005
- LSAMP Campus Director, 2009-2014
- LSAMP-BD Campus Director, 2010-2013
- Mathematics GAANN Director, since 2006
- Mathematics S-STEM Director, since 2008
- Mathematics NSF-Bridge Director, since 2016
- Math Undergraduate Director, 2008-2012
- Math Graduate Director, 2012-2014



## UTA Mathematics S-STEM Program

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- Funding from NSF-DUE
- Support since June 2008
- Support/mentor/graduate undergrad math majors
- Need based, up to \$5K/semester
- Faculty and peer mentoring
- Sustainability, leveraging resources, securing funding
- Collaborations, Regional Alliances, community colleges





## UTA Mathematics S-STEM Program

- Research question: Role of faculty and peer mentoring in completion of math degrees with reduced time







## UTA Mathematics S-STEM Program

- Monthly lunch/mentoring meetings
- Attendance in MAA meetings (twice a month)
- Other math clubs (AWM, SIAM, SACNAS, Actuary, MAAA)
- Undergraduate research, conference attendance
- Leadership, student-initiated activities, fund raising
- Reduce working hours, reduce time to degree
- Interactions among faculty, GR students, UG students





## UTA Mathematics S-STEM Program

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- Fall 2008-Fall 2019: 108 students (48 F, 60 M; 32 URM)
- 92 received degrees (40 F, 52 M)
- 16 continuing (8 F, 8 M)
- 108 (55% W, 5% Afr Am, 2% Nat Am, 16% A, 23% H)
- 52% transfer students from CC
- 50% move to graduate studies
- 50% do undergraduate research





## UTA Mathematics Bridge Program

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- Funding from NSF-DMS
- 10-12 students per year (8 W, 4 M; 9 URM)
- Emphasis on Linear Algebra and Analysis
- Prepare underserved students for doctoral studies
- Mentoring, teaching experience, summer research
- Integration into graduate studies





## UTA Mathematics GAANN Program

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- Funding from US-ED, since 2006
- Need based, FAFSA, stipend plus educational expenses
- Doctoral math students
- 41 received PhD (13 W, 28 M; 12 URM)
- 13 current fellows (5 W, 8 M; 6 URM)





## UT Arlington Math Dept Strategies

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- Increase quality/quantity in math majors
- Diversity, URM, women
- Recruitment, retention, mentoring, timely graduation
- Sustainability, securing funding, pipeline
- Collaborations, Regional Alliances, National Math Alliance
- Leveraging resources
- Encourage undergraduate research





# UT Arlington Mathematics Department

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- Funding for students
- Maintain quality in the mathematics programs
- Student organizations (MAA, MAAA, SIAM, AWM)
- Outreach activities (math camps, Calculus Bowl, SK Day)





# UT Arlington Mathematics Department

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- Collaboration with the National Math Alliance (FGAP, FoD)
- Collaboration with Regional Alliances
- Gulf States Math Alliance (TX, LA, MS)
- Community partners (Freedom Schools, FW Rotary)
- Fort Worth (many URMs, many needy schools)
- Pipeline: middle/high schools, community colleges





## Successes: UTA Mathematics Department

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- Recruitment and efforts to recruit URMs
- Diversity, URMs, women, domestic students
- Leveraging resources
- Regional Math Alliance, close relationships with mentors
- 2013 AMS Exemplary Program Award







# Challenges: UTA Mathematics Department

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- Maintaining momentum
- Constant recruitment
- Faculty size
- Sustaining funding





## References

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- Data by UTA Math Academic Advisor, Libby Carroll
- UT Arlington Wins AMS Exemplary Program Award, AMS Notices, v. 60, May 2013
- UTA Math GAANN
- UTA Math Bridge
- UTA Math S-STEM





## Acknowledgments

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- NSF S-STEM, NSF-DMS, US-ED GAANN
- Libby Carroll, UTA Math Academic Advisor
- 2019 LSMRCE Organizers

