

ALLIANCES

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OUTLINE

(Presentation Plan)

- ▶ ALLIANCE.

What do we mean?

- ▶ EXAMPLE / DISCUSSION.

- ▶ Doctoral Alliance: The National Alliance for Doctoral Study in the Mathematical Sciences

- ▶ OTHER EXAMPLES.

- ▶ Diversity / Discussion

- ▶ Preparation / Discussion

- ▶ Teacher Education (OSU Teach/UTeach)

- ▶ STEM Education

- ▶ Transfer and Articulation / Discussion

- ▶ MATHExtension

- ▶ Alternate Pathways / Discussion

- ▶ MATHExtension

ALLIANCE

▶ **Community whose membership comes from some combination of:**

- ▶ **Students**
- ▶ **Faculty**
- ▶ **Non-academics**

From

- ▶ **K-12 Education Institutions**
 - ▶ **Undergraduate Institutions**
 - ▶ **Graduate Degree Institutions**
 - ▶ **Businesses, Industry, Government**
- ▶ **Bridging (Vertical Integration) with common goals and strategies**

MATH ALLIANCE

*Building a New American Community in the
Mathematical and Statistical Sciences*

<http://mathalliance.org/>

MATH Alliance Community

Undergraduate and Doctoral Institutions

- ▶ **Pre-Doctoral Mentors**
- ▶ **Pre-Doctoral Scholars**
- ▶ **Graduate Program Groups/Doctoral Mentors**
- ▶ **Doctoral Scholars**

Pre-Doctoral Mentors

(Faculty in Mathematical Sciences)

- ▶ **Nominate Predoctoral Scholars**
- ▶ **Mentor Predoctoral Scholars**
- ▶ **Serve on Alliance Committees (governance, curriculum, and extramural funding)**
- ▶ **Contribute to leadership and guidance**

Pre-Doctoral Scholars

(Undergraduate or Terminal Masters Programs)

- ▶ **Potential to succeed in doctoral program**
- ▶ **Student is willing to consider doctoral degree option**
- ▶ **Student participation in Alliance will substantially increase entrance and success in doctoral program**

Graduate Program Group (GPG)/Doctoral Mentors (Faculty in Mathematical Sciences)

- ▶ **GPG: Group of Math Sciences faculty of significant size and seniority**
- ▶ **Faculty with knowledge and experience to build and support a culture in which students survive**
- ▶ **Faculty with a commitment to mentor doctoral students**
- ▶ **Attend trainings, collaborate with REU Programs, attend the Annual Field of Dreams Conference**

Doctoral Scholars

(Doctoral Students designated Alliance Scholars)

- ▶ **Doctoral students — do not need to be in GPG Departments or in Math Sciences**
- ▶ **Typically have been Pre-doctoral Alliance Scholars**
- ▶ **Students in a math/stat doctoral program and nominated by an Alliance Doctoral Mentor**

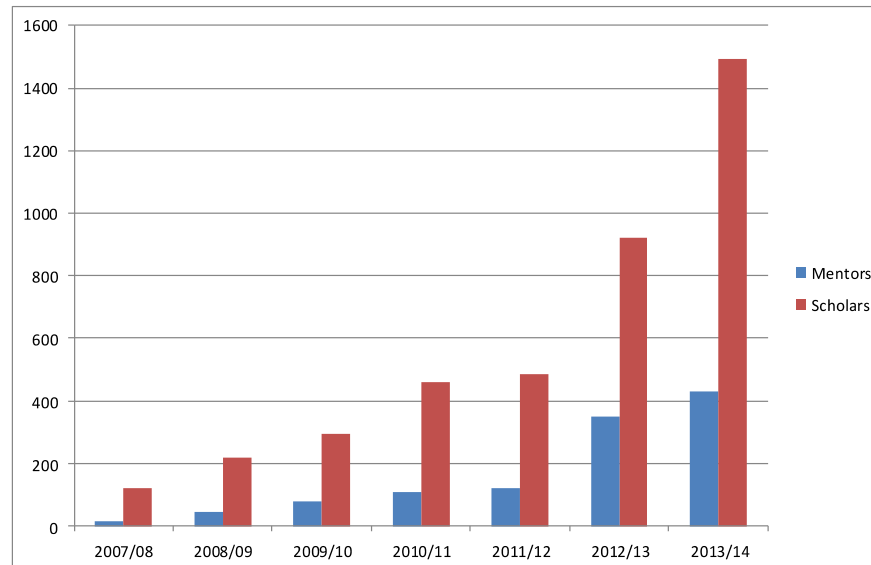
MATH Alliance Goals

- ▶ **Increase the percentage of domestic (underrepresented and underprepared) students who enter doctoral programs in mathematics.**
- ▶ **Improve retention and time to degree for these students.**
- ▶ **Improve placement of these students in the workforce.**
- ▶ **Foster the growth of a community of mathematical scientists that promotes a diverse and inclusive profession.**

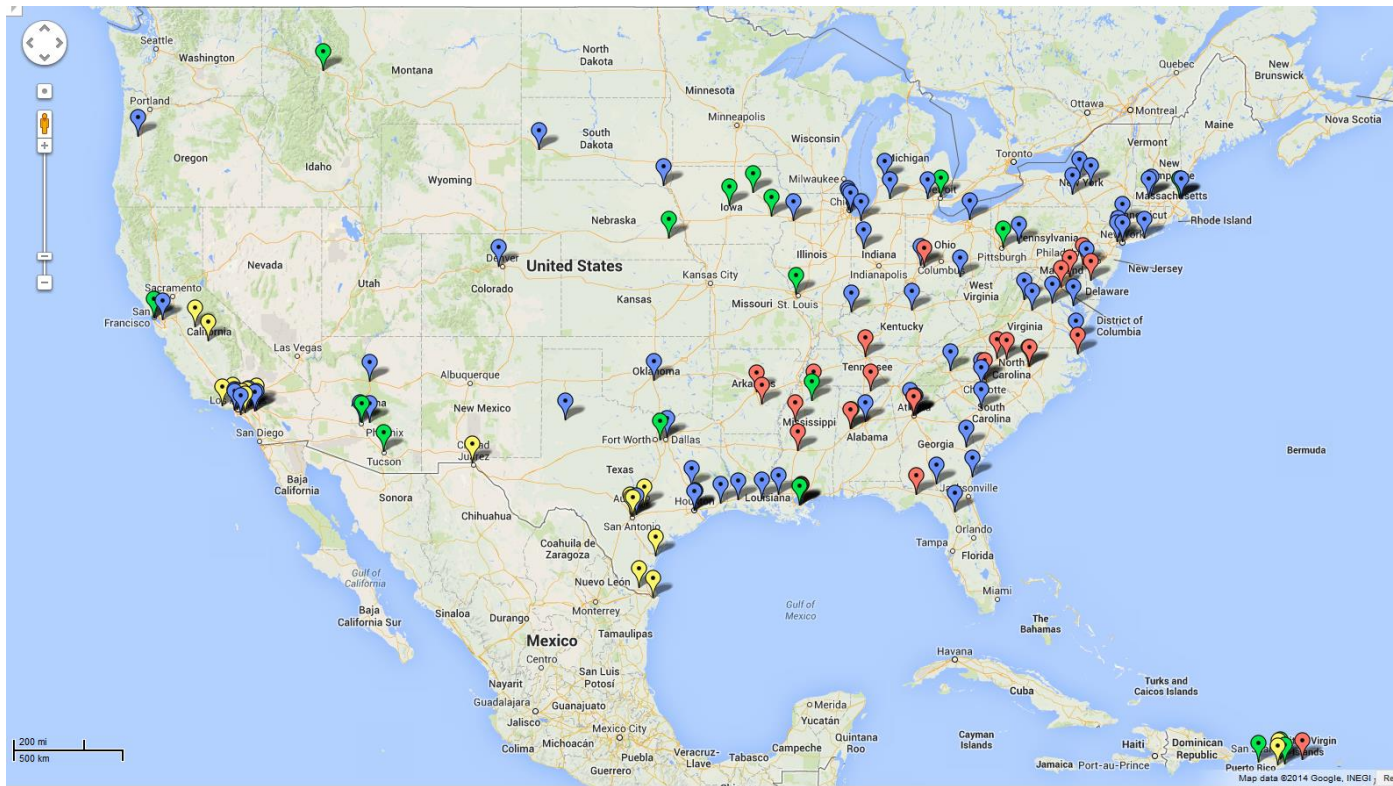
2013/2014 Math Alliance Growth

Between the period of August 2013 and September 2014 the Alliance saw 77 new Alliance Mentors and 572 new Alliance Scholars. This brings our total of Alliance Mentors to 429 and Scholars to 1,492. The chart below shows the growth of the Alliance over the last 7 years.

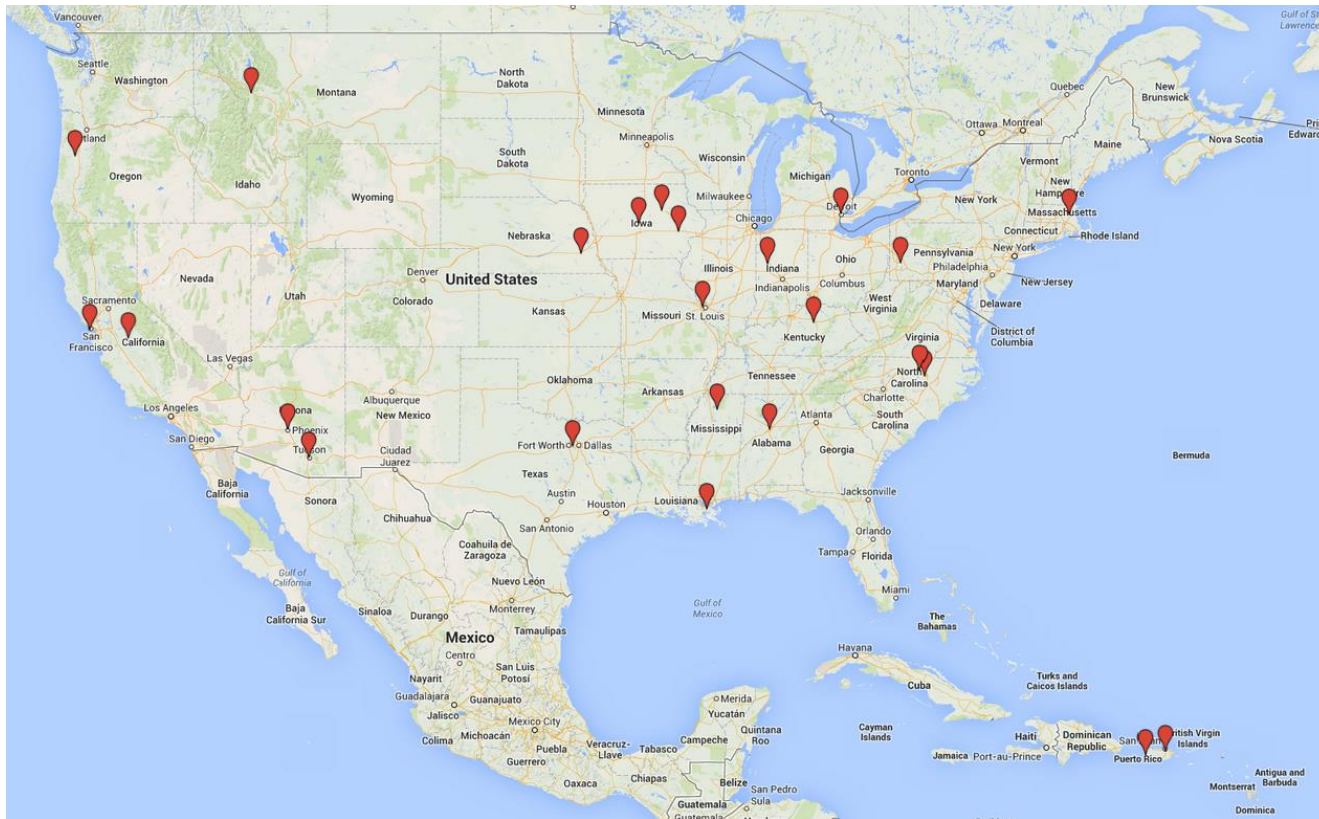
	Mentors	Scholars
2007/08	17	120
2008/09	45	220
2009/10	78	297
2010/11	110	459
2011/12	120	487
2012/13	352	920
2013/14	429	1492



MATH Alliance Mentors



MATH Alliance Graduate Program Groups (GPGs)



(Brief) MATH ALLIANCE HISTORY

- ▶ **2001.** Alliance of U of Iowa, Iowa State U and U of Northern Iowa with Alabama A&M, Benedict College, Florida A&M and Jackson State
- ▶ **2002-10.** NSF Funding for *Alliance for Production of African American Ph.D.s in the Math Sciences.*
- ▶ **2006.** Scope broadened, approved name change becoming *National Alliance for Doctoral Studies in the Mathematical Sciences.*
- ▶ **2009.** Other programs affiliated with MATH Alliance: *National Alliance for Building Faculty Diversity in the Math Sciences* (NCSU); Simon A. Levin Ctr (ASU); U. Nebraska MCTP; others
- ▶ **2010-2015.** NSF Funding.
- ▶ **2016 -.** For the Future: Scaling and Sustaining the National Alliance.

DISCUSSION

- ▶ Anyone present who is a member or have members of the MATH Alliance in their Departments?
- ▶ What do you see as Strengths/Weaknesses of the MATH Alliance?
- ▶ Scalability and Sustainability for MATH Alliance
- ▶ (Brief) Discussion of AMS Office of Education and Diversity

Purposes Served By An Alliance

- ▶ Build a community with like-minded interest
- ▶ Foster relationships among math/stat departments and between individual faculty
- ▶ Vertically linking teaching, learning, and experience; starting K-12 through higher ed and into careers
- ▶ Enhance preparation of students
- ▶ Enhance articulation and transfer between institutions

Other Alliance Examples

- ▶ **Diversity:** Recruitment, Retention and Progression of Underrepresented groups
- ▶ **Preparation:** Reaching Underprepared Students
 - ▶ Recruitment and Preparation for Teacher Education
 - ▶ Recruitment and Preparation for STEM
- ▶ **Transfer and Articulation:** Quality and Consistency across commonly Governed Systems
- ▶ **Alternate Pathways:** Alternate choices of Math preparation for STEM and nonSTEM students

Diversity

- ▶ Join the National Alliance
- ▶ Join or Form Regional Alliance

http://mathalliance.org/?page_id=3445

- ▶ Gulf States (Southern University-NO)
- ▶ Midwest (Iowa State)
- ▶ Northeast (Kean U)
- ▶ Pacific (Cal State-Northridge)
- ▶ Caribbean (U of PR-Humacao)
- ▶ Southeast (Morehouse)
- ▶ Southwest (ASU)
- ▶ Use model to Create a new Alliance

DISCUSSION

- ▶ Local/State/Regional Alliances
- ▶ Build, link and enhance via AMS Regional Meetings and MAA Sectional Meetings
- ▶ SIAM and ASA are supportive and wish to participate.

Preparation: Teacher Education

EXAMPLE: OSUTeach Alliance (Pilot)

- ▶ **Community** (State OSUTeach Alliance HS Math/Science Teachers & Counselors and OSU faculty)
- ▶ **Pre-OSUTeach Scholars** (Specially identified State OSUTeach Alliance HS Jrs and Srs)
- ▶ **Pre-OSUTeach Mentors** (State OSUTeach Alliance HS Math and Science Teacher(s) and HS Counselor)
- ▶ **OSUTeach Scholars** (OSUTeach majors who were Pre-OSUTeach Scholars or later designated)
- ▶ **OSUTeach Mentors** (Designated members of OSU Math, Science, Education Faculty)

Preparation: Teacher Education

EXAMPLE: UTeach Alliance

- ▶ Community (National UTeach Alliance HS Math/Science Teachers and Counselors; UTeach Math, Science and Education Faculty)
- ▶ Pre-UTeach Scholars (Specially identified UTeach Alliance HS Jrs and Srs)
- ▶ Pre-UTeach Mentors (UTeach Alliance HS Math and Science Teacher(s) and HS Counselors)
- ▶ UTeach Scholars (UTeach majors who were Pre-UTeach Scholars or later designated)
- ▶ UTeach Mentors (Designated members of UTeach Math, Science and Education Faculty)

DISCUSSION

- ▶ Sustainability (Pilot funded by term grants)
- ▶ Scalable (Scale to National UTeach Institutions)
- ▶ Pros/Cons

Preparation: STEM Education

EXAMPLE: STEM Alliance

- ▶ Community (HS Jr and Sr students with Science/Math Teachers and HS Counselors; Math, Science and Engineering Faculty at post-secondary institutions)
- ▶ Pre-STEM Scholars (Specially identified HS Jrs and Srs)
- ▶ Pre-STEM Mentors (HS Math and Science Teacher(s) and HS Counselor)
- ▶ STEM Scholars (STEM majors who were Pre-STEM Scholars or later designated)
- ▶ STEM Mentors (Designated members of Math, Science and Engineering Faculty at STEM Alliance Institutions)

DISCUSSION

- ▶ Viable model for targeted recruitment, retention, and progression?
- ▶ Sustainability
- ▶ Scalable
- ▶ Pros/Cons

Transfer and Articulation

EXAMPLE: MATH Extension Alliance (Pilot)

- ▶ **Community** (Math faculty and students at System Campuses: Community and Four-Year Campuses, and Math faculty at Provider Campus)
- ▶ **Delivery:** Online Courses from Provider Campus
- ▶ **Extension Scholars** (Students taking courses for credit)
- ▶ **Extension Mentors** (Math faculty member(s) at Extension Campuses, serving as Extension Agents)
- ▶ **Transfer Scholars** (Students who transfer to Provider Campus)
- ▶ **Transfer Mentors** (Designated members of Provider Campus: Math Instructional staff)

Alternate Pathways

EXAMPLE: MATH Extension Alliance (Pilot)

- ▶ **Community (Math faculty at Extension Campuses: Community and Four-Year Campuses and Math faculty at Provider Campus)**
- ▶ **Delivery: Online Courses from Provider Campus**
- ▶ **Scholars (Students taking courses for credit)**
- ▶ **Mentors (Math faculty member(s) at Extension Campuses serving as Extension Agents)**
- ▶ **Pathway Scholars (Students who achieve math credit toward program of study)**

DISCUSSION

ANY CLOSING COMMENTS OR QUESTIONS?

THANKS