MATH ALLIANCE STATISTICS INITIATIVE
GATHERING FOR FACULTY

David Goldberg
Executive Director
Prof. of Mathematics,
Purdue University

Jackie Hughes-Oliver
Assoc Dir, Statistics
Prof. of Statistics,
NC State University

Leslie McClure
Chair, Executive Council
Prof. & Chair, Biostatistics,
Drexel University

• Introductions
• What is the Math Alliance and how can it help you?
• Tips for recruiting and retention
• Questions, comments, concerns

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A community of people connected by their commitment to:

1. increase the number of doctoral degrees in the mathematical sciences among groups that have been traditionally underrepresented in those fields;

2. improve placement of students from these groups in doctoral programs in disciplines that recruit undergraduate mathematics majors;

3. increase the number of PhDs from these groups who enter the professoriate in the mathematical sciences as well as other appropriate professions;

4. increase funded research collaborations between faculty members at the universities with mathematical sciences doctoral programs and faculty members at colleges and universities focused on undergraduate students;

5. foster the growth of a community of mathematical scientists that promotes a diverse workforce.
Scholars

- About 80% are URM
- Predoctoral (undergraduate, masters)
  - Nominated by Predoctoral Mentors
- Doctoral
  - Predoctoral Scholars who enroll in doctoral programs
  - PhD students nominated by Mentors or who attend the Field of Dreams Conference
- F-GAP: Facilitated Graduate Admissions Process
- BAMM - Using MS programs as bridge to PhD
  - Pilot running at three CSU campuses, NSF

Benefits

- Mentoring, for graduate school & career
- Attendance to Field of Dreams Conference
- Career, REU/Internship, and Graduate School Fairs
- Facilitated Graduate Admissions Process (F-GAP)
  - Provides transitional support for our Scholars between undergraduate and graduate programs, by providing mentoring from doctoral faculty
  - Match students in junior year (or MS students a year from graduation) early in the calendar year with doctoral mentor
  - Over 500 F-GAP students have enrolled in grad programs since 2014
400 participants including:

200 predoctoral scholars
100 in F-GAP, 70-80% URM

- Community building
- Professional development
- Graduate school awareness

**Graduate School, REU, and Career Fairs:**

- 60-75 programs and other exhibitors
- Opportunities for students in many quantitatively intense fields

- Regional Alliance Conferences
# MATH ALLIANCE SUCCESS

<table>
<thead>
<tr>
<th></th>
<th>All Alliance Scholars</th>
<th>Alliance Predoctoral Scholars</th>
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<tbody>
<tr>
<td>Doctorates</td>
<td>172 (123 URM*, 72%)</td>
<td>121 (90 URM, 74%)</td>
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<tr>
<td>Faculty</td>
<td>46 (35 URM, 83%)</td>
<td>31 (24 URM, 84%)</td>
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<td>Postdocs</td>
<td>42 (27 URM, 76%)</td>
<td>27 (21 URM, 78%)</td>
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* In each group 8-14% did not self-identify ethnicity

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<thead>
<tr>
<th></th>
<th>Total</th>
<th>Entered Grad School</th>
<th>MS Earned</th>
<th>PhD Earned</th>
<th>Current MS student</th>
<th>Current PhD student</th>
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<tbody>
<tr>
<td>F-GAP &lt;began 2013-14&gt;</td>
<td>679 (521, 77%)</td>
<td>530 (313, 72%)</td>
<td>131 (108, 82%)</td>
<td>7 (4, 57%)</td>
<td>105 (86, 82%)</td>
<td>222 (147, 66%)</td>
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Math Alliance Predoctoral Scholars
Earned Doctorates by Calendar Year

2020 to date 16 earned doctorates, expect over 30

- Predoctoral Alliance scholars earning a PhD in any field
- Predoctoral Alliance scholars with a PhD in a Math Science
- Predoctoral Alliance URM scholars with a PhD in Math Science
WHAT IS THE MATH ALLIANCE?
WWW.MATHALLIANCE.ORG

Mentors
• Over 1,100 faculty at over 360 campuses
• Nominate (& bring) students to Field of Dreams Conf
• How to build cultural competence in our mentors?
• Predoctoral
  • Nominate & advise Predoctoral Scholars
  • Nominate mentees for F-GAP and other programs
• Doctoral
  • Advise Predoctoral Scholars
  • Guide F-GAP Mentee
  • Recruit Doctoral Scholars
  • Retain Doctoral Scholars
  • Graduate Doctoral Scholars

Benefits
• Access to highly motivated & talented students
• Preferred access to: Field of Dreams Conference, and to Career, REU/Internship, and Graduate School Fairs
WHERE OUR MENTORS COME FROM

- 305 Faculty at HBCU, HSI, or AANAPISI Campuses
- No Graduate Program 270
- Terminal MS Program 176 (84 MPG)
- Doctoral Program 679 (333 DPG)
- Other 11
MENTORS BY RESEARCH AREA

Statistical Science faculty in doctoral programs: 160

Research Area includes a statistical science 230

Other (906)
What is the Math Alliance?

WWW.MATHALLIANCE.ORG

GPG: Graduate Program Group

- Offer master’s degree (MPG), currently 11
- Offer doctoral degree (DPG), currently 41
- Application requires:
  - Commitment to Math Alliance goals
  - 10+% of faculty serve as Mentors (with leadership support)
  - Recruitment plan
  - Retention plan
  - Mentoring plan
  - Supportive environment

- Status reviewed regularly

Benefits

- Prominent list on website
- Students know programs have been “vetted”
- Preferred access to: Field of Dreams Conference, and to Career, REU, and Graduate School Fairs
UPCOMING EVENTS

• October 17: Taking Our Place in Graduate School
  • Nominate your students
  • Serve as a discussion leader
  • Free

• October 24: Graduate School Fair & REU/Internship Fair
  • Virtual office platform Sococo will simulate movement in a floorplan by avatars
  • Graduate programs & REU programs will host rooms where they can meet students
  • Exhibitors at this year’s fairs (including Career Fair in November) must be a Center Member (more on next slide)
    • Silver $1,800; Gold $3,600
    • Virtual Fair Memberships (Graduate $1,000; REU/Internship $500; Career $1,500)

• November 6 & 7: Virtual Field of Dreams
  • About 3 hours of programming on each day
  • Career Fair attended by Math Alliance Scholars with Graduate Degrees
  • Nominate your students
  • Free
Day in the Life of an Industry Statistician

Want to learn more about math and statistics related career opportunities in the biopharmaceutical industry?

Please join us at our co-sponsored Bristol Myers Squibb (BMS) and Math Alliance virtual panel, set for the 23rd of October from 10 AM – 12 PM EST.

In this virtual session, you will have the opportunity to:

- Learn about the biopharmaceutical industry and drug development process
- Understand how to get started in the biopharmaceutical industry, including internship opportunities
- Hear from various levels of BMS biostatisticians on what a typical day in the life looks like
- Participate in an open Q&A panel discussion

This panel will bring together various levels from BMS including leadership roles

You will get an email about this soon!
Benefits include:

- Names and academic information about Scholars
  - Particularly helpful for recruiting efforts
  - Scholars can be sorted by interest in statistics/biostatistics/data science
- Room at the Graduate School Fair (Gold members can have multiple programs)
- Room at the REU/Internship Fair
- Prominent display on the website and on material at all Conferences
- Room at the Career Fair (Nov. 6)
- Free advertising in Math Alliance Newsletter (usually $200/ad/month)
- Roles:
  - Member – advise Math Alliance through Partners and Members Committee
  - Partner – advise the Math Alliance on matters of policy and initiatives, invited to Executive Council Meetings

Cost, for 2020-2021 academic year:

- Gold Member $4,000/year (discounted to $3,600 for 2021)
- Silver Member $2,000/year (discounted to $1,800 for 2021)
- Partnerships are negotiated to fit the institution ~ $30,000/year
Develop a long-term strategy

- Best practices are regularly shared at the Field of Dreams Conference

RETENTION

- Meet at least once per semester to discuss progress of students
  - Where are the hurdles in your program?
  - Are you assessing students effectively (incoming, ongoing)?
  - Are mentor-student matches being made appropriately?
  - Is a change needed?

- Develop strong mentoring plans for students
  - Frequent one-on-one meetings with students, esp. during their first year

- Design an advising network, with accountability and rewards
  - Faculty mentors
  - Peer mentors (avoid burdens on URM students)
  - Mentors commit to developing cultural competence
    - Implicit bias
    - Microaggressions
    - Stereotype threat
    - Intersectionality
TIPS FOR RECRUITING & RETENTION

RECRUITING

• Connect with undergraduates early, and groom them
• Create relationships with undergraduate mentors, to create pipelines
• Strong representation at Math Alliance Graduate School Fair
  • Students
  • Junior faculty
  • Senior faculty
  • Math Alliance Alumni
• Send faculty to additional events to identify strong predoctoral students
  • StatFest
  • NAM Mathfest
  • Latinx conference at IPAM (biannual)
  • Blackwell-Tapia Conference
  • SACNAS
• Proactively work with colleagues to identify their best prospects
  • Reach out to students with a personal touch
• Set goals. Assess performance