MATH ALLIANCE
Building a New American Community in the Mathematical and Statistical Sciences

Math Alliance News

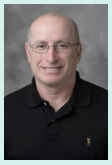
August 2018
Volume 6, Issue 8

Upcoming

StatFest 2018
Amherst College
September 22, 2018

Field of Dreams Conference
St. Louis, MO
Nov. 2-4, 2018

Thoughts from the Executive Director...



David Goldberg
Executive Director of the Math Alliance

This is always a great time of year with students returning to campus, and the energy, anticipation, and optimism they bring with them. It is also the time we are working hard on F-GAP, and ramping up our preparations for the 2018 Field of Dreams Conference, November 2-4 in St. Louis. Take advantage of our early registration fees which expire at **11:59PM EDT on September 30**! Faculty from GPGs, check with the person who runs your GPG to see if your registration is covered by a Center Membership.

I wrote earlier about the return of our good friend Billie Townsend as a volunteer, and we are pleased to announce her formal title, Voluntary Director of Communications!! We're glad to have Billie working with us again, though she's been here supporting us all the time!!

Finally, I am happy we're featuring an article by Professor David Hummels, Dean of the Krannert School of Management on the opportunities in Economics and Quantitative Finance for students with strong math backgrounds. Enjoy, and we're looking forward to seeing you in November!!!

Spotlight on... Quantitative Finance

Professor David Hummels
Professor of Economics and Dean of the Krannert School of Management at Purdue University.

Prof. Hummels received his Ph.D.in Economics from the University of Michigan in 1995 and specializes in the study of international trade.

Learn more about the Krannert School's Master's programs and PhD programs at their website.

Have you ever wondered…
How Amazon and Google use the data they collect on your web browsing habits to customize what content they feed you? Why Wall Street stock prices move so sharply, and fortunes are made or lost, in response to a Presidential tweet? How the government knows whether the information you provide on a tax return is accurate or fraudulent? Why some regions of the US enjoy consistently low unemployment rates and rapid growth while others seem to languish in poverty? How Apple protects the intellectual property behind its iPhones, how it forecasts demand for the latest model, or how it coordinates the arrival of thousands of parts and components for assembly in a "just-in-time" operational ballet?

Scholars in Management and Economics answer questions like these by mixing an understanding of contexts and questions (from fields like Marketing, Finance, Accounting, Economics, and Operations) with mathematical methodologies. Theoretical research involves analytical modeling – characterizing the behavior of firms and consumers in mathematical terms and then solving systems of equations to predict complex behavior. Empirical research involves the development and application of advanced statistical techniques to either test these models or estimate parameters of the underlying systems.

But that does not mean that students need to have studied Management or Economics deeply as undergraduates to consider a PhD in these fields. In fact, it is often easier to teach students to understand context and questions than it is to make up for a weak mathematics background. As a result, PhD applicants with strong mathematics are often prioritized over candidates with more in-depth field knowledge.

My forecast is that this tendency will only grow stronger over time. Like many fields, the data science revolution is fundamentally changing the kinds of questions we can ask, the research methods we can employ, and ultimately what we know about Management and Economics. Even better, deep pocketed corporations are just beginning to develop data science capabilities and they want people who know how to apply advanced data science techniques in a business context.

The result is a job market for new graduates that is absolutely outstanding. Unlike some fields, there are often more open positions than there are highly qualified PhD candidates. Starting salaries are eye-popping –packages for new PhDs can exceed $200,000 a year, **and are much higher than that in areas like Finance**. Opportunities in industry get better each year.

There are amazing opportunities for gifted mathematicians in PhD programs in Management and Economics, especially if you study at a university that takes STEM education seriously. With their strong quantitative skills, Math Alliance Scholars will be very good candidates for math-oriented Management and Economics PhD programs, including ours at Purdue. And if you are in a hurry, or aren't yet ready for a lengthy commitment to a PhD program, there are MBA and Master's programs, some of which (like ours), support gifted students with fellowships, scholarships, and assistantships. That can be an effective way to magnify your earning power while learning if in-depth PhD study is right for you.

To learn more check out The PhD Project (https://www.phdproject.org/) or the American Economics Association (https://www.aeaweb.org/resources/students). I also urge you to attend the Field of Dreams Conference and meet with representatives of Economics and Management graduate programs who have tables at the Graduate Fair. We'll be there, and we would love to talk with you!!

It'll be here before you know it...

The 2018 Field of Dreams Conference

Nov. 2-4, 2018 in St. Louis, MO

**In Partnership with Washington University in St. Louis*

- ***Register for the Conference!***
  Deadline to register is October 19th.
- ***Nominate your students to attend!***
  Deadline to nominate students is September 6th.
- ***Do you want more information about the Conference?***

Field of Dreams Conference Career Fair

The 2018 Field of Dreams Conference will be the first to feature a separate Career Fair!! We have identified over 50 recent (in the last three years) Math Science Ph.D. graduates among Alliance Scholars, and we expect the first wave of F-GAP students to be completing degrees starting this year. So, there may be over 50 new and recent doctorates looking for opportunities at this fair. We hope many colleges, universities, government agencies, and industrial concerns will have tables and expose our students to a wide range of opportunities.

If you are a doctoral student, or an early career doctoral recipient, consider attending our conference and participating in our Career Fair. If you have questions, contact Rebecca Lank. We hope to see you all there!!

2018-19 F-GAP Program Still Accepting Nominations!

If you know of a senior or Master's student who will be graduating in the Spring of 2019 and will be applying to graduate programs for Fall 2019 please submit a nomination form.
The deadline for students to apply is September 15th, so please nominate your students as soon as possible.

"F-GAP has substantially helped me in finding the right programs to which I should apply."

"The F-GAP program is excellent! My facilitator assisted and encouraged me at every stage of the application process."

"The attention and help that I receive of my F-GAP facilitator was outstanding. The tips given by him to improve my Personal Statement, CV and others application materials were phenomenal."

Erika Camacho and EDGE win PAESMEMs

On June 25, 2018, the White House Office of Science and Technology Policy (OSTP) announced the awardees for the Presidential Awards for Excellence in Science, Mathematics & Engineering Mentoring (PAESMEM) for the years 2014-2016. Among the individuals receiving awards for 2014 was Erika Camacho, an Alliance Mentor from Arizona State University.

The Enhancing Diversity in Graduate Education (EDGE) Program was also recognized with a 2015 PAESMEM. Among those accepting for EDGE were Alliance Mentors Raegan Higgins of Texas Tech, Ami Radunskaya of Pomona College, and Ulrica Wilson of Morehouse College. The PAESMEM is the nation's highest award for mentoring, and we want to congratulate, Professors Camacho, Higgins, Radunskaya, and Wilson, EDGE and all of its directors, as well as all the other awardees!! The citations for Camacho and EDGE can be viewed on the PAESMEM website.

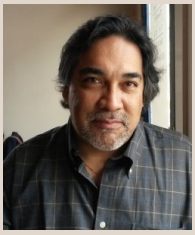
These mentors join our previous PAESMEM winners, Carlos Castillo-Chavez (Regents' Professor, a Joaquin Bustoz Jr. Professor of Mathematical Biology, and a Distinguished Sustainability Scientist at Arizona State University and Rector of Yachay University of Experimental Technical Research in Ecuador, 1997), Phil Kutzko (Professor Emeritus, Mathematics, University of Iowa, and Alliance Director, 2008), Joe Omojola (Professor of Mathematics and Physics, Southern University of New Orleans, 2006), and William Yslas Vélez (Professor Emeritus, Mathematics, University of Arizona and Alliance Associate Director of Undergraduate Programs, 1997). Other organizations closely associated with the Alliance previously receiving PAESMEMs include University of Nebraska, Lincoln Department of Mathematics & Statistics (1997), University of Iowa Department of Mathematics (2004), and Mathematical and Theoretical Biology Institute (2011).

AMS Notices Celebrates Hispanic Heritage Month

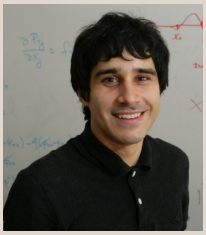
The September issue of the AMS Notices has a section dedicated to Hispanic Heritage Month, and edited by Alliance Mentor Ricardo Cortez. The section features articles by Alliance Mentor Federico Ardila on *The Geometry of Matroids,* and an article by Joseph Teran, the Mathematical Science Lecturer at the 2017 Field of Dreams Conference entitled *Movie Animation: A Continuum Approach for Frictional Contact.* The Hispanic Heritage Month section starts on page 901 of the September AMS Notices.

This section also features an article entitled: "Pamela Harris: The Mathematical Rise and Social Contribution of a Dreamer". Professor Harris is one of our Alliance Mentor, and the article (which can be found on page 1025 of the September Notices issue was written by fellow Math Alliance Mentors' Ricardo Cortez and Federico Ardila.

The Hispanic Heritage Month section also highlights the third year of Lathisms. The AMS started the website www.lathisms.org two years ago to highlight the important role Latinx and Hispanics play in the mathematical sciences. Six of the 2018 Lathisms honorees are mentioned in the article *2018 Lathisms: Latinxs and Hispanics in the Mathematical Sciences* written by Alexander Diaz-Lopez, Pamela Harris, Alicia Prieto Langarica, and Gabriel Sosa (Professors). The Lathisms website features a different Hispanic and Latino/a mathematician every day between September 1 and October 15th, to celebrate Hispanic Heritage Month. can be found on page 45 of the September Notices issue. We look forward to reading about all this years' Lathism honorees.



Ricardo Cortez



Joseph Teran

Pamela Harris

Federico Ardila

MAA Project NExT
NEW EXPERIENCES IN TEACHING

projectnext.maa.org
projectnext@maa.org

Launch the NExT stage of your career!

New Cohort Application Cycle and Search for Associate Director

The first round of applications for the 2019 cohort of MAA Project NExT has a deadline of **October 15, 2018**. Applications can be found at **projectnext.maa.org.** New(ish) faculty who are already in full-time teaching positions are strongly encouraged to use this deadline. Decisions will be made by December 1, 2018. Those accepting positions during this academic year (to start Fall 2019) may use the second application deadline of April 15, 2019.


2017 MAA Project NExT cohort

MAA Project NExT is a year-long professional development program of the *Mathematical Association of America* (MAA) for new or recent Ph.D.s in the mathematical sciences. The program is designed to connect new faculty with master teachers and leaders in the mathematics community and address the three main aspects of an academic career: teaching, research, and service. MAA Project NExT Fellows join an active community of faculty who have gone on to become award-winning teachers, innovators on their campuses, active members of the MAA, and leaders in the profession.

MAA Project NExT welcomes and encourages applications from new and recent Ph.D.s in postdoctoral, tenure-track, and visiting positions. We particularly encourage applicants from under-represented groups (including women and minorities).

In addition, the MAA expects to hire a new Associate Director whose term will begin in Summer 2019. Information about the application process will appear at **projectnext.maa.org**. Questions? Contact **projectnext@maa.org.**

IAS School of Mathematics
Accepting Applications

2019-2020 MEMBERSHIP

THE SCHOOL OF
MATHEMATICS

The School of Mathematics welcomes applications from postdoctoral, mid-career, and senior mathematicians and theoretical computer scientists, and strongly encourages applications from women and minorities.

Stipends, on-campus housing, and other resources are available for periods of 4-11 months for individual researchers in all mathematical subject areas. The School supports approximately 40 post-docs per year. In 2019-2020, there will be a special-year program called "Optimization, Statistics, and Theoretical Machine Learning" led by Sanjeev Arora of Princeton University, however, Membership will not be limited to mathematicians in this field.

For more information, please visit:
math.ias.edu/administration/membership

Programs:

EMERGING TOPICS
math.ias.edu/emergingtopics

WOMEN & MATHEMATICS
math.ias.edu/wam/2019

SUMMER COLLABORATORS
math.ias.edu/summercollaborators

Application Deadline:
December 1, 2019
mathjobs.org

StatFest 2018:

A One Day Conference for Undergraduate Students

Learn about statistics and data science careers in industry, government, and academia. Underrepresented students (African American, Hispanic, Native Americans) with analytical interests are particularly encouraged to attend and learn about exciting career and graduate study opportunities in statistics and data science. There are ample opportunities to network during breaks and the poster session.

Amherst College is one of the most diverse liberal arts colleges in the country. We are dedicated to the centrality of inclusiveness.

Date: Saturday, September 22, 2018

Time: 9:30-5:00 p.m.

Place: Amherst College, Amherst, MA

Contact: Nicholas Horton nhorton@amherst.edu
Renee Moore renee.moore@emory.edu

Cost: Free (though preregistration is required by Wednesday, September 19th)

For more information and to register visit: https://nhorton.people.amherst.edu/statfest

Sponsored by the American Statistical Association's Committee on Minorities in Statistics

Other sponsors: RStudio, Google, Boston Chapter of the ASA, Five College Statistics Program, and UMass/Amherst Biostatistics.

Keynote Speakers

Fernando Perez created iPython and co-created Project Jupyter. He is a Professor of Statistics at the University of California/Berkeley and Senior Fellow of the Berkeley Institute for Data Science.

Scarlett Bellamy is Past-President of ENAR (Eastern North American Region) of the International Biometrics Society. She is a Professor of Biostatistics and director of the graduate program at the Department of Epidemiology and Biostatistics, Drexel University Dornsife School of Public Health.

Vice Provost for Diversity and Inclusion at Purdue University Position Announcement

PURDUE UNIVERSITY

The Vice Provost for Diversity and Inclusion is the senior administrator with responsibility for providing exceptional vision and leadership to the University in the broad area of diversity and inclusion. The Vice Provost has the responsibility to promote diversity broadly defined and to foster a culture of respect, inclusion, and excellence for all faculty, staff and students. Reporting to the Provost and Executive Vice President for Academic Affairs and Diversity, the Vice Provost will lead the Division of Diversity and Inclusion and will work with diversity professionals in all of the academic colleges and administrative areas to advance Purdue's strategic diversity and inclusion goals. The Vice Provost will work with the Provost to lead the Advisory Committee on Diversity and Inclusion, and will work collaboratively with the vice presidents, vice provosts, deans, directors, and other campus leaders to enhance the campus climate for all across the land-grant missions of learning, discovery, and engagement. The Vice Provost will actively connect with internal and external stakeholders, providing guidance and support to executive leadership and to faculty, staff, and students, as needed. This role will position the institution to center diversity and inclusion work in the mission of the university and to capitalize on the varied ways diversity and inclusion can be embedded in the university's curriculum, infrastructure, policies, and programs.

Detailed job description can be found at https://www.purdue.edu/provost/diversity-search-committee/description.html.

*For additional information, please consult the university's website at **https://www.purdue.edu**.*

Purdue University is an EOE/AA employer. All individuals, including minorities, women, individuals with disabilities, and veterans are encouraged to apply.

Postdoctoral Fellowship in Environmental Health Biostatistics At University of Rochester

POSITION TITLE: Postdoctoral Fellowship in Environmental Health Biostatistics

The Department of Biostatistics and Computational Biology at the University of Rochester (UR) announces an opening for a postdoctoral traineeship in Environmental Health (EH) Biostatistics, funded by an NIEHS T32 training grant. The appointee will develop and apply novel statistical methodology for projects related to EH, under the mentorship of a Biostatistics faculty trainer (Drs. Sally W. Thurston, Matthew N. McCall, Brent Johnson, Tanzy Love, Michael McDermott, David Oakes, or Robert Strawderman). The specific methodological focus may be based in part on the trainee's interests, and will involve co-mentorship from a leading environmental health researcher. Examples of EH topics include studies of (a) the associations between air pollution exposure and biomarkers thought to indicate increased risk of future cardiac events; (b) effects of pre- and post-natal mercury exposure from fish consumption on multiple outcomes in childhood and adolescence; (c) RNA sequencing to quantify the effect of dioxin exposure on CD8+ T-cell gene expression accounting for an unknown mixture of responders and non-responders; and (d) methods to quantify morphologic changes in microglia in response to pharmacological alterations of noradrenergic signaling in the brain. Methodological expertise among T32 faculty trainers includes Bayesian MCMC methods, models for multiple outcomes, latent variable models, measurement error, missing data, causal inference, survival analysis, clustering, statistical genomics, molecular systems biology, and bioinformatics. The appointee will also receive training in advanced biostatistics and in toxicology, and be involved in other collaborative work with EH researchers. For more information see https://www.urmc.rochester.edu/biostat/training-grant.aspx.

Position qualifications: In accordance with NIEHS requirements, trainees must be a US citizen or permanent resident, and must have completed a doctoral degree in statistics or a related subject by the appointment start date. We seek a highly motivated candidate with a strong statistical background, excellent programming skills and good communication.

Appointment: The position is available for 12 months initially

Tenure-Track Position at University of North Carolina, Greensboro

Assistant Professor in Mathematics with Specialization in Computational Algebra, Number Theory, or Combinatorics Position #1840, 2018-19 search

The Department of Mathematics and Statistics at the University of North Carolina at Greensboro (UNCG) seeks applications for a tenure-track position in Computational Algebra, Combinatorics, or Number Theory at the Assistant Professor rank beginning August 1, 2019. Competitive applicants will have research expertise that strengthens our Ph.D. program in Computational Mathematics. Candidates must hold or anticipate a Ph.D. in mathematics or closely related discipline by August 1, 2019. Successful applicants will be expected to excel in teaching, maintain a vigorous research program, seek external research funding, and educate a diverse group of undergraduate and graduate students from various backgrounds.

Application materials should be submitted electronically to https://spartantalent.uncg.edu/postings/11231. Review of applications will begin on November 15, 2018 and will continue until the position is filled. UNCG is especially proud of the diversity of its student body which is 43% ethnic minority (http://admissions.uncg.edu/discover-about.php). UNCG has been designated as a Minority Serving Institution by the US Department of Education.

We seek to attract a diverse applicant pool for this position, especially women and members of minority groups, and we are strongly committed to increasing faculty diversity. UNCG is an EOE AA/M/F/D/V employer.

Tenure-Track Position in Statistics in the Mathematics and Statistics Department at Williams College

The Williams College Department of Mathematics and Statistics invites applications for a new **tenure-track position in Statistics**, beginning fall 2019, at the rank of assistant professor. A more senior appointment is also possible for a qualified candidate at a later stage in their career. The candidate should have a Ph.D. in Statistics or a closely related field by the time of appointment. We are seeking candidates who show evidence and/or promise of excellence in teaching and a strong research program that can engage undergraduate students. The candidate will become the seventh tenure-track statistician in the department, joining a vibrant and innovative group of statisticians with an established statistics major. For more information on the Department of Mathematics and Statistics, visit http://math.williams.edu/.

Candidates may apply via https://apply.interfolio.com/50978 by uploading a cover letter addressed to Professor Richard De Veaux, a curriculum vitae, a teaching statement, a description of research plans, and three letters of recommendation on teaching and research. The Department is committed to building a diverse and inclusive community. In your application materials, we also ask you to address how your teaching, scholarship, mentorship and/or community service might support Williams's commitment to diversity and inclusion.

Expectations: The teaching load is two courses per 12-week semester and a winter term course every other January. The candidate will be expected to teach introductory statistics, core courses for the statistics major, and elective courses in their areas of interest. The successful candidate will establish an independent research program that results in scholarly publications. Williams College provides broad support for start-up funds, funding for student research assistants, faculty professional development funds, and a shared computer cluster for parallel computation.

Review of applications will begin on or after **October 1st** and will continue until the position is filled. All offers of employment are contingent upon completion of a background check. Further information is available at https://faculty.williams.edu/prospective-faculty/background-check-policy/.

Williams College is a coeducational liberal arts institution located in the Berkshire Hills of western Massachusetts. The college has built its reputation on outstanding teaching and scholarship and on the academic excellence of its approximately 2,000 students. Please visit the Williams College website (http://www.williams.edu). Beyond meeting fully its legal obligations for non-discrimination, Williams College is committed to building a diverse and inclusive community where members from all backgrounds can live, learn, and thrive.