MAA MISSOURI SECTION NEWSLETTER
Fall 2022 ● VOLUME 42 ● NUMBER 1

From the Program Chair (Matthew Wright)

The 2023 MAA Missouri Section Meeting will take place Thursday, March 30 through Saturday, April 1, 2023 at Missouri State University in Springfield, Missouri. The Missouri Collegiate Mathematics Competition will take place on Thursday evening, March 30 and Friday morning, March 31. We encourage faculty and students to contribute short 15 minute talks, focused on any area of mathematics or mathematics education, at the upcoming meeting. Information regarding meeting registration and abstract submission will be available on the meeting website, starting in January. Questions or comments about the meeting may be directed to the program chair, Matt Wright, at mwright@missouristate.edu.

From the Section Chair (Lori McCune)

I'm looking forward to seeing everyone at the Spring Meeting in Springfield! The section is still looking for institutions willing to host future meetings. Spring 2023 is the last meeting with a location scheduled. Please email me at lmccune@missouriwestern.edu or any of the other members of the Executive Committee if your institution would be willing to host a section meeting.

The member portal was recently updated. If you haven't logged in recently, I recommend checking out the changes. It's easier to search the member directory and there's quick access to MAA publications and journals. Don't forget that the section also has our own community on MAA Connect. This is a great place to share what's going on at our institutions and to connect with one another for advice and support!

From the Section Representative (David McCune)

The purpose of this report is to communicate information to our Section from the MAA Congress, which occurred at the 2022 MathFest. There is no over-arching organizational

structure to this report; I will simply try to lay out what I think the Section would like to know, as concisely as possible.

This is a strange time for the MAA, as it is for many of us. The Covid pandemic is "over" in some sense, but the MAA has not fully recovered. This can best be seen in the attendance at MathFest, which seemed small in comparison to pre-Covid years, and in the attendance at our own Section meetings. Financially, the MAA seems stable for now; I invite you to check out the 2021 MAA Impact Report, available at https://2021report.maa.org, for an overview of the MAA's financial situation. The MAA leadership communicated that while the MAA is financially healthy for now, long-term trends are not looking great. Without some kind of change to membership trends, the MAA will experience financial trouble in the future. The national leadership communicated that they would like more departments to examine getting departmental memberships to help combat current trends. A yearly MAA departmental membership is larger than my small department's annual budget, which could be a hindrance to my department heeding this call. If your department is considering a membership but wants the MAA to provide more departmental benefits to make it worth your while, let me know and I will communicate that to the national office.

The national leadership gave two updates that are immediately relevant for our Section. First, the MAA is creating two new named lecture programs. There will be an AWM lecturer and an AWM-NAM lecturer. With these new positions, each Section will receive one named lecturer each year. Second, we can expect more help from the MAA with managing registration at section meetings, if we want it. Previously, the MAA offered to help run registration using cvent; we declined this offer due to cost. The MAA will be offering a new registration system that is free to the Section as early as this spring. The section needs to use the MAA website template for our website to be able to use the new registration system.

At the Congress meeting, we briefly discussed ways to increase engagement at Section meetings. A few of the ideas are already implemented in our Section (such as holding an undergraduate mathematics competition), but a few of the newer ideas sounded like they could increase participation at the meetings. For example, one of the other Sections offers cash prizes for the best N student talks (I can't remember what N is), and the Section has an official rubric to evaluate the talks. Perhaps if our Section implemented some sort of prize system like this, we could attract more student talks. If you have ideas for increasing participation in the Section meetings, let me know.

The MAA is searching for new editors for Math Horizons and Mathematics Magazine, and also a director of Project NExT. Consider applying for these positions if you are looking for a significant service commitment to the MAA.

The MAA is officially starting a new journal called *Scatterplots*, whose purpose is to partner mathematics, education, and data science. It's not clear to me exactly what kinds of articles this

journal wants; if you would like more information about the journal, I am happy to reach out to someone at the national office and try to find out more.

To close this report, I'd like to remind you of the many benefits of being a member of the MAA. Here is a non-exhaustive list:

- Access to the MAA journals, as well as other journals such as PRIMUS.
- Access to MAA Connect, which I've personally found quite valuable for the last couple of years. Join the Missouri Section community if you haven't already.
- The MAA offers all sorts of Virtual Programming events, many of which are free. An MAA member can attend 3 of the non-free events for free each year.
- The MAA offers all sorts of professional development opportunities, such as OPEN Math and PIC Math.
- The opportunity to join a SIGMAA in your area of interest.

Also, recall that the MAA has opportunities for grants such as the TENSOR and SUMMA grants.

If you have concerns or questions about the MAA, please don't hesitate to reach out.

David
mccuned@william.jewell.edu

From the Secretary/Treasurer (Blaise Heider)

SECTION TEACHING AWARD

CALL FOR NOMINATIONS

Nominations for the 2023 Missouri Section Award for Distinguished College or University Teaching of Mathematics are now being accepted. The Missouri Section Selection Committee will determine the recipient of the award from those nominated. The awardee will be honored at the Spring 2023 meeting of the Section and will be widely recognized and acknowledged within the Section.

We urge you to submit a nomination for the MAA Missouri Section Teaching Award if you have someone eligible and qualified in your department in order that your candidate has an opportunity to be considered for the Section Award and, if so selected, also for the national award. Even if not selected this year, it is an honor for someone to have been nominated; your department will receive recognition for its commitment to excellence in teaching, and the work done in preparing a nomination folder for your candidate is not wasted since your candidate can be nominated again in a future year. Self-nomination is not permitted.

Please discuss this memo with your colleagues and post it in a prominent place in your department.

Eligibility

- College or university teachers who currently teach a mathematical science at least halftime during the academic year in a public or private college or university (from two-year college teaching through teaching at the Ph.D. level) in the state of Missouri. Those on approved leave (sabbatical or other) during the academic year in which they are nominated qualify if they fulfilled the requirements in the previous year.

- More than seven years of experience in teaching a mathematical science.
- Membership in the Mathematical Association of America.

Guidelines for Nomination

Nominees should

- Be widely recognized as extraordinarily successful in their teaching.*
- Have teaching effectiveness that can be documented.
- Have had influence in their teaching beyond their own institution.**
- Foster curiosity and generate excitement about mathematics in their students.

* "teaching" is to be interpreted in its broadest sense, not necessarily limited to classroom teaching. It may include activities such as preparing students for mathematical competitions at the college level such as the Putnam Prize Competition or the Mathematical Contest in Modeling, attracting students to become majors in a mathematical science or to become Ph.D. candidates, working with pre-service or in-service teachers, etc.

** "influence beyond..." can take many forms, including demonstrated lasting impact on alumni, influence on the profession through curricular revisions in college mathematics teaching with wide-ranging impact, influential publications or innovative books concerned with the teaching of college mathematics, etc.

Nomination Materials -

1. **Narrative:** Please describe the nominee's extraordinary success in teaching by providing a narrative of the nominee's background, experience, teaching style, special contributions, other teaching awards, and any additional evidence of the nominee's unusual achievement in teaching. Please limit this portion to no more than five double spaced pages.

2. **Letters of Recommendation:** Please include two letters of recommendation of no more than one page each, from the nominee's colleagues (one of whom could be the department chair).

Nomination Deadline – Send all nomination materials to the Secretary, Blaise Heider, at

heider@ucmo.edu. The nomination deadline is **by March 1, 2023**, but **submissions before February 15, 2023** are greatly appreciated.

We look forward to your participation in this exciting MAA venture of taking substantive action to honor extraordinarily successful teaching. We want to see such teaching recognized at all post-secondary school levels. We depend on you to help us identify those who merit such recognition.

REMARKS

Nominations for someone from another Section should be sent to the Secretary of the nominee's Section.

At the national level, MAA recognizes outstanding teaching with the Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics; each year at most three awards are given. At least one of the Award recipients must be a current Section nominee. This Section nominee may be the current recipient of the Section Award for Distinguished Teaching or a previous recipient of such an award from any Section. At most one of the Haimo Award recipients may be other than a current or past recipient of a Section Award for Distinguished Teaching. Your nomination for a Section Teaching Award provides the opportunity for the person to be nominated for the national Haimo Award for **two consecutive years** if the nominee is not chosen in Year 1.

Missouri Collegiate Mathematics Competition (Chip Curtis)

The Missouri Collegiate Mathematics Contest (MCMC) will have a face-to-face format for the spring of 2023.

The contest is open to teams of one-to-three students from colleges in Missouri. Each school can register up to two official teams and any number of unofficial teams. A team of one student is allowed only if that is the only team from that school.

As in years prior to 2020, it will consist of one part on Thursday evening of the section meeting from 7:30 – 10:00 p.m. and one part on Friday morning from 8:30 – 11:00 a.m. Each part will consist of five questions.

Registration information will be posted on the Missouri MAA Section homepage.

Section NExT (Samuel Chamberlin and Erin Martin)

We are seeking applications for 2023 MO NExT Fellows. These are due March 1, 2023 by email to Samuel or Erin. Details can be found on the MO NExT website at
https://sites.google.com/site/mosectionnext/home/become-a-missouri-next-fellow?authuser=0

Campus News:

St. Charles Community College (submitted by Wanda Long)

Professor Rich Christianson retired at the end of Spring 2022 semester. Kim Heitmann was hired as definite term Instructor.

Southeast Missouri State University (submitted by Dan Daly)
Ann Schnurbusch retired in May 2022 and Jerzy Wojdylo will be retiring in December 2022. We are hiring a new tenure-track position in Cryptography to start in fall 2023.

University of Missouri – Kansas City (submitted by Richard Delaware)

Student Accomplishments

The following three mathematics majors wrote their expository papers for the writing intensive course Math 464 WI History of Mathematics, taught by **Dr. Richard Delaware**:

Undergraduate **Dominic Guillen** wrote an expository paper for Math 464 WI, titled "**A Simpler Annuity**", based on de Moivre's work, which was published in the UMKC Honors research journal *Lucerna* in March 2022. See here.

Undergraduate **Rye Ledford** wrote an expository paper for Math 464 WI, titled "**The Assumptive Attitudes of Western Scholars Regarding the Contributions of Mathematics from India: Assessing *yukti-s* from the *Yuktibhāṣā* of Jyeṣṭhadeva**", which won the national HOM SIGMAA (History of Mathematics Special Interest Group of the Mathematical Association of America) contest in May 2022. See here.

Undergraduate **Allyson Jenkins** wrote an expository paper for Math 464 WI, titled "**The Development of the Normal Distribution**", based on the work of de Moivre, Adrain, and Gauss, which will be published in the UMKC Honors research journal *Lucerna* in March 2023.

Undergraduate **Zack Bright** wrote a post for the MAA **Math Values** blog on June 29, 2022, titled "**Students Speak: The best thing my professor did for me to make me feel welcome in class**". See here.

Undergraduate **Joel Busch** presented his research titled "**A Mathematical Model to Analyze Vector Transmission and Dynamics of Barley Yellow Dwarf Viral Coinfection**" at the 2022 UMKC Symposium of Undergraduate Research and Creative Scholarship. His mentor was **Dr. Majid Bani**.

Three students were awarded the Doctor of Philosophy in Mathematics:

Dilek Soysal, (2022) A Mathematical Modeling Approach to Analyze the Dynamics of Math Anxiety. Supervisor: **Dr. Majid Bani.**

Azzah Ahmed Alshekhi, (2022) A Cubic Spline Projection Method for Computing Stationary Density Functions of Frobenius-Perron Operator. Supervisor: **Dr. Noah Rhee.**

Hadeel Hassan AlQadi, (2022) A Modeling Framework for Spatial Transmission of Covid-19 in Local Communities. Supervisor: **Dr. Majid Bani.**

Rachel Crowell, who graduated from UMKC in Dec. 2014 with a B.S. in Mathematics, and was awarded the 2015 AMS-AAAS Mass Media Fellowship, has been getting writing bylines in **ScienceNews**, and has written a dozen or more **ScienceNews for Students** articles. See here.

Distinguished mathematics alumnus, **Dr. Juris Hartmanis**, died on July 29, 2022. From our department, he received a **Master's degree in mathematics in 1951** (Faculty Advisor: Maria Castellani), and was later the first chair of computer science department at Cornell University. He won the **1993 Turning Award**, the computer science "Nobel Prize". UMKC awarded him an Honorary Doctor of Humane Letters in May 1999, and he was elected to the National Academy of Sciences in 2013.

Faculty and Department Activity

Dr. Shuhao Cao joined UMKC in fall 2022 as an **Assistant Professor**. He's a computational mathematician and worked on finite element methods as a **PhD at Purdue University**. Now he's more dedicated to bringing together the theory of partial differential equations and deep learning. He (scaomath@GitHub) hangs around on **GitHub** a lot contributing to open-source software, and shares his code on **Kaggle**, a machine learning competition platform. He previously taught at Washington University in St. Louis and the University of California, Irvine.

Professor Yong Zeng has decided to accept an offer to continue working permanently at the **National Science Foundation as the Program Director (Mathematical Statistician) with the Division of Mathematical Sciences**, and so is leaving our department as of September 1, after serving here since 1999.

Dr. Liana Sega had a joint 2019 paper be republished in the 2021 Springer volume **Women in Commutative Algebra**. See here. She also spent part of summer 2022 doing research with a group of collaborators (all women) at the Oberwolfach Research Institute for Mathematics in **Germany**, which provided all accommodations for a productive stay, including a wonderful hilly view in the middle of the Black Forest. She also gave an invited talk at the AMS-SMF-EMS Joint International Meeting at the University of Grenoble-Alpes in **France**.

Dr. Majid Bani has assembled researchers from the UMKC Division of Computing, Analytics and Mathematics; the UMKC Department of Biomedical and Health Informatics; the UMKC

School of Medicine; University Health; the Kansas City, Missouri, Health Department; and the University of California-Davis School of Veterinary Medicine to form the **Midwest Virtual Laboratory of Pathogen Transmission in Healthcare Settings (MVL-PATHS)**, an interdisciplinary research collaborative. **The Centers for Disease Control [awarded MVL-PATHS](#) a three year $879,162 grant** to develop a new generation of mathematical and computational models of infectious diseases. The team will use the **One Health modeling approach**, which incorporates interconnections between people, animals, plants and their shared environment.

The annual **Missouri MAA Section Meeting** was held on April 8-9, 2022, at UMKC. While the meeting was hybrid, most participants attended in person. We had 73 participants in total. **Sarah Greenwald**, the Polya speaker, gave an engaging talk, titled *Good News Everyone! Mathematical Morsels from the Simpsons and Futurama.* **Tim Chartier**, the section visitor, gave another excellent talk, titled *Mathematical Celebrity Look-Alikes.* We had 41 contributed talks, with 21 graduate students and 2 undergraduate students among the speakers. UMKC student responses included:

> "…for me the best part of the meeting was becoming acquainted with more of my fellow students."

> "I really enjoyed helping out both days! It was a great experience."

> "The banquet went very well and the food was delicious… [The] Polya Talk... was great, and my table was very engaged for the problems given to us."

> "I attended Sarah Greenwald's talk and it was awesome! I loved how it was interactive, we had a ton of great math conversations at our table relating to the topics she presented!"

> "The student event was… fun and it was nice to meet other Math majors from UMKC. I attended Dr. Greenwald's talk… I'll be paying more attention to the math in cartoons, I never would have suspected they would contain high level mathematics in their jokes!"

Starting this fall 2022, the department became part of the new UMKC **School of Science and Engineering**, sharing the **Division of Computing, Analytics, and Mathematics** with the old Computer Science and Information Technology department.

FUTURE MEETING SITES

The Spring Meeting is held at various locations around the state. The meeting sites for the next several years are listed below for your convenience. If your campus would be willing to host a Spring Meeting, please contact Lori McCune, Section Chair (lmccune@missouriwestern.edu.), or any other member of the Executive Committee.

2023   Missouri State University

The MAA Missouri Section Newsletter is usually published in November, March and May each year. Please send any news, comments, questions or corrections to me at ddaly@semo.edu.

Dan Daly
Newsletter Editor