MAA MISSOURI SECTION NEWSLETTER
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From the Chair (Lori McCune)

2016 MAA Missouri Section Meeting

The Department of Computer Science, Mathematics, and Physics at Missouri Western State University is pleased to be hosting the Spring Section Meeting on Friday, April 8, 2016 and Saturday, April 9, 2016 (with the Missouri Collegiate Mathematics Competition beginning the evening of Thursday, April 7). MAA President Francis Su from Harvey Mudd College will be visiting the section and speaking. Polya Lecturer Erica Flapan from Pomona College will also be giving an invited talk. Thomas Marley from the University of Nebraska-Lincoln will be our third invited speaker.

More information about the meeting will become available on the meeting webpage, http://staff.missouriwestern.edu/~lmccune/maa2016.html.

Suggestions for the meeting are welcome and may be directed to Section Chair Lori McCune (lmccune@missouriwestern.edu).

Call for papers

You are invited to present at the Spring Meeting. Presentations should be 15-20 minutes in length and may be on research topics or expository in nature, and may deal with any topic in mathematics or mathematics education. For example, papers may pertain to your current mathematical scholarly activity, new courses that you have developed, or successful techniques you have found useful in teaching. You may opt to design a presentation directed to the undergraduate and graduate students attending the meeting. Faculty members are urged to assist students in presenting papers at the meeting.

The form for contributing a presentation at the meeting is on the last page of this newsletter.

You may attach a scanned copy of the completed form and email to lmccune@missouriwestern.edu (please put "MAA Abstract" in the subject line) or send to the address on the form. Deadline for submissions is **March 18, 2016**.

From the Governor (Mary Shepherd)

MathFest 2015. Wow! What a meeting! Celebrating the 100th anniversary of the MAA. Over 2500 mathematicians registered and attended, about 160% over the highest attendance at a MathFest ever. The program ran a day longer than usual and included many wonderful talks and events. Some of the new events included a music concert, "Mathematicians by Day, Musicians by Night" in which yours truly performed, "Cirque de Mathematiques", and a play, "Albert's Bridge" by Tom Stoppard.

I find the national meetings, both the Joint Mathematical Meetings in January and MathFest in August, a place to connect and re-energize before the semester starts. The next Joint Math Meeting is in Seattle, Washington, January 6 – 9, 2016. The next MathFest is in Columbus, Ohio, August 3 – 6, 2016. If you have never been, I encourage you to attend one sometime. The Board of Governors of the MAA meets twice a year the day before the national meetings. As your newly elected Governor from the Missouri Section, here are some of the issues and decisions of the Board of Governors. The budget for 2016 continues to predict a deficit. There have been deficits for about the past 10 years and the MAA is working on turning this around. Book sales have declined, and there are concerns as membership continues to decline. Some data has been collected related to membership and is being analyzed. You will hear more about efforts in membership in the future.

The MAA has a new Welcoming Environment Statement (below) that will appear in all MAA programs in the future.

> *The MAA encourages the free expression and exchange of ideas in an atmosphere of mutual respect and collegiality. The MAA strives to foster a welcoming environment for all, and specifically prohibits any conduct that is discriminatory, harassing, or threatening by any staff member or MAA member to any other person engaged in MAA operations or activities. As a professional society supporting open discussion of mathematics and mathematics education, the MAA requests that all individuals attending activities sponsored or co-sponsored by MAA, its Sections, or its Special Interest Groups, conduct themselves professionally and respectfully toward other participants. Violations may be reported directly to the Executive Director or the Compliance Officer (Associate Treasurer). For immediate concerns at a meeting, proceed to the registration area or hotel/convention center security office.*

The MAA is looking at a more streamlined form of governance. Currently the Board of Governors has over 50 members which makes nimble decisions requiring board action difficult. Three other models have been proposed by a governance task force and you will hear more on these in the future. It will be a couple years before any change in the governance structure can be implemented. The general idea is to have a smaller expertise based "Board" instead of the two structures now, Executive Committee/Council and Board of Governors, and possibly an

"Assembly" that advises the Board. I will keep you informed and you can give me any feedback you would like me to take back to the current Board of Governors.

There is a new SIGMAA, the SIGMAA on Undergraduate Research.

These are the highlights, as I see them, from the August Board of Governor's meeting. If you have any questions or want more information, just let me know.

Respectfully submitted, Mary Shepherd

From the Secretary (Grant Lathrom)

Each year, every Section of the MAA is invited to select a college or university teacher to be honored with a Section Award for Distinguished College or University Teaching of Mathematics. Last year the Missouri Section again failed to have anyone nominated for the Section Teaching Award. This is a very unfortunate state of affairs for the Missouri Section. Nominations for the Section Distinguished Teaching Award 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 2016 meeting of the Section and will be widely recognized and acknowledged within the Section.

Anyone may make a nomination, but nominations from chairs or MAA liaisons in departments of mathematical sciences are especially solicited. For this reason, this call for nominations is sent to both department chairs and MAA liaisons so that the responsibility for nominations can be shared between them.

We urge you to submit a nomination for the MAA Missouri Section Award if you have someone eligible and qualified in your department. Even if not selected this year, it is an honor for someone to have been nominated, and your candidate can likely be nominated again in a future year. 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 a tribute in itself. 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 United States or Canada. 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 inservice 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.

Nominations must be submitted on the "Nomination Form."
http://www.maa.org/sites/default/files/pdf/awards/Haimo_NF.pdf
Please submit a preliminary nomination form (page 1 of the Nomination form) by January 15. This may be done electronically and sent to the Secretary at lathrom-g@mssu.edu.
Follow the instructions on that form precisely to assure uniformity in the selection process both at the section and national levels.
If a file on a Section awardee significantly exceeds the prescribed limits (as stated on page 2 of the Nomination Form), it will not be considered for a national award and will be returned to the Section.

Please send six copies of each nomination packet to

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Grant H Lathrom, Secretary
Missouri Section
Missouri Southern State University
3950 Newman Road
Joplin, MO 64801

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so as to be received **no later than March 7, 2016.**

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

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.

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. As you see, your nomination for a Section Award for Distinguished Teaching provides the opportunity for the person to be nominated for the national award.

Missouri Collegiate Mathematics Competition (Curtis Cooper)

The 21st Missouri Collegiate Mathematics Competition will be held 7:30pm - 10:00pm, Thursday, April 7, 2016, and 8:30am - 11:00am, Friday, April 8, 2016 on the campus of the Missouri Western State University.

Any college or university in the state of Missouri can send up to two official teams of 1-3 undergraduates each to compete in the competition. Unofficial teams will be allowed, depending on the amount of available space, but will not be eligible for awards. They will also be charged the normal registration fee. A one-person team will be allowed if this person is his or her college's only representative in the competition. A completed registration form for each team must be received by Monday April 4, 2016. Late registration will be accepted only if there is room available. No calculators or computers or reference material can be used during the competition. The contest consists of challenging mathematical problems, comparable to but not quite as difficult as the Putnam Exam. The official website of the Contest is: http://www.math-cs.ucmo.edu/~hchen/contest/

Additional information, registration forms and past contests can be found at that site or at: http://cs.ucmo.edu/~cnc8851/contest/problems.html

FUTURE MEETING SITES

The Spring Meeting is held at various locations around the state. The meeting sites for the past several years and 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, Chair (lmccune@missouriwestern.edu), or any other member of the Executive Committee.

2016	Missouri Western State University
2017	Missouri Southern State University
2018	Drury University
2019	Lindenwood University
2020	University of Central Missouri
2021	Truman State University
2022	University of Missouri – Kansas City

Historical Tidbits from the Missouri Section of the MAA (Leon Hall)

1. In the summer of 1895, 120 years ago, B.F. Finkel accepted the position of Professor of Mathematics and Physics at Drury College, Springfield. This appointment followed his three years at the Kidder Academy in Kidder, Missouri, 1892-1895, where he began publication of the *American Mathematical Monthly* in 1894. When Finkel moved to Drury, the *Monthly* moved with him. Finkel is usually (and rightfully) associated with Drury, but people often overlook that his career in Missouri, including the start of the *Monthly*, began in Kidder.

2. At the December 30, 1915, meeting in Page Hall, Columbus, Ohio, where the MAA was formed, there were five attendees from Missouri: B.F. Finkel (Drury College), E.R. Hedrick (University of Missouri), H.M. Sheffer (St. Louis), C.A. Waldo (Washington University), and W.H. Zeigel (Kirksville Normal School). At the beginning of the meeting, Hedrick was elected temporary Chairman and was later elected to be the first MAA President. Waldo was later elected as the first Chair of the Missouri Section.

3. One hundred years ago, in 1915, Kansas City Polytechnic Institute was established. In 1919 the name was changed to The Junior College of Kansas City, which was quite active in the Missouri MAA Section, hosting six of the first fourteen section meetings. In the 1960s, The Junior College of Kansas City became the foundation of the Metropolitan Community Colleges District, which today includes Longview, Maple Woods, Penn Valley, Blue River, and the Business and Technology College.

From the Campuses:

Central Methodist University (submitted by Jerry Priddy)
Central Methodist University now offers a Master's Degree in Mathematics that is delivered completely online. The program is a non-thesis course of instruction over a broad range of advanced mathematics. It is fully accredited by the HLC. More information can be obtained by contacting the CMU admissions office.

Columbia College (submitted by Suzanne Tourville)
Dr. Natasha Latushkina retired in May.

Missouri University of Science and Technology (submitted by Robert Roe)
Dr Matt Insall was a coauthor with Peter Loeb and Malgorzata Marciniak of a chapter in *Nonstandard Analysis for the Working Mathematician*, 2nd ed, published by Springer. He also coedited with Mahelet Fikru, *Emission tax and acquisition incentives in Oligopoly markets* which is a collection of research articles published by Nova Science.

Dr Roman Dwilewicz and Dr Martin Bohner two of nine invited speakers at the International Conference on Recent Advances in Pure and Applied Mathematics (ICRAPAM 2015) in Istanbul, Turkey. Below is a picture of Roman receiving a ceremonial plate for being an invited speaker.

Roman also has had two papers appear/accepted by two of the oldest and most prestigious journals, Math. Annalen (founded 1868) and Annali della Scuola Normale (founded in 1871).

Saint Louis University (submitted by Brody Johnson)
The Department of Mathematics and Computer Science welcomes two new tenure-track faculty members in the 2015-2016 academic year, one in Computer Science and one in Mathematics.

Tae-Hyuk (Ted) Ahn received his Ph.D. in 2012 from the Department of Computer Science at Virginia Tech and joins SLU after completing a post-doctoral position at the Oak Ridge National Laboratory. Dr. Ahn's research interests include bioinformatics, high-performance computing, big data analytics, and computational science. Benjamin Hutz received his Ph.D. from Brown University in 2007 working under the direction of Joseph H. Silverman. Dr. Hutz works in the area of arithmetic dynamics and his recent efforts focus on computational aspects of arithmetic dynamics and the computer algebra system Sage.

For more information about the department and its faculty, please visit the department's website. http://mathcs.slu.edu/

Southwest Baptist University (submitted by Kevin Hopkins)
During summer 2015, Dr. Kevin Hopkins, professor of mathematics, directed four one week camps attended by 85 campers. This was his 10th year of directing such camps. Information on the camp is available at https://sites.google.com/site/sbumathcon/math-contest-camp-2015

From June 3-9, Dr. Steve Bowling, professor of mathematics, participated in the AP Calculus Reading (grading) in Kansas City, MO.

University of Missouri – Kansas City (submitted by Richard Delaware)
Spring & Summer 2015

*Student Accomplishments***:**

Graduate student Abhishek Mallela received a travel award from the UMKC School of Graduate Studies to present his research talk entitled "Optimal Treatment Strategies for HIV-TB Co-Infected populations" during the Joint Mathematics Meeting, San Antonio, Texas, in January 2015. This was a collaborative project with Dr. Suzanne Lenhart, the University of Tennessee and Abhishek's faculty advisor Dr. Naveen K. Vaidya.

In March 2015, we sent our second team of 3 students to the MAA MO meeting to participate in the Missouri Collegiate Mathematics Competition.

In March 2015, undergraduate student Keith Robinson presented a poster titled "Kansas City Gang Violence: A Mathematical Solution for a Troubling Problem" at the Undergraduate Research Day at the Capitol, Jefferson City. His project was funded by UMKC SEARCH and selected as one of the top 10 outstanding undergraduate research projects.

In April 2015, undergraduate student Kyle Spencer presented a poster titled "Dynamics of Hemorrhagic Disease on White-Tailed Deer Populations in Missouri" at the 15th annual Students Engaged in Artistic and Academic Research (SEARCH) Symposium for Research and Creative Achievements in Pierson auditorium, winning First Prize in the "Physical Sciences & Mathematics" category.

During the 2015 UMKC Community of Scholars Symposium organized by the Interdisciplinary Doctoral Student Council (IDSC) and the School of Graduate Studies and held April 23, 2015, PhD student Jones Mutua won the best poster award in the Physical Sciences category with a $500 prize. Jones presented a research poster from his project entitled "Modeling Effects of Drugs of Abuse on HIV-Specific Antibody Responses". Dr. Naveen Vaidya is his advisor, and this project is on-going in collaboration with Dr. Anil Kumar from the School of Pharmacy.

The first annual Mathematics and Statistics Research Day (MSRD) was held at the UMKC Department of Mathematics and Statistics on Friday, April 24, 2015. MSRD is a new annual event celebrating student and faculty research, creative, and scholarly activities. This event is open to the public and promotes undergraduate and graduate student research in mathematics, statistics, and their applications in various fields. All three organizers of this event are members of the UMKC Applied Mathematics Group: Drs. Majid Bani Yaghoub, Naveen K. Vaidya, Dr. Xianping Li. For more information please visit http://b.web.umkc.edu/baniyaghoubm/msrd2015.htm

In May 2015, UMKC undergraduate mathematics major Sam Patterson was a first place winner in the 11th annual HOMSIGMAA (History of Mathematics Special Interest Group of the MAA) contest for expository papers written in History of Mathematics courses across the country for his paper written in Spring 2014 for Math 464 WI, our History of Mathematics, Writing Intensive course.

Undergraduate Amanda Kelly won the UMKC 2015 Ilus W. Davis Writing Competition in the Advanced category. Her paper "John Venn: Examining the Logic behind the 'Logic of Chance' " written for Math 464 WI History of Mathematics, is published in the current 2015 Sosland Journal online at https://soslandjournal.wordpress.com/current-issue/ .

The winner of the 2015 departmental GTA Excellence in Teaching Award is Megan Oldroyd. Also Xia Song won a GTA Superior Teaching Award from the School of Graduate Studies. Both have outstanding teaching records.

Our Dec. 2014 graduate, Rachel Crowell was awarded the 2015 AMS-AAAS Mass Media Fellowship. The AMS sponsored her fellowship at The Oregonian for ten weeks this Summer 2015. The Mass Media Science & Engineering Fellows program is organized by the American Association for the Advancement of Science (AAAS). This competitive program is designed to improve public understanding of science and technology by placing graduate and post-graduate science, mathematics and engineering students in media outlets nationwide. The fellows work as reporters, researchers and production assistants alongside media professionals to sharpen their communication skills and increase their understanding of the editorial process by which events and ideas become news.

We extend congratulations to Drs. Jianfeng Meng and Qian Li. In Fall 2014, Jianfeng successfully defended his dissertation entitled "Change Point Analysis of Copy Number Variants Using Next Generation Sequencing Data". Jianfeng's work was completed under the direction of Dr. Jie Chen. Following his graduation, Jianfeng accepted a biostatistician position with Pharmaceutical Product Development Inc. in Austin, TX. Qian Li completed her IPhD in Mathematics with emphasis in Statistics and Co-discipline in Economics in Summer 2015 under supervision of Dr. Yong Zeng. She successfully defended her dissertation entitled "Generalized Multiplicative Error Models: Asymptotic Inference and Empirical Analysis". She is currently a visiting assistant professor in the Department of Mathematical Sciences at Florida Atlantic University.

Undergraduate student Peter Uhl was awarded a UMKC SUROP (Summer Undergraduate Research Opportunity) grant for a project entitled "Mathematical Models for Immune Responses against HIV Infection under Drugs of Abuse". He then successfully presented a poster in the SUROP Poster Symposium on Sept. 3, 2015.

Faculty Activity:

Dr. Liana Sega has been awarded a "Simons Collaboration Grant for Mathematicians" from the Simons Foundation for a period of 5 years. This grant provides funding for travel, collaborative visits, and also for enhancing the department's research atmosphere.

Drs. Majid Bani-Yaghoub and Naveen Vaidya organized a symposium titled "Current Trends in Ecology and Infectious Disease Modeling", and Dr. Xianping Li organized a symposium titled "Recent Advances in Finite Element Methods" at the Annual Meeting of the Society for Industrial and Applied Mathematics (SIAM) April 11-12, 2015 at Missouri University of Science & Technology, Rolla, Missouri.

Dr. Naveen Vaidya was one of the organizers of the mini-symposium entitled "Advances in Viral Infection Modeling" at the SIAM Conference on Applied Dynamical Systems in Snowbird, Utah, May 17-21. The goal of the conference was a cross-fertilization of ideas from different application areas, and increased communication between the mathematicians who develop dynamical systems techniques and the applied scientists who use them.

Dr. Liana Sega was one of the organizers of the AMS (American Mathematical Society) "Mathematics Research Communities" (MRC) workshop in Commutative Algebra in Snowbird, Utah, from June 7 to 13, 2015.

Dr. Xianping Li was awarded a grant from the University of Missouri Research Board (UMRB) to fund his project entitled "Numerical Computations in Image Processing". Dr. Li is the Principal Investigator on this project, which is funded from June 2015 to May 2016.

Dr. Majid Bani-Yaghoub was also awarded a grant from the UMRB to fund his project entitled "A new methodology to measure long-term temporal changes in population interactions". Dr. Bani-Yaghoub is the Principal Investigator on this project, which is funded from June 2015 to May 2016.

The UMKC Applied Mathematics Group is a new research group within the Department of Mathematics and Statistics at the University of Missouri-Kansas City, with interdisciplinary research interests in the areas of mathematical biology, scientific computations, applied analysis, and numerical linear algebra. It also provides high quality teaching and professional service to the community such as mathematical modeling, big data analysis and numerical computations. For more information please visit http://cas.umkc.edu/mathematics/amg/

Fall 2015

In Spring 2015, Dr. Zeng was offered an opportunity to serve as a rotating Statistics program director of the Division of Mathematical Sciences in the National Science Foundation (NSF) beginning Fall 2015. He will remain a faculty member at UMKC, but will work at NSF in Washington, D.C. The intended period for his assignment is two years.

Graduate student Jones Mutua received a travel award from the organizers of the 5th International Conference on Mathematical Modelling and Analysis of Populations in Biological Systems (ICMA-V) held on October 2-4, 2015 at the University of Western Ontario, London, Ontario, Canada. Jones presented a poster entitled "Effects of Morphine on HIV-Specific Antibody Responses: Mathematical Models", related to the joint collaborative project with Dr. Anil Kumar, UMKC School of Pharmacy and Jones's faculty advisor Dr. Naveen K. Vaidya.

This Fall 2015, the 25th annual Kansas City Regional Mathematics Technology EXPO [http://kcmathtechexpo.org/] was again held at UMKC, as we have done since 2009. It is a two-day conference for mathematics teachers at the 4-year college, 2-year college, and high school level always held the first weekend in October: "A forum for mathematics instructors at both the college and secondary levels to demonstrate how they use technology successfully in their teaching, to learn about new mathematics technology, and to discuss the philosophy and future of technology in the mathematics classroom." We had an attendance of 95 this Oct. 2-3, and hope many of you will attend one year, or work with us in other ways!

Looking ahead: Undergraduate mathematics major Chase Crosby will have his paper "Midpoints in the Middle Ages", written for Math 464 WI History of Mathematics in Spring 2015, published in the UMKC Honors Journal *Lucerna* in January, 2016.

For more department history and news about our alumni, see:
http://d.web.umkc.edu/delawarer/MathDeptHistory.htm

You can read about our faculty and other current department news, such as our current RooMath News newsletter, on our department web site: http://cas.umkc.edu/mathematics/

The MAA Missouri Section Newsletter is 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

MISSOURI SECTION OF
THE MATHEMATICAL ASSOCIATION OF AMERICA

ABSTRACT FOR CONTRIBUTED PAPERS

Author(s) : _____

Presenting author: _____

Presenter is: faculty _____ a graduate student _____ an undergraduate student____

Institution: _____

Address: _____

_____

Phone: (_____)_____Email: _____

Paper Title: _____

Abstract: _____

_____

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Is the presentation directed towards a student audience?_____

All presentation rooms are equipped with computers and projectors or presenters can connect their own laptop computers to use projectors. Rooms will also have chalk boards.

You may attach a scanned copy of the completed form and email to lmccune@missouriwestern.edu (please use "MAA Abstract" in the subject line) or send by regular mail to

> Lori McCune
> Department of Computer Science, Mathematics & Physics
> Missouri Western State University
> Agenstein Hall 135K
> 4525 Downs Dr.
> St Joseph, MO 64507

The deadline for submissions is **March 18, 2016**.