MAA MISSOURI SECTION NEWSLETTER
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From the Chair (Chris Johnston)

2019 MAA Missouri Section Meeting

The Department of Mathematics and Computer Science at Lindenwood University is pleased to host the Spring Section Meeting, to be held Friday, April 5 and Saturday, April 6, 2019. The Missouri Collegiate Mathematics Competition will take place the evening of Thursday, April 4 and the morning of Friday, April 5. Information about fees, registration, early registration discounts, and abstract submission will appear on the meeting website, which should be available sometime in November.

Our MAA Section Visitor will be MAA treasurer Jim Daniel and he will kick off the meeting by asking "**How much money do you (or your parents) need for retirement?**" The banquet speaker will be Dr. Urszula Ledzewicz from Southern Illinois University Edwardsville. Dr. Martin Bohner from Missouri S & T will close the meeting by giving an introduction to time scales with applications and recent developments.

Call for papers

We invite both faculty and students to present at the Spring Meeting. Presentations should be 15 minutes long and should focus on mathematics or mathematics education. Examples of presentation topics include but are not limited to current mathematics research, new courses that have been developed, and successful teaching techniques. Talks can be either research-oriented or expository in nature.

Many undergraduate and graduate students attend this meeting, and you are welcome to design your presentation for these students. Also, if you are advising a student who is doing research, please encourage the student to present and assist the student in preparing the presentation.

The abstract submission form will be available on the meeting website. It also appears on the last page of this newsletter. You may e-mail a scanned copy of the completed form to cjohnston@lindenwood.edu (please put "MAA Abstract" in the subject line), or you may send a hard copy via regular mail to the address on the form.

The deadline for submissions is **March 15, 2019**.

From the Section Representative (Jeff Poet)

I attended my first MAA Congress meeting at MathFest in Denver on August 1. As a newly elected representative, I spent most of the day listening to the conversation to get a sense of what the expectations are of being a representative and how this new structure differs from the old structure of having Governors. I will give a full report at the April business meeting, but the short version is that my position is to serve as a conduit of information from the national organization to the section. The Congress is an advisory body only, but the Executive Committee of the MAA strongly encourages input and feedback from the Sections.

My overall impression from the meeting was that the vision of the national organization is that most of the work of the MAA is conducted at the Section level. To make a stronger, more vibrant organization we need stronger, more vibrant Sections. The national office is happy to provide technical and administrative support to Sections, but the bulk of the work of the MAA is done by volunteers at the Section (or Institutional) level.

One very specific question that we might address is "How do we support the SigMAAs within our Section?" It could be as simple as encouraging faculty with similar interests to sit together at a meal during the meeting. Do we even know what, if any, SigMAAs our members are involved in? Do Section participants who do not attend national meetings know about the SigMAAs? These questions can, and should be, answered, perhaps with a survey to begin with and then a small change to the upcoming April meeting schedule. I float this out there for your consideration. Anyone want to pick it up and lead on this?

One topic of note for all of us is the recent announcement regarding the change in MAA co-sponsorship of the Joint Meetings. This was not a topic of discussion at the meeting of Congress at MathFest, so I don't know much more than has been distributed by email to the membership at large. Please read the following excerpt provided by the national office.

The AMS and the MAA have shared management, as well as contributed equally to the programming, of the Joint Mathematics Meetings under an agreement that has been in place since 1998. Through extensive discussions over the last 5 years, AMS and MAA have agreed that the 1998 agreement no longer meets the needs of either organization and will end following the Joint Mathematics Meetings in 2021.

Beginning in 2022, MAA national meeting activities will occur at MAA MathFest in the summer. The MAA will build on the continued growth of MAA MathFest and will also direct resources to better support MAA Sections at meetings like this and other programs that expand access and services to more members.

It is my privilege to represent you on the MAA Congress. If you have thoughts, ideas, or questions about the MAA that you would like for me to bring to the attention of the Executive

Board, feel free to contact me by phone or email. Of course, you are more than welcome to take them to the Board yourself.

Finally, congratulations to Leon Hall on receiving a Meritorious Service Award from the MAA at MathFest. Well-deserved!

From the Secretary/Treasurer (Phoebe McLaughlin)
SECTION TEACHING AWARD

CALL FOR NOMINATIONS

Nominations for the 2019 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 2019 meeting of the Section and will be widely recognized and acknowledged within the Section.

Anyone is entitled to 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 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, Phoebe McLaughlin, at pmclaughlin@ucmo.edu. **The nomination deadline is by March 1, 2019, but submissions before February 15, 2019** 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.

Proposed Changes to MOMAA Officer Structure (Jeff Poet)

The Ad Hoc Committee to Consider Possible Changes in the MOMAA Administrative Structure met over the summer to discuss … well, possible changes in the MOMAA administrative structure. The committee consists of Jeff Poet (MWSU - chair), Mary Shepherd (NWMSU), and David McCune (William Jewell).

Our current structure has three key offices which occur as a 3-year cycle. Two years in advance of hosting a meeting, the upcoming host institution suggests a candidate to the Executive Committee for the office of Chair-Elect. Once elected by the membership, the chair-elect then closely observes the next meeting and strategizes how details of the meeting can be handled on his/her own campus. In the following year, the Chair-Elect assumes the office of Chair and is responsible for all details of the meeting to take place 12 months later. This includes getting speakers for the program, arranging for taking registration fees, reserving rooms, arranging food service, finding a route for the 5k run/walk, arranging a Call for Proposals, scheduling talks, planning the business portion of the meeting, etc., etc. etc.. As the Chair's last official act, he/she presides over the business meeting and takes a long Saturday afternoon nap, to wake up to find they are now the Past-Chair, which is an advisory role.

Past visitors from the national organization have repeatedly recommended that we change our structure so that all of the details of the meeting and the vision for the section do not fall on the same (soon-to-be-burnt-out) individual. The following is suggested as a possible new structure for officers that will allow for more continuity, more participation, and perhaps more opportunity to provide direction and a vision for the section.

After looking at information provided by Leon Hall at the April Section Meeting and other sources, the committee puts forward the following recommendation as food for thought and as a main topic of discussion at the April 2019 Section Meeting for the Executive Committee and for the membership at large.

We propose that the current duties of the Chair be split between (at least) three people. We propose creating a new sequence of officers to rotate through on a 3-year cycle. We call the positions the Arrangements Chair-Elect, the Arrangements Chair, and the Past-Arrangement Chair, with each to be a 1-year position. As with the current "Chair" position, this person would

be nominated by the host institution two years before the hosted meeting. Once elected by the membership, the Arrangements Chair-Elect would be responsible for the program of the upcoming meeting. That is, the Chair-Elect would be responsible for finding speakers, initiating a Call for Proposals for invited talks, scheduling contributed talks, and the oversight of the printed program for the meeting. The Chair would be responsible for all local arrangements related to the conference (reserving rooms, collecting fees, food service, finding maps, student assistants, etc.). The Past-Arrangements Chair serves as a consultant to both the Arrangements Chair-Elect and the Arrangements Chair.

You will note that none of these three officers run the Executive Committee meeting or the general business meeting. For this (and other things), we propose a 4-year sequence of new officers, temporarily called the Chair-Elect (1 year), Chair (2 years), and Past-Chair (1 year), but not to be confused with the current offices related to the Chair.

The Chair-Elect and Past-Chair assist the Chair. The duties of the Chair include
1. Establishing the agenda for and conducting the Executive Committee Meeting and the General Business Meeting.
2. Strategizing and implementing initiatives as brought to the section from the national organization, including recruitment and retention of membership, and the promotion of national programs such as SigMAAs and Project NExT.
3. Providing long-range vision for the section, including the consideration of pilot projects that may eventually become national initiatives.
4. Learning about initiatives conducted by other sections and considering the possible implementation of such initiatives in the Missouri section.

The 1-2-1 structure provides for continuity. Removing the conference arrangements from the expectations of this office frees up the individual to think both more deeply and more broadly about issues facing the section and the national organization.

All of the above offices are separate and distinct from the Missouri Section Representative to the MAA Congress. The Section Representative should not concurrently hold any of the above proposed offices.

The committee brings these ideas to your attention as a beginning place for conversation. This is not a pre-arranged *fait accompli*. We may decide as an organization to leave our structure as is. The impetus behind this is that we are scheduled to undergo a ten-year review of our section bylaws. This is an ideal time to consider changes. Whether these suggestions or other suggestions become implemented will be left to a vote of the membership which will take place at the April 2019 meeting.

Just so you know the process, as I understand it, we will vote at the April 2019 meeting to suggest changes to our bylaws (or not). After we vote, our proposed changes will go to a committee at the national organization which will scrutinize our proposal to be sure that it is

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within the bounds of the MAA's Constitution. (The national organization allows sections to maintain their independence, but the committee assures that the section bylaws do not contradict the overarching national constitution.) After the national committee's input, we will then have an official vote to adopt (or not) the proposed bylaws at the Spring 2020 meeting. This will complete our ten-year review cycle.

I look forward to some lively discussion about our administrative structure. This proposal is our beginning point for discussion. Let the mayhem begin!

Missouri Collegiate Mathematics Competition (Chip Curtis)

The twenty-fourth Missouri Collegiate Mathematics Competition will be held

7:30pm - 10:00pm, Thursday, April 4, 2019, and 8:30am - 11:00am, Friday, April 5, 2019

on the campus of the Lindenwood 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 1, 2019. 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://sections.maa.org/missouri/contest.html.

Additional information, registration forms and past contests can be found at that site.

Section NExT (Samuel Chamberlain and Azadeh Rafizadeh)

Our fall meeting was Friday October 5th at UMKC. Our presenter was Nicholas Haverhals, Associate Professor and Mathematics Department Chair at Avila University. He presented on teaching service courses successfully. We had a nice discussion following the talk.

Our spring meeting is Thursday April 4 and Friday April 5. We would love to get applications for new fellows. Please encourage your new colleagues to apply. There is more information about the application process at https://sites.google.com/site/mosectionnext/home/become-a-missouri-next-fellow

Funding Opportunities Available through the MAA

What follows was sent to the section officers by Deveney Brown, MAA Programs Assistant, concerning funding opportunities. If there are any questions about any of the following opportunities, please contact Deveney at dbrown@maa.org.

- **National Research Experience for Undergraduates Program** (NREUP) supports the participation of mathematics undergraduates from underrepresented groups in focused and challenging research experiences to increase their interest in advanced degrees and careers in mathematics. Proposals should be submitted by university faculty who would like to hold an REU at their campus. The deadline for proposals is **December 15, 2018**. Learn more and apply now!

- **Dolciani Mathematics Enrichment Grants** (DMEG) provide funding for mathematical enrichment programs for talented students in middle or high school. The goal is to interest students who are ready for more challenge and encourage them to further mathematical studies. Projects should provide enrichment activities for students which lead to heightened interest in and appreciation of mathematics. The deadline for proposals is **February 12, 2019**. Learn more and apply now!

- **Tensor Grants for Women and Mathematics** support projects designed to encourage college and university women or high school and middle school girls to study mathematics. Projects can vary in style, such as holding a conference for counselors to prepare them to encourage women and girls to continue to study mathematics, or bringing high school women onto a college campus for a Math Day and facilitating a substantive follow-up. The deadline for proposals is **February 12, 2019**. Learn more and apply now!

- **Tensor-SUMMA Grants**: Strengthening Underrepresented Minority Mathematics Achievement support programs designed to encourage pursuit and enjoyment of mathematics among middle school students, high school students, and/or beginning college students from groups traditionally under-represented in the field of mathematics. Projects can be math clubs, math circles, or any enrichment piece and should support the advancement of underrepresented groups in mathematics. The deadline for proposals is **February 12, 2019**. Learn more and apply now!

- **PIC Math** prepares mathematical sciences students for industrial careers by engaging them in research problems that come directly from industry. University faculty will hold a semester-long course in the spring that challenges students to solve an industrial problem presented by an industrial partner; faculty receive training the summer before facilitating their course. Proposals should be submitted by university faculty who would like to hold a PIC Math course at their campus. The deadline for proposals is **March 1, 2019**. Learn more and apply now!

Campus News:

Culver-Stockton College (submitted by Gary Cochell)

We will be hosting the AMC 10B/12B exams again in February of 2019.

Gary Cochell is retiring from Culver-Stockton at the end of this 2018-19 academic year. It will mark his 40th year at Culver-Stockton College.

University of Central Missouri (submitted by Lianwen Wang)

Dr. Nick Baeth, Professor of Mathematics, resigned this summer and Dr. Vojislav Petrovic was hired as a Visiting Assistant Professor of Mathematics. Dr. Petrovic received his PhD in Mathematics from the University of Louisiana at Lafayette in 2017. His research areas are Algebraic Topology and Chromatic Homotopy Theory.

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

For both recent student accomplishments and faculty activity see our latest RooMath News newsletter to be posted at:

http://cas.umkc.edu/math/about-us/department-newsletter/

Student Accomplishments

Rachel Crowell graduated from UMKC in Dec. 2014 with a B.S. in Mathematics. She was awarded the 2015 AMS-AAAS Mass Media Fellowship, for which she worked at The Oregonian for ten weeks in the summer of 2015. Now she has been selected to co-edit the AMS "Blog on Math Blogs": https://blogs.ams.org/blogonmathblogs/ You can read one of her AMS News posts on *scutoids* from August 14, 2018 at: http://www.ams.org/news?news_id=4516 And! She just had an article published in Forbes online: https://www.forbes.com/sites/rachelcrowell/2018/09/14/modeling-hurricane-florence-and-the-mathematics-of-planet-earth-conference/#40ddfaee2ee7 A profile or her can found at: https://blogs.ams.org/blogonmathblogs/editors/

Callie Lane, B.S. 2018, won the national 2018 Student Paper Contest sponsored by the History of Mathematics Special Interest Group of the Mathematical Association of America (HOM SIGMAA). Callie's paper is titled "Race to Refraction: The Repeated Discovery of Snell's Law". Math major Rachel Talmadge co-won second place with her paper "François Viète Uses Geometry to Solve Three Problems". Both papers were supervised by Dr. Richard Delaware in Math 464 WI. For more information visit https://www.maa.org/press/periodicals/convergence/hom-sigmaa-2018-student-paper-contest-winners

Mathematics major Hope Mertz has her Math 464 WI (History of Mathematics) paper "King of the Mountain" (about mathematician Regiomontanus), published at UMKC in *The Sosland*

Journal 2018 this fall. This issue is available as a PDF file at:
https://soslandjournal.files.wordpress.com/2018/10/sosland-2018-full-issue.pdf

 Both Mathematics majors Whitney White and Mastin Tapp will have their Math 464 WI (History of Mathematics) papers published in the UMKC Honors Journal *Lucerna*, volume 13, this academic year. Whitney's paper is titled "Ostrogradsky's Divergence Theorem", and Mastin's is "On a Few Less Well-Known Problems from the Latter Part of Leonardo of Pisa's *Liber Abaci*."

PhD student, Emanuel Sierra, won the 2018 Departmental Teaching Award. Emanuel started the Master's program in Mathematics in fall 2013 and graduated in spring 2015. He is currently a PhD student under the supervision of Dr. Noah Rhee.

The winner of a 2018 School of Graduate Studies GTA Excellence in Teaching Award is PhD student, Russell J Latterman.

Gerry Baygents earned his doctoral degree in Mathematics with co-discipline in physics in Spring 2018, under the supervision of Dr. Majid Bani-Yaghoub. His thesis, "Spatiotemporal Modeling and Analysis of Disease Spread in Wildlife", has already given rise to two joint papers with Dr. Bani-Yaghoub. His dissertation is available at the MoSpace:https://mospace.umsystem.edu/xmlui/handle/10355/64140 Dr. Baygents is currently a faculty member at Trinidad State Junior College, Colorado. In addition, Jones Mutua earned his doctoral degree in Mathematics under supervision of Dr. Naveen K. Vaidya. Jones Mutua's PhD thesis title is "Modeling HIV-1 Infection and Immune Responses Under Drugs of Abuse" , which is available at https://mospace.umsystem.edu/xmlui/handle/10355/64525 Dr. Jones Mutua is currently a faculty member at the Department of Computer Science, Mathematics and Physics at the Missouri Western State University.

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 Chris Johnston, Chair (CJohnston@lindenwood.edu), or any other member of the Executive Committee.

2019	Lindenwood University
2020	University of Central Missouri
2021	Truman State University
2022	University of Missouri – Kansas City
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

MISSOURI SECTION OF
THE MATHEMATICAL ASSOCIATION OF AMERICA

ABSTRACT FOR CONTRIBUTED PAPERS

Author(s): _____

Presenting Author: _____

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

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 white boards.

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

Christopher Johnston
209 South Kingshighway
St. Charles, MO 63301

The deadline for submission is March 15, 2019