THE SEAWAY CURRENT

Newsletter of the Seaway Section of the Mathematical Association of America

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THE SEAWAY CURRENT

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SEAWAY SECTION SPRING MEETING
State University of NY at Oneonta
March 28-29, 2025
Register now!

Thank You
to the SUNY Oneonta Mathematics, Computer Science, and Statistics Department for hosting us!

SPRING 2025: THE INVITED SPEAKERS

Kim Plofker (Union College):
Four thousand years of encouraging math students to study theory along with problem-solving: What has worked?

Ryan Gantner (St. John Fisher College):
How to be a mathematical JEDI knight

Thomas Zaslavsky (Binghamton University):
From Graphs to Signed Graphs, or, Why You Should Sign Your Graph

Steve Abbot (Iowa State Univeristy):
Every Game I'm Shufflin', Shufflin'

It's not too late to register for the SPRING meeting!

Spring 2025: The Seaway NExT Workshop

by Marie McDonald (Cornell University) and Jeff Johannes (SUNY Geneseo)
2:30-5:00, October 4

Workshop Fee: FREE. Advance registration requested See the registration form for details.

"NExT" is short for "New Experiences in Teaching" and all of us can gain from new experiences. All faculty and graduate students are welcome at our workshop and there is no cost to participate for anyone. Seaway NExT is a great way to develop local contacts and to share and hear ideas about the challenges and opportunities for new faculty.

There will be three topics: developing a course design, creating a class culture and integrity, and working with non-majors and general education courses. For the topic of developing a course design, bring an in-progress course design for advice and discussion; this could also just be an element of your course.

Spring 2025: Invited Speakers

Four thousand years of encouraging math students to study theory along with problem-solving: What has worked?

Kim Plofker, Union College

Abstract: "Students just want to be taught an algorithm for problem-solving, they don't want to learn theoretical aspects." How often have we heard that observation from a mathematics colleague (sometimes directed specifically at students "these days")? In this talk, we'll explore how far back "these days" go, in multiple mathematical cultures stretching over many centuries, and their perpetual quests and stratagems to encourage the study of theory among their pupils. (And whether and when it has worked!) Post-pandemic, students returned to classrooms and to campus, but nothing really returned to "normal." This talk is based on the article Welcome Back to the Math Lounge with Drs. Lydia Kennedy and Margaret Reese (Virginia Wesleyan University), which appeared in the Aug/Sep 2022 issue of FOCUS. I'll discuss my experiences as a faculty member and department chair working to rebuild and reinvent a vibrant community of mathematics students.

How to be a mathematical JEDI knight
### Ryan Gantner, St. John Fisher College

Abstract: In the summer of 2020, in response to a national moment, the Seaway Section's executive committee issued a statement in solidarity with those protesting racial injustice. Arguably, we're having another national moment in 2025 regarding Justice, Equity, Diversity, and Inclusion (JEDI). But what does this have to do with math or math instruction? After all, math doesn't have opinions or biases, does it? Today, the goal is for everyone to walk away with some perspectives regarding JEDI and mathematics. What does this mean? And what doesn't it mean? What are some relevant action items? Today's format will be interactive so that we may learn from each other.

Ryan Gantner is a Professor of Mathematics and Associate Director of the Honors Program at St. John Fisher University in Rochester, NY. Professionally, he is interested in working with students on fun and interesting mathematical topics, such as combinatorial games, probability models, and the mathematics surrounding gerrymandering. Outside of work, he can be found riding his bicycle across the USA, hiking, or spending time with his family.

From Graphs to Signed Graphs, or, Why You Should Sign Your Graph

Thomas Zaslavsky, Binghaton University

Abstract: A signed graph is a graph (or network) in which every edge has been signed, positive or negative. This began in social psychology but it turns up all over the place: physics, chemistry, biology, sociology, complex systems, big data, economics, and mathematics, and even in graph theory since an unsigned graph can be treated as having all positive signs, or sometimes all negative signs. It will be no surprise that signed graphs are no less complicated than unsigned graphs, but perhaps slightly surprising that one fertile source of signed graph theory is generalizing graph phenomena to signed graphs. There are many graph phenomena we don't yet know how to generalize, but some we do.
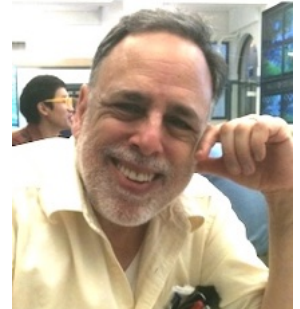
In social relations, a positive edge represents attraction and a negative edge repulsion. There are hundreds of papers about analyzing large social networks with signed edges, such as trying to predict how signs might change over time, which extends the problem of predicting edges in an unsigned network.

A basic property of a graph is its circles (or, "cycles", "polygons"). In signed graphs there are two kinds of circle: positive, and negative. They have very different implications for the graph properties that are incompletely understood. For instance, suppose every circle is positive. If all edges are positive, that's just a graph. If all edges are negative, it's a bipartite graph. If edges have both signs, it's complicated. (This is closely connected to social relations analysis.)

Theorems about odd circles in graphs are often special cases of signed-graph theorems about negative circles (by making every edge negative). We don't yet know what most of those signed theorems are.

We like to draw a graph on a surface, but which surface? There has been a lot of work on this. If the surface is nonorientable, like the Klein bottle, we use signs to describe twisting of orientation. Most signed graphs can only be drawn on a nonorientable surface. But which surface? We don't know much about it.

Coloring a graph means assigning a color to each vertex so that no two adjacent vertices have the same color. Signed graphs have coloring with signed colors, a chromatic number, and a chromatic polynomial. This is explained by geometry.

Eigenvalues and determinants of graph adjacency matrices A, which are matrices of 0's and 1's, are a major part of graph theory. A signed graph also allows -1's, which makes things more complicated. So far, we have limited results.

Organic chemistry, statistical physics, ecology, cell regulation, . . .

THOMAS ZASLAVSKY was born in the Autonomous Republic of Brooklyn, attended the City College of New York, flunked out of graduate school but retreated to the then best place on earth, the Massachusetts Institute of Technology, where he got a Ph.D. after his advisor Curtis Greene told him about hyperplane arrangements. This led to one thing and another, which led to the 700-page "A mathematical bibliography of signed and gain graphs and allied areas", Electronic J. Combinatorics, Dynamic Surveys No. DS8. Web: http://www.combinatorics.org/issue/view/Surveys.

Information on the Closing Lecture on the next page!

Looking for times and locations for the workshop and invited lectures?

Check out the online meeting program for all of the up-to-date details and information!

Every Game I'm Shufflin', Shufflin'
Steve Butler, Iowa State University

Abstract: Shuffling is a well-known aspect of gameplay to help make the decks "sufficiently random" to make the game interesting. Shuffling is also a source of mathematical exploration where shuffles are thought of as permutations of the cards. In this talk, we will take some tools of mathematics, modular arithmetic, and binary numbers, and show how we can apply these to shuffling, and in particular, some simple-to-learn mathematically-based card tricks, which will be performed live. Along the way, we will also learn why we should never work with jokers.

STEVE BUTLER is an award-winning teacher. He has given talks at numerous venues ranging from the AMS-MAA address at Mathfest 2021 to the Iowa State Fair and almost everything in between.

Steve particularly enjoys working with young researchers. He regularly participates in the Iowa State REU and maintains a listing of REU sites for students (mathreuprograms.org); he is also a lead organizer of the Graduate Research Workshop in Combinatorics (GRWC).

Steve's mathematics was heavily influenced by his mentors, Fan Chung and Ron Graham. His mathematical research includes spectral graph theory, shuffling, juggling, origami, tiling, Apollonian circle packings, parking functions, and more. In 2015, he became the 512th mathematician to have an Erdős number of 1.

Steve Butler has been at Iowa State University since 2011 where he is a Morrill Professor and the Barbara J Janson Professor of Mathematics. More information about him can be found online (stevebutler.org).

Section Elections

At the Business Meeting, all section members are welcome to vote in the elections for executive committee positions. Positions up for election this spring are Secretary, At-Large Member, Program Chair, and Chair Elect. The Seaway Section bylaws lay out the voting process in Article III, and includes the following descriptions of the positions up for election.

- The Chair-Elect or the Past Chair shall assume the duties of the Chair in the absence of the Chair.
- The Program Chair shall lead and coordinate the planning of the regular semiannual section meetings, including arrangements for invited speakers, and shall create and distribute a schedule of meeting activities no later than two weeks before each meeting. The Program Chair shall work closely with the local organizer(s) of each regular meeting to ensure that the meeting runs smoothly. The Program Chair shall notify section members of each regular and special meeting of the section at least one month before the meeting, including by arranging with the MAA Programs Office to send an announcement to the section membership.
- The Secretary shall keep minutes of business meetings of the section and meetings of the Executive Committees, and shall distribute them afterwards. This officer shall also have responsibility for overseeing the collection and maintenance of documents, photographs, and other material of historical or archival value to the section. The Secretary shall submit the annual report on the activities of the section, as well as meeting reports, to the MAA when requested each year.

The At-Large Member position does not have a description in the bylaws but typically the responsibility of recalling "section tradition" falls on the At-Large Member.

The candidates for these positions are put forward by the Nominating Committee. Additional candidates may be nominated by section members at the time elections are held, provided there is convincing evidence that each proposed candidate has consented to stand for election. The nominees are:

- JOLIE ROAT (SUNY Cortland) – Secretary, continuing for a second term
- JEFF JOHANNES (SUNY Geneseo) – At-Large Member, continuing for a second term
- ELIZABETH WILCOX (SUNY Oswego) – Chair-Elect, concluding a partial term as Program Chair
- ADAM GIAMBRONE (Elmira College) – Program Chair

The Section is always looking for individuals to step into positions of leadership! A great way to get involved with the Section is to start on a committee – speak with the Section Chair, Brad Emmons (Utica University) to find out about the responsibilities of committees and how you can get involved!

Computing a Multiplicative Inverse Mod n

Elizabeth Wilcox (SUNY Oswego)

Let n be an integer greater than 1. The goal is: Given x, a standard remainder modulo n, find the multiplicative inverse of x modulo n, should such a number exist.

I teach a course in cryptology to math majors and computer science majors at SUNY Oswego, and this goal is an important part of the RSA cryptosystem and related to many other topics in cryptology – I start off the semester teaching a crash course in modular arithmetic, including processes to achieve the stated goal. But, I'm fascinated with the many approaches there are to a single problem and the different perspectives those approaches can take . . . so I often mull over the same problem again and again, attempting to figure out the "perfect" way to approach the problem *for that moment* – I'll change my mind on "perfect" soon afterwards!

Now, if you know your number theory or your group theory, then you know that the multiplicative inverse of x modulo n only exists if x and n are relatively prime. If you don't know your number theory or your group theory, you might be wondering a bit about my terminology and what I'm even talking about – maybe take a gander at the introduction at right to get your bearings.

There's a superb theory-based approach to computing the multiplicative inverse of x using the Euler-Fermat Theorem; if x and n are relatively prime then the multiplicative inverse of x modulo n is $x^{\varphi(n)-1}$ modulo n where $\varphi(n)$ is the result of the Euler totient function applied to n, or the number of integers between 0 and n that are relatively prime to n. This formula completely and totally works, but it has two issues from a computational perspective:

- exponentiation is not that easy, and
- you need to factor n to compute $\varphi(n)$.

Really, exponentiating with large numbers is a process for computers – one we have great algorithms for speeding up, but still one to think about carefully before implementing – and students can't really do this with large exponents in their heads or with a basic calculator. And, the fact that factoring large numbers is the hard math problem upon which the security of RSA rests means I don't want my students to be asking their computer algebra system to be factoring large numbers; and half the class assumed 72 was prime when I said, "If it's a big number and looks like it could be prime, then it probably is prime." Yup, factoring is not their strength.

What is a multiplicative inverse anyway?

Elizabeth Wilcox (SUNY Oswego)

When working with *standard remainders* modulo n, we restrict ourselves only to the numbers $\{0, 1, 2, \ldots, n\}$. In an introduction to advanced mathematics course, you are likely to see the relation *equivalence modulo n* or *congruence modulo n*, where two numbers are related if and only if they have the same remainder after (long) division by n. It turns out that addition and multiplication are consistently defined operations when working with the standard remainders modulo n, so you get a structure that acts a lot like $\mathbb{Z}$ under addition and multiplication, but there's a neat "wrap around" effect — and, of course, everything is finite, which is very convenient for computers. But division is a bit of a problem, just like it is in $\mathbb{Z}$. Well, actually, less of a problem than in $\mathbb{Z}$. See, when we divide by a number x, what we're actually doing is multiplying by x's bestie, it's multiplicative inverse. The product of x with its bestie results in 1, effectively cancelling out x's presence and so, we call that division by x and represent x's bestie with the confusing notation x^{-1} or $\frac{1}{x}$. While in the real number system you can obtain a value for x^{-1} by literally doing long division, if you restrict your vision to only integers then you're in a bit of trouble in $\mathbb{Z}$ because that long division will only give integers for 1 and -1 – so precisely two integers have multiplicative inverses in $\mathbb{Z}$. In the "mod n world", long division is not even really a thing, so, how do you get x's bestie, x^{-1}?

Well, you can play a guessing game. We're looking for an integer y so that $xy \equiv 1$ modulo n . . . for small numbers, say $x = 5$ and $n = 14$, you need only run through multiples of 5 until you hit one that's (a multiple of 14, plus 1). So, think:

$$5, 10, 15 - -\text{Stop the presses!}$$

Because $15 = 14 + 1$, we are done – just tell me what number we multiplied 5 by to get 15 and we have y. Or, if $x = 5$ and $y = 13$ then you'd be thinking:

$$5, 10, 15, 20, 25 - -\text{Stop the presses!}$$

Oops. You stopped too early. The multiple 25 is *one less* than a multiple of 13, not *one more*. Ok, start again:

$$5, 10, 15, 20, 25, 30, 35, 40 - -\text{Stop the presses!}$$

Now you've got the right multiple of 5 because $40 = 13 * 3 + 1$. This means that $y = 8$. So, modulo 13 the multiplicative inverse of 5 is 8.

But, realistically speaking, this approach to finding a multiplicative inverse of x modulo n is pretty much junk. It works for small numbers, assuming that x even *has* a multiplicative inverse – the secret to when x has a multiplicative inverse modulo n is that x and n have to be relatively prime, meaning no common prime factors. So, if you take this game approach without first checking that x and n are relatively prime, then you can be listing multiples of x until the cows come home and be completely wasting your time.

"Computing a Multiplicative Inverse Mod n" continued . . .

So the theory-based approach works symbolically, but not computationally from either a computer perspective or a student in my class perspective. Fine. The next thought might be the tried-and-true Extended Euclidean algorithm – it's a standard technique from the time of Euclid, and surely that doesn't even require a computer. The "forwards" part is the determination of the greatest common divisor of x and n. For $x = 299$ and $n = 347$, it would go like this:

$$347 = 1(299) + 48$$
$$299 = 6(48) + 11$$
$$48 = 4(11) + 4$$
$$11 = 2(4) + 3$$
$$4 = 1(3) + 1$$
$$3 = 3(1) + 0$$

There's lovely theory that tells us this process always ends and puts a good limit on the number of equations, and of course I actually describe this process iteratively for the class so that we can compare the difference between the computer algorithm and the human algorithm. This part is deliciously nice to show to class, and the students get the idea and can actually do the algebra.

It's the "extended" part that kicks them in their teeth. And, not because they aren't capable of getting the idea – it's because their number sense is not great, their work is not neatly organized, and the process itself is messy and gross. Here it is for $x = 299$ and $n = 347$.

$$1 = 1(4) + (-1)(3)$$
$$= 1(4) + (-1)\left[11 + (-2)(4)\right] = 3(4) + (-1)(11)$$
$$= 3\left[48 + (-4)(11)\right] + (-1)(11) = 3(48) + (-13)(11)$$
$$= 3(48) + (-13)\left[299 + (-6)(48)\right] = 81(48) + (-13)(299)$$
$$= 81\left[347 + (-1)(299)\right] + (-13)(299) = 81(347) + (-94)(299)$$

At the end, the coefficient on 299 is our goal – we get $-94 \equiv 253$ modulo 347, and so the multiplicative inverse of 299 modulo 347 is 253.

While there is a clearly iterative nature to the "forwards" part of the Extended Euclidean Algorithm, there's a clearly gross nature to the "extended" part – old school mathematicians like me have no problem digging into the algebra in a neat and tidy way, but more than two substitution-and-simplification steps and half my students will give up. Sometimes, I'm told that the algorithm is wrong, too, because it didn't work for them – funny how that works, right? Another substitution-and-simplification step will lose another portion of the class, and some were lost from the beginning simply because they wrote their "forwards" direction on three scraps of paper and can't find any of the values. Working precisely and neatly is not taught regularly, and so writing work neatly and carefully is just not ingrained in many of our students, especially the non-math students. And, there is no clearly realizable computer algorithm associated with all of this substitution-and-simplification so my students really have nothing to latch onto here.

So imagine my surprise when I came across a matrix-based approach to the "extended" part!?! This is boiled down from *Hilbert's Tenth Problem: An Introduction to Logic, Number Theory, and Computability* by M. Ram Murty and Brandon Fodden. The idea is, if $q_1, q_2, \ldots, q_t$ are the quotients from the Euclidean Algorithm performed on n and x (with greatest common division 1) then

$$\begin{pmatrix} n \\ x \end{pmatrix} = \begin{pmatrix} q_1 & 1 \\ 1 & 0 \end{pmatrix} \begin{pmatrix} q_2 & 1 \\ 1 & 0 \end{pmatrix} \cdots \begin{pmatrix} q_t & 1 \\ 1 & 0 \end{pmatrix} \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

and so, after some rearrangement:

$$\begin{pmatrix} 1 \\ 0 \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ 1 & -q_t \end{pmatrix} \begin{pmatrix} 0 & 1 \\ 1 & -q_{t-1} \end{pmatrix} \cdots \begin{pmatrix} 0 & 1 \\ 1 & -q_2 \end{pmatrix} \begin{pmatrix} 0 & 1 \\ 1 & -q_1 \end{pmatrix} \begin{pmatrix} n \\ x \end{pmatrix}.$$

Ta da! Ok, first: you'll want to know that I verified with induction myself that this approach works. I'm a mathematician, afterall, and needed to see the proof. But, my computer science students have never had linear algebra. And, is this really an easier presentation? I'd have to discuss matrix multiplication, linked to systems of linear equations, and matrix inversion. This approach sat in the back of my mind stewing for a while, as I contemplated how much math background I wanted to get into when there were cryptosystems to discuss . . .

"Computing a Multiplicative Inverse Mod n" continued some more . . .

Later on I was reading *An Introduction to Mathematical Cryptography* by Jeffrey Hoffstein, Jill Pipher, and Joseph H. Silverman and came across a table method to replace the "extended" part. Of course, because I'm a little thick sometimes, I had to double-triple check that these two methods were actually equivalent but, the table is essentially recording the results of the matrix multiplication through a recurrence relation. That means: I just need the recurrence relation! Here it is:

$$f_{-1} = 0, f_0 = 1, \text{ and } f_j = q_j f_{j-1} + f_{j-2} \text{ for } j \geq 1,$$

where q_j is the quotient in the j-th equation in the "forward" part of the Euclidean Algorithm, starting counting at 1. To finish, the multiplicative inverse of x modulo n is $(-1)^k f_k$ where it takes k equations in the "forwards" part of the Euclidean Algorithm to arrive at the greatest common divisor, 1 as the remainder. In my example, $x = 299$ and $n = 347$, we had quotients

$$q_1 = 1, q_2 = 6, q_3 = 4, q_4 = 2, q_5 = 1$$

and so we know that $j = 5$, plus we can calculate the values in the recurrence relation:

$$
\begin{aligned}
f_{-1} &= 0 \\
f_0 &= 1 \\
f_1 &= 1 * f_0 + f_{-1} = 1 * 1 + 0 = 1 \\
f_2 &= 6 * 1 + 1 = 7 \\
f_3 &= 4 * 7 + 1 = 29 \\
f_4 &= 2 * 29 + 7 = 65 \\
f_5 &= 1 * 65 + 29 = 94.
\end{aligned}
$$

It's important not to stop there! Don't forget, we need $(-1)^5 94 = -94$, and then we should standardize the remainder by adding 347, to get that 253 is the multiplicative inverse of 299 modulo 347.

Clearly this is not the place for a comprehensive proof of the theory. But, wow, isn't that cool? A lovely recurrence relation that is easy for my students to compute and program, and *it works*. For now, this is the "perfect" approach that I need in my cryptology class . . . but if you know another approach, send me an email! I'm already searching for the next improvement!

REPORTS & MINUTES SINCE FALL 2024

1. TREASURER'S REPORT – SPRING 2025
   Gordon Craig, Seaway Section Treasurer

   The bulk of this report will consist of our year-end statement for 2024, and a budget for 2025.

   The financial statement for 2024 is a quite misleading; due to a Canada Post strike that prevented me from sending a cheque to RIT to pay for the meeting expenses, \$3,750 that normally would have been paid in late 2024 went on the books in 2025. We ran a "real" deficit of \$669.01 in 2024. One other point regarding the financial statements: all revenue from the sale of promotional items was reinvested in more items; that's why there's no net revenue on that line.

   While not catastrophic, the order of magnitude of our deficit is consistent with what we've run since the pandemic. In order to avoid eating into our savings any more, we'll need to consider modest increases in our meeting fees. To this end, I contacted the treasurers of all the other sections to see what the fee structures for meetings looked like. I'll present a report summarising responses to the Executive at Oneonta, and we'll discuss raising meeting fees. I'll also raise this point at the Business Meeting should there be time, but failing that, I'd be glad to discuss this issue with members one-on-one.

   As usual, the budget is conservative. I'm hoping that the current turmoil and uncertainty surrounding funding agencies and universities in the US will spare the mathematical community, but I'm not optimistic. Since we're already locked with our hosts for 2025, and the subvention from the MAA will be remitted to us soon, most of the pain is likely to be felt starting in 2026. (Encouragingly, registration for the Oneonta meeting as of March 15th is robust.)

There are two other points I would like to share with the membership, one which is a problem, and another which is good news. First of all, the problem: we have had difficulties processing cheques for meeting fees. There are few people paying by cheque or by cash now that we have integrated the payments into the registration, but at several meetings, at least one person's cheque has not been cashed. I take full responsibility for this issue, and I'll make sure it doesn't happen again.

The good news is that there is now a Square phone app, which we'll be experimenting with for merchandise payments at meetings. Please find Elizabeth Wilcox in Oneonta to get your merch!

Respectfully submitted,
  Gordon Craig (Glendon College [York University]), Seaway Section Treasurer

2. THE EXECUTIVE & EXTENDED EXECUTIVE COMMITTEE MEETING – October 4, 2024

Present at Start: Brad Emmons (Chair), Jane Cushman (Educational Policy Committee), Houssein Shahmohamad (Section Representative, Distinguished Teaching Award Committee), Darren Narayan (Gehman Lecture Committee), Jeff Johannes (Seaway NExT, Liaison Coodinator, At-Large Member), Jolie Roat (Secretary), Audrey Malagon (MAA), Dan Look (Randolph Lecture Committee), Elizabeth Wilcox (Program Chair, Seaway Current Editor), Leah Bridgers (Past Chair), Gordon Craig (Treasurer)

Approval of Agenda
  • Approved, no dissent.

Approval of minutes from Spring 2024 Executive Committee meetings
  • Approved, no dissent.
Reports from officers
 (1) Chair (Brad Emmons)
    It was announced that the Spring meeting would be held at SUNY Oneonta, March 28-29 and the next Fall meeting will be held at St. Lawrence University, October 3-4. An ad-hoc committee on meetings has been formed with 3 members. There was discussion about approaching Niagara University or someplace in Quebec as possible future location. A recommendation of specifically inviting colleagues in Quebec to our St. Lawrence meeting was given.

 (2) Past Chair (Leah Bridgers)
    No report.

 (3) Program Chair (Elizabeth Wilcox)
    There are 99 people registered for this meeting so far. Jeff shared that he is working on lining up speakers. Currently one talk is confirmed for the Fall with one pending, and is looking for Spring again. The section is due for the Polya and AWM talks. There was a suggestion for reaching out to Canadian colleagues to encourage their participation in the section, as well as Joe Petrillo, the recent Stephens award winner.

 (4) Treasurer (Gordon Craig)
    Report published in the recent Seaway Current.

 (5) Secretary (Jolie Roat)
    See new business.

 (6) Two-Year College Representative (Jesse Clark-Stone)
    Jesse was not able to attend the meeting. We are interested in knowing what the section's numbers are in terms of two-year colleges. Jane will be reaching out to NYSMATIC.

Report from the Section Representative (Hossein Shahmohamad)
Hossein attended the 2024 MathFest in Indianapolis. He shared he was disappointed in the Congress and felt there could have been more opportunities for the sections to share what they are doing and what challenges they are facing. The next MathFest will be in Sacramento, August 6-9, 2025.

Reports from committees and other Extended Executive Committee positions

(1) Program Committee (Elizabeth Wilcox)
There are 5 contributed talks and two workshops/discussions scheduled for this meeting. We have 106 people registered- 47 faculty, 1 two-year college faculty, 1 K-12 teacher, 2 graduate students, 6 retired faculty and 45 undergraduate students.

(2) Student Program Committee (Keiko Dow)
Keiko was unable to attend this meeting, but the student program committee is putting on a game night tonight with prizes and there will be 8 student talks on Saturday.

(3) Randolph Lecture Committee (Dan Look)
Sarah Hanusch will be giving the Randolph Lecture tomorrow. A speaker has not been chosen yet for next Fall, though a lot of suggestions have been submitted.

(4) Gehman Lecture Committee (Darren Narayan)
Have not yet selected the Gehman Lecturer for the Spring meeting.

(5) Educational Policy Committee (Jane Cushman)
Jane asked if anyone had seen students bringing in AP Precalculus credit. No one reported seeing it yet.

(6) Distinguished Teaching Award Committee (Hossein Shahmohamad)
Last spring's winner, Joe Petrillo, will be recognized at tonight's banquet since he was unable to attend last spring. Hossein will be asking for nominations tonight and reminded everyone that nominees must be MAA members.

(7) Nominations Committee (Gary Towsley)
Gary was unable to attend the meeting, but it was shared that the committee would be advocating for committee volunteers this weekend. There was a suggestion of a survey of members to see if interested in serving on committees, as well as advertising what each committee/position does, perhaps include open questions such as "what other skills/suggestions do you have for the section?". The committee lists should also be checked and updated.

(8) Seaway NExT Advisory Committee (Jeff Johannes)
Seaway NExT is hosting a discussion on Saturday and then will begin working on the Spring workshop.

(9) Distinguished Lecturer Committee (David Brown)
It is not clear if this committee is still active.

(10) Liaison Coordinator (Jeff Johannes)
The current liaison list may be outdated. It would be nice to have an updated list.

(11) Seaway Current Editor (Elizabeth Wilcox)
The most recent Current has been published. If anyone is interested in taking over, they are welcome to.

(12) Webmaster (Cesar Aguilar)
Not in attendance.

(13) Public Information Officer (Christine Uhl)
Looking for someone to take over this position- perhaps someone who has more experience with current social media.

Old Business
None

New Business
(1) Issues of Bias
There were some issues related to bias at previous meetings. Discussion ensued on how to address these issues moving forward. Suggestions included writing something for the Current, creating guidelines of "Things to Consider" for speakers when preparing their talks, creating guidelines for moderating sessions, including reminders about ADA guidelines (i.e. colors being used), or looking to seeing if MathFest or JMM have similar

guidelines that we could use or modify. Audrey offered to see if there is a training from National available.

(2) Financial Responsibility of Host Institutions

We have having trouble finding institutions willing to host our meetings. It was discussed that while there are current guidelines posted on our website which outline financial responsibilities, it may not be up to date. The program chair, treasurer and next two local hosts will work to update this document.

(3) Who gets what?

There have been questions related to who gets honoraria or banquet costs covered, for example for workshop organizers. It was suggested to treat workshop organizers in the same way as invited speakers if they have been invited to give a workshop. As program chair, honorariums can be offered when inviting workshop leaders.

(4) Archival Documents

Many of the historical documents have been scanned and are in searchable PDFs. There is a question of what to do with the physical copies. The Archives of American Mathematical Collection was suggested as a possibility.

(5) Merchandise Issues

There has been some issues related to using the Square reader, keeping track of merchandise and reordering. It is a lot for one person to handle. There was a suggestion to hand the merchandise off to the next local organizer, but we will still need someone to keep track of inventory. If the merchandise person cannot attend the meeting, they should delegate to someone else.

Respectfully submitted,
   Jolie Roat (SUNY Cortland)

3. THE BUSINESS MEETING – October 5, 2024

Reports from Officers

(1) Chair (Brad Emmons)

It was announced that the Spring 2025 meeting will be held at SUNY Oneonta, March 28-29, and the Fall 2025 meeting will be held at St. Lawrence University, October 3-4.

The executive committee has been discussing the following: Updating the guidelines for hosting meetings, providing honoraria for workshop leaders, what to do with archival documents (including where to put the physical documents), making the person in charge of merchandise an official position, issues of gender bias occurred at a previous meeting- the executive committee has discussed different ways to address this including writing out guidelines for speakers, creating a code of conduct for meetings and developing guidelines for session moderators.

It was announced that Houssein Behforooz (Utica University) will be retiring after 38 years in the section.

(2) Treasurer (Gordon Craig)

The financial statements and budget for the section will be presented at the Spring meeting. The last few meetings have generated a surplus of about $500, though it is not a sure thing that we will be able to continue to generate a surplus and it is increasingly difficult to secure hosts for meetings. The section account contained about $12700 before banquet and registration fees.

(3) Program Chair (Elizabeth Wilcox)

A "thank you" was given to the local organizers of the Fall meeting. This meeting includes 8 students talks, 5 contributed talks, a Seaway NExT discussion and mathematical leadership workshop. There are 106 registrations, which is our largest participation post-pandemic so far. The Spring meeting will be at SUNY Oneonta, March 28-29, 2025, and the Fall meeting will be at St. Lawrence University, October 3-4, 2025. If you are interested in hosting, please let Brad or the new Venues Committee know.

Bob Rogers shared that local hosting is not as daunting as it might seem. Getting colleagues and students involved can make it a pleasant experience.

A question was asked about the financial responsibilities of the hosting institution: Friday evening banquet speaker (and honorarium), folders and materials that go in folders, Friday refreshments, morning/afternoon refreshments on Saturday, space (typically we don't pay for space, but occasionally are asked), local moderators and students to welcome visitors and direct around campus, and make the arrangements for the banquet and lunch, hotel room blocks, though local hosts don't typically pay for these. Additionally, since our meetings are smaller, the size requirements of the venue have decreased.

A question was asked about the number of contributed talks. There are fewer contributed talks than in the past, but with the lower attendance and increase in student talks, we are not worried about it.

A question was asked about registering for talks past the deadline. It was clarified that on the website, talk and abstract information needs to be submitted before the deadline.

Finally, there was a reminder that at the spring meeting, faculty who have joined the section in the last two years can register for the meeting at no cost if they attend the Seaway NExT workshop for the first time.

(4) Treasurer (Gordon Craig)

Gordon will be reaching out to other sections to see how our registration fees compare to others. It has informally been decided that the Honoria for speakers will be increasing from $100 to $150. The "Hosting Guidelines" document currently states "$100 is common" for host institutions. There was discussion about changing this number in the guidelines.

At this meeting there was a situation where someone who had registered couldn't attend and inquired about a refund policy. There is no such policy currently. There was discussion regarding what this might look like. It was proposed to refund the banquet up until the deadline for the venue, and refund registration minus credit card fees up until the Friday of the meeting. Gordon will draft a policy.

At the business meeting, the budget and financial statements will be presented. We broke even on the meetings last year.

Finally, when the "Hosting Guidelines" document was drafted, the host institution was collecting the money for registration, but the Section is collecting it now. This has led to the need to clarify who pays for local student helpers, for example, to attend the banquet. It was proposed that we put language in the guidelines that we will cover the banquet fees for up to 5 student helpers.

(5) Section Representative (Houssein Shahmohamad)

The full report can be found in the Seaway Current.

Old Business

None.

New Business

None.

Other Reports

(1) Ad-Hoc Venue Committee

Blaire Madore asked where the section would like the next meetings to be held. Montreal was suggested as well as a rotation across the state.

(2) Gehman Lecture Committee

A speaker has been contacted for the spring.

(3) Randolph Lecture Committee

Given by Sarah Hanusch (SUNY Oswego) today.

(4) Clarence Stephens Award

Given to Joe Petrillo at the banquet. The committee is looking for nominations, however all nominees must be an MAA member.

(5) Educational Policy Committee

Jane Cushman is interested in hearing if your institutions are having any issues with accepting AP Precalculus credit with incoming freshmen.

(6) Nominations Committee

No report.

(7) Seaway NExT Advisory Committee

Seaway NExT is hosting a discussion this afternoon and will be putting together a workshop for the Spring meeting.

(8) Student Program Committee

A successful game night was hosted last night.

(9) Program Committee

If you have any remaining questions, please contact Elizabeth Wilcox.

(10) Seaway Current
Submit any stories or announcements you think would interest the section to Elizabeth Wilcox.

(11) Liaison Coordinator
Let Jeff Johannes know if you do not know who your liaison is, or if you are interested in serving as liaison.

(12) Public Information Officer
We are looking for someone who is interested in taking over social media. Send Christine Uhl things to post.

(13) Merchandise
We are looking for someone to take this over. There is merchandise available at this meeting: tote bags ($16), T-shirts ($26- long sleeve, $23- short sleeve), magnets and stickers ($1 each). Let Elizabeth know if you are interested in a particular size. Cash is accepted.

In general, we are looking for members interested in becoming more involved in the section, even in an informal way. If you are interested, or think there are other issues the executive committee should take up, please contact Brad.

Respectfully submitted,
Jolie Roat (SUNY Cortland)