

ASSOCIATION FOR
WOMEN IN MATHEMATICS

Newsletter

VOLUME 56, NO. 2 • MARCH–APRIL 2026

The purpose of the Association for Women in Mathematics is to create a community in which women and girls can thrive in their mathematical endeavors, and to promote equitable opportunity and gender-inclusivity across the mathematical sciences.

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PRESIDENT'S REPORT

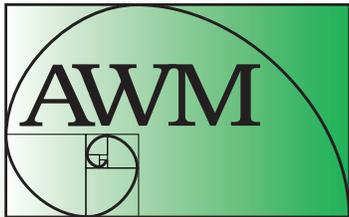
In the January–February issue, I reflected on resilience, leadership, and the quiet but powerful ways our community continues to show up for one another in a changing academic landscape. As spring unfolds, those themes come into sharper focus. The early months of 2026 have been marked by moments of collective gathering, transition, advocacy, and remembrance—each underscoring that AWM’s work is sustained not only by programs and policies, but by people and by shared responsibility across leadership roles. March, as Women’s History Month, and April, recognized as Mathematics and Statistics Awareness Month, offer a timely lens to reflect on the histories that shape our profession and the mathematics that continues to influence us daily.

January brought us together at the 2026 Joint Mathematics Meetings in our nation’s capital, where AWM’s presence was felt across research sessions, panels, mentoring events, and celebrations. JMM also marked an important moment in AWM’s leadership transition, as we closed one chapter of service and welcomed new leadership into our collective work.

AWM-sponsored and co-sponsored events at JMM 2026 reflected the breadth of our community and the depth of its contributions. Across the meeting, AWM highlighted research by women in areas ranging from geometry and mathematical physics to stochastic methods and emerging applications, alongside sessions focused on education, mentoring, and professional development. The Emmy Noether Lecture once again served as a cornerstone of AWM’s presence at JMM, offering both mathematical depth and inspiration. Panels addressed timely issues in our profession, including equitable hiring practices and strategies to support our communities during periods of uncertainty. Mentoring events and poster sessions created space for meaningful engagement across career stages, reinforcing the importance of sustained support and visibility for students and early-career mathematicians. Collectively, these events illustrated the many ways AWM continues to advance research excellence, foster professional growth, and build inclusive mathematical spaces.

JMM 2026 marked a moment of transition and continuity for AWM’s leadership. With the conclusion of the annual governance cycle, Past President *Talitha Washington* officially completed her term, closing a chapter of dedicated service to the organization. I extend my sincere thanks for her leadership, counsel, and steady commitment to AWM over the past four years. In addition, several members of the Executive Committee concluded their service at the end of this cycle. With gratitude, we thank Clerk *Alejandra Alvarado*, Members-at-Large *Rebecca Garcia*, *Courtney Gibbons*, *Caroline Klivans*, and *Shanise Walker*. Your time, care, and leadership have strengthened AWM in a lasting way, and we are deeply appreciative of your service. I would also like to extend my sincere thanks to our invited guests, Awards Portfolio Chair *Susanna Fishel*, Membership Portfolio Chair *Avleen Kaur*, and Newsletter Associate Editor *Jenny Fuselier*, who are concluding their service with the Executive Committee. Their

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ASSOCIATION FOR WOMEN IN MATHEMATICS

AWM was founded in 1971 at the Joint Meetings in Atlantic City.

The *Newsletter* is published bi-monthly. Articles, letters to the editor, and announcements are welcome. Authors sign consent to publish forms. The electronic version is freely available at awm-math.org.

Opinions expressed in *AWM Newsletter* articles are those of the authors and do not necessarily reflect opinions of the editors or policies of the Association for Women in Mathematics.

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PRESIDENT'S REPORT *continued from page 1*

perspectives and contributions have enriched our discussions and strengthened our work. Together, these colleagues have helped guide AWM with thoughtfulness and integrity.

At the same time, we are pleased to welcome new leadership. Our President-Elect, **Cristina Villalobos**, has officially joined the Executive Committee, bringing a fresh perspective and energy to our shared work. We are also delighted to welcome new members to the Executive Committee: Clerk **May Mei**, and Members-at-Large **Keisha Cook**, **Amanda Folsom**, **Omayra Ortega**, and **Julia Plavnik**. Leadership transitions are a vital part of healthy organizations. They allow us to honor experience, invite new ideas, and sustain momentum as we move forward together.

AWM members also participated in the 2026 JMM Hill Visits, engaging directly with policymakers to advocate for sustained investment in mathematics research, education, and inclusive excellence. This was my first time participating in Hill Days, and I found the experience both energizing and empowering. Being in conversation with policymakers, sharing the impact of mathematics and the lived experiences of our community, reinforced the importance of advocacy as an essential part of our professional responsibility. I am deeply grateful to everyone who participated and represented AWM and the mathematical sciences with clarity, care, and conviction. I would also like to offer a special thank you to **Michelle Snider** and **Karoline Pershell** from the Policy and Advocacy Committee for their leadership and behind-the-scenes work in making the Hill Visits such a meaningful and successful experience. I also want to acknowledge the American Mathematical Society for its continued partnership and support. The leadership and coordination provided by AMS, particularly through its associate vice president for government relations, were instrumental in the success of Hill Days. AMS remains a strong supporter of AWM and continues to stand alongside us in advocating for the health, vitality, and well-being of the mathematical sciences.

This spring, we also pause to honor the life and legacy of Gladys West, whose passing reminds us of the often-unseen mathematical labor that shapes the modern world. Dr. West's foundational work in geodesy and mathematical modeling was critical to the development of GPS technology. I was first introduced to GPS trackers in the early 2000s as an undergraduate participating in an REU, long before I fully appreciated the mathematical infrastructure that makes such technology possible. Learning more about Dr. West's contributions has deepened my appreciation for the precision, persistence, and vision required to translate mathematics into systems that now underpin everyday life. Her career stands as a powerful example of mathematical excellence, perseverance, and impact, particularly in spaces where recognition was long delayed. As we remember her contributions, we reaffirm the importance of telling these stories and ensuring that the history of mathematics reflects the complete picture of those who have built it.

As we move further into 2026 and as we celebrate both Women's History Month and Mathematics and Statistics Awareness Month, AWM remains committed to strengthening mentorship, expanding leadership pathways, advocating for equitable practices, and celebrating the mathematical contributions of women across all areas of the profession. These efforts are interconnected, and each depends on the engagement and generosity of our members and donors.

Again, I invite you to participate in whatever ways feel meaningful: mentoring a student, organizing an event, serving on a committee, advocating for our profession,

or reaching out to another member who might benefit from a connection. Every contribution strengthens our community.

Our work continues, and so does our shared responsibility to one another. Together, we will continue this work steadily, thoughtfully, and in service of the mathematical community we share.



Raegan Higgins
Lubbock, TX
January 25, 2026



Raegan Higgins

Membership Dues

Membership runs from Oct. 1 to Sept. 30

Individual: \$70/\$100 **Family:** \$40

Contributing: \$160/\$190

New member, affiliate and reciprocal members, retired, part-time: \$35

Student: \$25 **Unemployed:** \$20

Outreach: \$10

AWM is a 501(c)(3) organization.

Institutional Membership Levels

AWM offers a tiered pricing structure for institutional memberships in six categories. Higher levels are:

Supporting Institutions: \$750+ and

Sponsoring Institutions: \$3000+

See awm-math.org for details.

Executive Sponsorship Levels

\$5000+

\$2500–\$4999

\$1000–\$2499

See awm-math.org for details.

Print Subscriptions and Back Orders—

Regular and contributing members living in the US may elect to receive a print version of the *Newsletter*. Libraries, women's studies centers, non-mathematics departments, etc., may purchase a subscription for \$75/year. Back orders are \$20/issue plus shipping/handling (\$5 minimum).

Payment—Payment is by check (drawn on a bank with a US branch), US money order, or international postal order. Visa and MasterCard are also accepted.

Newsletter Ads—AWM will accept advertisements for the *Newsletter* for positions available, programs in any of the mathematical sciences, professional activities and opportunities of interest to the AWM membership and other appropriate subjects. The Managing Director, in consultation with the President and the Newsletter Editor when necessary, will determine whether a proposed ad is acceptable under these guidelines. *All institutions and programs advertising in the Newsletter must be Affirmative Action/Equal Opportunity designated.* Institutional members receive discounts on ads; see the AWM website for details. For non-members, the rate is \$130 for a basic four-line ad. Additional lines are \$16 each. See the AWM website for *Newsletter* display ad rates.

Newsletter Deadlines

Editorial: 17th of January, March, May, July, September, November

Ads: Feb. 1 for March–April, April 1 for May–June, June 1 for July–August, August 1 for September–October, October 1 for November–December, December 1 for January–February

Addresses

Send all queries and all *Newsletter* material except ads and material for columns to Dandrielle Lewis, awmnewslettereditor@awm-math.org. Send all book review material to Marge Bayer, bayer@ku.edu. Send all education column material to Jackie Dewar, jdewar@lmu.edu. Send all media column material to Sarah Greenwald, appalachianawm@appstate.edu and Alice Silverberg, asilverb@uci.edu. Send all student chapter corner queries/material to Amanda Howard, student-chapters@awm-math.org. Send everything else, including ads and address changes, to AWM, awm@awm-math.org.

new

THE 2026 AWM NEWSLETTER GUEST COLUMN

Call for Guest Columnists

It is with great enthusiasm that I announce the launch of the 2026 AWM *Newsletter* Guest Column. I am seeking guest columnists with fresh perspectives that will reach AWM readers and the mathematical sciences community at large, sparking thoughtful conversations.

The column will feature topics relevant to our work as mathematicians and mathematics educators such as (but not limited to) assessment, curriculum, teaching and learning, professional life, mentoring, or reflections on current challenges and opportunities in the field. Contributors at all career stages are welcome.

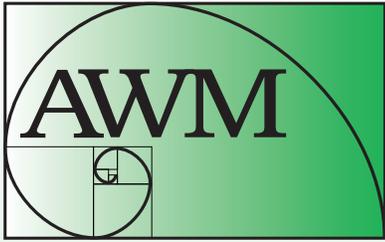
If you are interested in writing a guest column or would like to discuss possible ideas, please contact me at awmnewslettereditor@awm-math.org.

I look forward to hearing from you and building this column together, highlighting voices from across our mathematical sciences community.

Best,

Dandrielle Lewis
AWM *Newsletter* Editor

For the latest news, visit
awm-math.org



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AWM ONLINE

The *AWM Newsletter* is freely available online.

Online Ads Info: Classified and job link ads may be placed at the AWM website.

Website: <https://awm-math.org>
Updates: webmaster@awm-math.org

Media Coordinator
Kimberly Ayers, socialmedia@awm-math.org

AWM DEADLINES

April 15, 2026: Deadline for AWM Student Chapters Award nominations

April 30, 2026: Deadline for AWM Louise Hay Award nominations

April 30, 2026: Deadline for AWM M. Gweneth Humphreys Award nominations

July 1, 2026: Deadline for RCCW Proposals

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Note from the Editor: I invite readers to send information on unidentified individuals in images to the editor, so they can be added to captions in the digital version.

AWM Workshops at the 2026 Joint Mathematics Meetings

Katrina Barron, University of Notre Dame; Renee Bell Lehman College, CUNY, Professional Staff Congress, CUNY; Matthew Krauel, California State University, Sacramento; Raquel Perales, CIMAT, Mexico; Catherine Searle, Wichita State University; Denise Rangel Tracy, Francis Marion University; Gaywalee Yamskulna, Illinois State University

The 2026 Joint Mathematics Meetings (JMM) were held January 4–7, 2026, in Washington, DC. The AWM holds a series of events in conjunction with the JMM, including the Workshops, Special Sessions, Panels, AWM-AMS Noether Lecture, Reception and Awards Ceremony, and more.

The AWM Workshop included the AWM Special Session on Women in Geometry (WIG), the AWM Special Session on Women in Mathematical Physics (WoMaP), and a Mentoring Luncheon on January 7. A Panel and the Graduate Student Poster Session, followed by the AWM Reception and Awards Presentation, took place on Tuesday, January 6. On Tuesday, an AWM Panel on Defending and Supporting our Communities: Next Steps was also held. AWM Workshops are structured to build off previous AWM Research Programs, thereby reuniting researchers working in a common field to continue to strengthen the collaboration network. This year there was also an effort to expand networks.

The WIG Special Session focused on recent advances in the field, interesting open questions, and new connections to explore in symplectic geometry, global Riemannian geometry, geometric flows, mathematical general relativity, spectral geometry, conformal geometry, special holonomy, and geometric PDEs. Topics included results about the fundamental gap in the different classical geometries, Einstein metrics on compact homogeneous spaces, algorithms for repairing noisy polygonal tilings, detecting orbifold singularities with Laplace spectra, and spinal open books.

This Special Session was organized by **Raquel Perales** (CIMAT, Mexico) and **Catherine Searle** (Wichita State University) and followed the Banff International Research Station workshops “Women in Geometry,” “Women in Geometry 2,” and “Women in Geometry 3” that were held in 2015, 2019, and 2023, respectively.

Sixteen mathematicians presented their results: **Jeanne Clelland** (University of Colorado, Boulder), **Xuan Hien Nguyen** (Iowa State University), **Shuli Chen** (University of Chicago), **Luya Wang** (Princeton), **Orsola Capovilla-Searle** (Oregon State University), **Lisa Traynor** (Bryn Mawr College), **Yueh-Ju Lin** (Wichita State University), **Sema Salur** (University of Rochester), **Erin Griffin** (Northwestern University), **Megan Kerr** (Wellesley College), **Padi Fuster Aguilera** (University of Colorado, Boulder), **Lan-Hsuan Huang** (University of Connecticut), **Nazia Valiyakath** (Syracuse University), **Liz Stanhope** (Lewis and Clark College), **Mary Sandoval** (Trinity College), and **Carolyn Gordon** (Dartmouth College).

The WoMaP Special Session focused on recent research advances in mathematical physics, where rigorous mathematical frameworks shape our understanding of string theory, quantum field theory, integrable systems, and general relativity. This Session brought together female researchers in algebra, geometry, and probability to present current developments in mathematical physics, exchange ideas, discuss recent progress, and foster interdisciplinary collaborations to address open problems in mathematical physics. Topics included fusion categories, the representation theory of vertex operator superalgebras, numerical inverse scattering methods for the defocusing

nonlinear Schrödinger equation, automorphic forms, graviton scattering, quantum modular forms, higher-dimension arithmetic spirals, Lorentzian length spaces, K-Theory, rigidity, and chaos phenomena in ergodic and dynamical systems. The Session was organized by **Katrina Barron** (University of Notre Dame) and **Gaywalee Yamskulna** (Illinois State University). This Workshop precedes the “Women in Mathematical Physics 3” Workshop to be held this coming April at the International Centre for Mathematics in Edinburgh, Scotland.

Twelve women mathematicians presented their results: **Lilit Martirosyan** (University of North Carolina, Wilmington), **Melody Molander** (The Ohio State University), **Arim Song** (Friedrich–Alexander University Erlangen–Nürnberg), **Tamanna Chatterjee** (University of Notre Dame), **Kim Klinger-Logan** (Kansas State University), **Eleanor McSpirit** (Vanderbilt University), **Stacey Gitl Harris** (Saint Louis University), **Lisa Marquand** (Courant Institute at New York University), **Katerina Gkogkou** (Tulane University), **Meng Guo** (University of Illinois Urbana–Champaign), **Maria Sabitova** (CUNY Queens College), and **Polina Baron** (University of Chicago).

The AWM Graduate Poster Session is a judged Session, and this year all participating graduate students were offered an opportunity to further anchor themselves in their research fields, and receive feedback on their presentations.

The Graduate Student Poster portion of the AWM Workshop remains open to all areas of mathematics but often includes a number of participants from the Special Session theme. This more focused and integrated approach fosters networking among participants in the selected topical theme, and allows for further mentoring from women leaders in the field. The Tuesday night Graduate Student Poster Session was organized by **Katrina Barron** (University of Notre Dame), **Matthew Krauel** (California State University, Sacramento), **Raquel Perales** (CIMAT, Mexico), **Catherine Searle** (Wichita State University), **Denise Rangel Tracy** (Francis Marion University), and **Gaywalee Yamskulna** (Illinois State University).

Presenting this year was quite an accomplishment as there were many submissions to participate and only 20 submissions were ultimately selected. The Poster Session was open to the public and attracted a large, and entertained, crowd. Judges were able to view the posters, speak with presenters, provide feedback, and decide on the top posters.

At this edition of the JMM the poster presenters were: **Allison Cruikshank**, **Barbara (Basia) Klos**, **Bella Finkel**, **Dalena Vien**, **Elizabeth Lynn Rottenberk**, **Elise Catania**, **Emma Caroline Weber**, **Irene Erazo**, **Jennifer Guerrero**, **Jiaqi Zhang**, **Juliann Geraci**, **Kaitlyn Hohmeier**, **Kaiyi Huang**, **Khola Jamshad**, **Maneesha Ampagouni**, **Nazia Valiyakath**, **Savannah Williams**, **Seljon Akhmedli**, **Shivani Prabala**, and **Ms. Swati**.

This year’s top two posters, in alphabetical order, were **Juliann Geraci** with their poster on *Boolean Matrix Rank via*

Monomial Ideals and **Shivani Prabala** with their poster on *Wavy optimal flows for heat transfer in channels*. Both received a certificate for this accomplishment.

Overall, participation in the poster session was an excellent opportunity for the graduate students to showcase their work, practice presentation skills, and to be welcomed into the research community.

A special thanks to the volunteer judges, **Adam Mair**, **Aikaterini Gkogkou**, **Angela Wu**, **Beryl Castello**, **Caitlin Hult**, **Carmen Rovi**, **Gregory Faurot**, **Fern Hunt**, **Hyun Kwon**, **Jennifer Johnson-Leung**, **Jenita Jahangir**, **Kuei-Nuan Lin**, **Lisa Traynor**, **Lihong Zhao**, **Megan Kerr**, **Rebecca Segal**, **Ryan Stees**, **Liz Stanhope**, **Marcella Manivel**, **Maria Sabitova**, and **Stacey Harris** who invested their expertise and time to review the poster presentations and to offer pointed and helpful feedback to the students.

This was followed the next day by a mentoring luncheon in which poster presenters met with mentors and discussed a variety of topics. To better identify key areas of focus, presenters were surveyed ahead of time and asked what topics mattered most to them to discuss with mentors. From this each table at the lunch received a theme and sample questions to jumpstart the conversation. Initial table topics were the job search, expanding research interest, networking and what’s important, and life planning and balance. The tables were full and discussions were plentiful and wide-ranging. Beyond the poster presenters, and mentors, the event also included other AWM members who came to support and participate.

A deep thanks to the mentors **Jeanne Clelland**, **Stacey Harris**, **Lan-Hsuan Huang**, and **Maria Sabitova**. The AWM is grateful to Elsevier and the AMS for their sponsorship of the luncheon.

The panel on Defending and Supporting our Communities: Next Steps was organized by **Renee Bell** (CUNY Lehman, PSC union) and featured the invaluable experience of panelists **Claudio Gómez-González** (assistant professor, Carleton College), **Haynes Miller** (professor emeritus, MIT), and **Nelson Niu** (PhD candidate, the University of Washington and Academic Student Employee Unit Chair with UAW Local 4121). Panelists shared inspiring examples of mathematicians (as unionists, as mentors, as faculty advocates) fighting to protect the status of international students, and to support students in Gaza and in this country by forming educational communities such as SPOCs (small, private, online courses) for Gazah and The Palestine Undergraduate Research Opportunities Program, PalURO. The mixed role of university administrators was discussed, from their lawsuits alongside the American Association of University Professors (AAUP) and policies for limiting ICE access to campus, to their fight against living wages for workers and their facilitation of the violent assault, firing, expulsion, and deportation (e.g., Ranjani Srinivasan) of their protesting

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AWM WORKSHOPS AT JMM 2026 *continued from page 5*

students and faculty, including mathematicians. We closed with ideas for cultivating bravery in ways big and small, and examples of visible courage inspiring others and creating community. A major takeaway was, as Mr. Rogers says, "look for the helpers," and indeed, many connections were made after the panel among attendees, who displayed excitement, bravery, and commitment to future action.

The 2026 AWM Workshop was made possible by funding from the American Mathematical Society along with our sponsors, Elsevier Publishing and the Casualty Actuarial Society and the Network for Actuarial Women and Allies.

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PANEL AND POSTERS



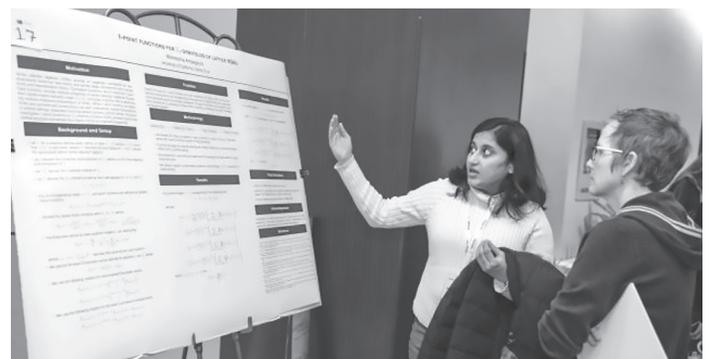
Moderator Renee Bell (Lehman College, CUNY; PSC CUNY) and panelists Claudio Gómez-González (assistant professor at Carleton College), Haynes Miller (professor emeritus at MIT), and Nelson Niu (PhD candidate at the University of Washington and Academic Student Employee Unit Chair with UAW Local 4121)



Dalena Vien (right) presenting



Elizabeth Rottenberk presenting



Maneesha Ampagouni presenting

MENTORING LUNCHEON



Jiaqi Zhang presenting



John Meier, sitting (AMS Chief Executive Officer)



Connecting the Community at JMM 2026

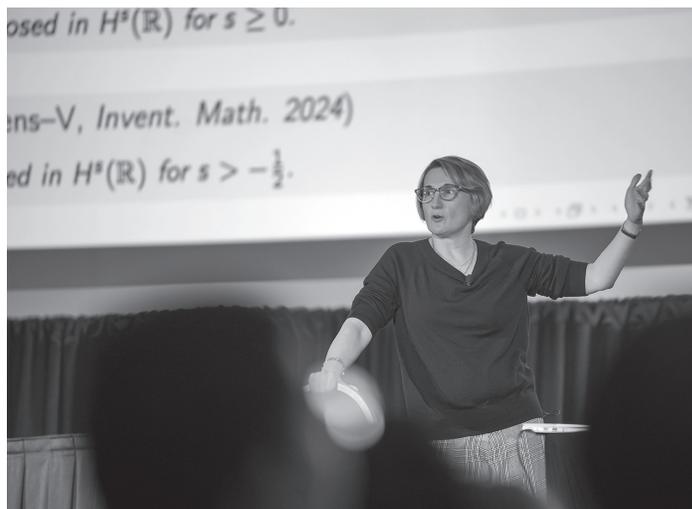
Darla Kremer, AWM Executive Director

The 2026 Joint Mathematics Meetings took place in Washington, DC from January 4 through January 7, 2026. This event launched a yearlong celebration of mathematics. The Year of Math 2026 (<https://theyearofmath.org/>) is a national celebration and campaign aimed to reignite America's appreciation for mathematics. By targeting a broad, nationwide audience, the initiative engages people to experience the beauty, relevance, and potential of math in profound ways. It invites individuals of all backgrounds to explore the subject without fear of judgment or failure.

The AWM Executive Committee Meeting took place on Sunday morning, the first day of JMM, and the AWM Business meeting was held on Sunday afternoon. The JMM Grand Opening Reception was held in the Exhibit Hall on Sunday evening, complete with a ribbon cutting ceremony. AWM volunteers and staff were on hand to demonstrate the game of EvenQuads, sell cards and T-shirts, give out AWM Student Chapter buttons and other swag, and answer questions about the AWM journal *La Matematica*. As in the past, AWM sponsored a booth for the EDGE and Smith postbaccalaureate programs.

On Monday, January 5th, the 2026 AWM-AMS Emmy Noether Lecture, "Well-Posedness and the Method of Commuting Flows" was delivered by Professor **Monica Vişan**, University of California, Los Angeles. Professor Vişan discussed obstacles to the development of a complete well-posedness theory for completely integrable partial differential equations and described recent breakthroughs involving the method of breakthroughs. Her talk is available on the JMM YouTube channel: (<https://www.youtube.com/@jointmathematicsmeetings8429/featured>).

The Awards Celebration began at 5:00 pm on Monday and was preceded this year by the Ribbon Cutting Ceremony on Sunday. AWM honored prize winners **Gerunda B. Hughes**, Howard University (Louise Hay Award for Contributions to Mathematics Education); **Anant P. Godbole**, East Tennessee University & High Point University (M. Gweneth Humphreys Award for Mentorship of Undergraduate Women in Mathematics); **Sarah Peluse**, Stanford University (AWM Microsoft Research Prize in Algebra and Number Theory); **Hong Wang**, New York University's Courant Institute of Mathematical Sciences & Institut des Hautes Études Scientifiques (IHES) (AWM Sadosky Research Prize in Analysis); **Naghmeh Akhavan**, University of Michigan, and **Tejasi Bhatnagar**, Ohio State University were awarded the Dissertation Prize; and **Khyathi Komalan**, California Institute of Technology, **Chloe Marple**,



Noether Lecturer Monica Vişan

Pomona College, and **Saskia Solotko**, Tufts University were the 2026 Schafer Prize winners.

Noether Lecturer **Monica Vişan** was also onstage to receive the AMS Edmond and Nancy Tomastik Prize in Differential Equations.

The AWM Workshop organized by the AWM JMM committee included Special Sessions by two AWM Research Networks, Women in Mathematical Physics (WoMaP) and Women in Geometry (WIG), a panel, a poster session, and a mentoring luncheon (these activities are described elsewhere in this issue). The AWM also endorsed the following sessions that make a significant effort to promote women in mathematics or to encourage diverse participation: "Recent Trends of Stochastic Methods in Modern Generative AI," organized by **Haoyang Cao**, Johns Hopkins University, **Gökçe Dayanikli**, University of Illinois Urbana-Champaign, and **Luhao Zhang**, Johns Hopkins University; "Exploring Mathematics through the Arts and Pedagogy in Creative Settings," organized by **Shanna Dobson**, California State University, Los Angeles and **Claudia Maria Schmidt**, California State University, Los Angeles; and "Digitally-Enabled Evidence-Based Teaching Practices" organized by **Christine Latulippe**, Linfield University as well as a panel entitled "Shattering the Myths: Hiring Women in Mathematics" organized by **Shalmali Bandyopadhyay**, University of Tennessee at Martin, and **Keta Henderson**, Elon University.

The AWM Reception and Award Presentation took place on Tuesday evening after the poster session. AWM President **Raegan Higgins** presented the AWM Service Awards to **Matthew Krauel**, California State University, Sacramento, for his leadership of the AWM-JMM Organizing Committee, beginning as poster judge, continuing as poster judging coordinator, and finally moving into the role of committee chair; and **Betsy Stovall**, University of Wisconsin-Madison, for

spearheading the local organizing efforts to create a spectacular 2025 AWM Research Symposium in Madison.

The 2026 Class of AWM Fellows was then introduced: **Rebecca E. Garcia**, Colorado College, **Katharine Gurski**, Howard University, **Rachel Levy**, North Carolina State University, **Jennifer K. Ryan**, KTH Royal Institute of Technology, and **Rebecca Segal**, Virginia Commonwealth University.

Finally, poster judging coordinator **Denise Rangel Tracy**, Francis Marion University, announced the top two posters: **Juliann Geraci**, University of Nebraska–Lincoln, for the poster *Boolean Matrix Rank via Monomial Ideals* and **Shivani Prabala**, University of Michigan, for *Wavy optimal flows for heat transfer in channels*.

The *La Matematica* Chief Editors recognized three editors for their exemplary work on the Editorial board: **Daniela De Silva**, Barnard College, **Leslie Hogben**, American Institute of Mathematics, **Jingwei Hu**, University of Washington, and **Sunny Wang**, Wilfrid Laurier University. Managing Editor, **Alicia Prieto Langarica**, Youngstown State University, announced these awards.

On January 8, 2026, AWM joined 11 other professional societies to visit Capitol Hill for meetings with our congressional delegations. There were 285 participants representing 47 states. Together, we visited 174 house districts and 94 senate districts.

A big thank you to all who volunteered at or visited the AWM booth, organized an AWM Session, or participated in

an AWM Session as a speaker or attendee. It's the community that makes it all worthwhile.

Finally, the AWM Workshop, including the Poster Session, Special Sessions, Panel, and Mentoring Luncheon was made possible by the support of the American Mathematical Society (AMS) Backstop Grant. The mentoring lunch was also sponsored by Elsevier along with the Casualty Actuarial Society and the Network for Actuarial Women and Allies.

Thank you so much for your support!

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More photos on page 10



Anant P. Godbole (East Tennessee University & High Point University), left, received the M. Gweneth Humphreys Award for Mentorship of Undergraduate Women in Mathematics.



AWM President Raegan Higgins, right, presents the Louise Hay Award for Contributions to Mathematics Education to Gerunda B. Hughes (Howard University).



Sarah Peluse (Stanford University), left, was awarded the AWM Microsoft Research Prize in Algebra and Number Theory.



AWM President Raegan Higgins, left, presented a Dissertation Prize to Naghmeh Akhavan (University of Michigan).



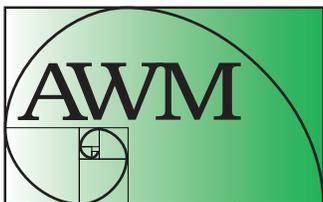
AWM President Raegan Higgins, left, presented a Dissertation Prize to Tejasi Bhatnagar (Ohio State University).



Chloe Marple (Pomona College), left, was one of the 2026 Schafer Prize winners.



Khyathi Komalan (California Institute of Technology), right, was one of the 2026 Schafer Prize winners.



ASSOCIATION FOR
WOMEN IN MATHEMATICS

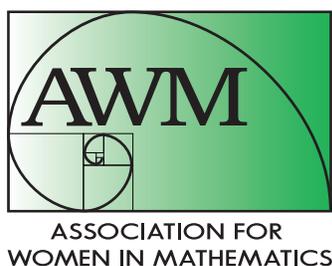
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Saskia Solotko (Tufts University), right, was one of the 2026 Schafer Prize winners.



Noether Lecturer Monica Vişan received the AMS Edmond and Nancy Tomastik Prize in Differential Equations.

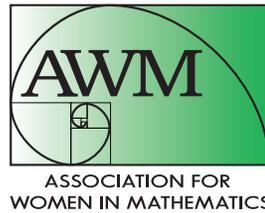


Raegan Higgins presented an AWM Service Award to Betsy Stovall (University of Wisconsin–Madison) for spearheading the local organizing efforts to create a spectacular 2025 AWM Research Symposium in Madison.



Rebecca Segal (Virginia Commonwealth University), left, is a 2026 Class of AWM Fellow.

More photos on page 12



Katherine Gurski (Howard University), left, is a 2026 Class of AWM Fellow.



The La Matematica Chief Editors recognized three editors for their exemplary work on the Editorial board: Leslie Hogben (American Institute of Mathematics), pictured left, along with Daniela De Silva, (Barnard College), and Jingwei Hu (University of Washington).



Poster judging coordinator Denise Rangel Tracy (Francis Marion University), right, announced the top two posters, one of which was Juliann Geraci (University of Nebraska-Lincoln) for the poster Boolean Matrix Rank via Monomial Ideals.



Shivani Prabala (University of Michigan), left, was presented an award for presenting a top poster, Wavy optimal flows for heat transfer in channels, by Denise Rangel Tracy.



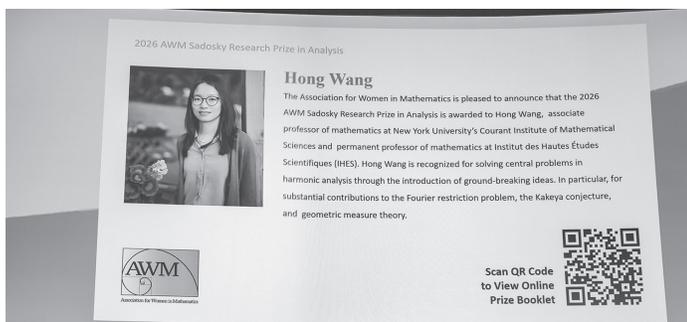
Proud AWM members



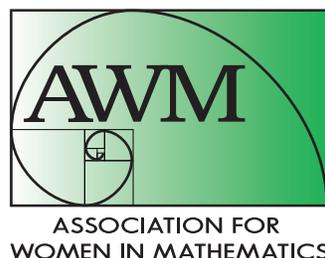
Ribbon cutting ceremony



AWM Presidents, past and present, from left: Jill Pipher, Talitha Washington, Carolyn Gordon, Raegan Higgins (current president), Suzanne Lenhart, and Carol Wood.



Hong Wang (New York University's Courant Institute of Mathematical Sciences) received the 2026 AWM Sadosky Research Prize in Analysis.



BOOK REVIEW

*Book Review Editor: Margaret Bayer, University of Kansas,
Lawrence, KS, bayer@ku.edu*

Instructing the Mathematical Imagination: Charlotte Angas Scott and Bryn Mawr College, 1880s to 1920s

Jemma Lorenat

American Mathematical Society, 2025

Reviewer: Marge Bayer, bayer@ku.edu

This book combines biography and history with a deep dive into the mathematics of Charlotte Angas Scott. For those interested in nineteenth and twentieth century developments in geometry, the latter part should be very interesting. I will focus on the story of the person, her students, and the institution.

Bryn Mawr College opened in 1885 with President James Rhoads, Dean Martha Cary Thomas, and sole mathematics faculty member Charlotte Angas Scott. It was unique for a women's college, in that it had a graduate division, offering the PhD in mathematics. While the undergraduate programs are still for women (with more recent expansion to include nonbinary and trans women), the graduate programs opened to men in 1931. According to mathgenealogy.org, Bryn Mawr has produced 48 mathematics PhDs since the first in 1896. (The first males on this list were in 1977.) The number in each decade varies quite a bit, from 0 in the 1960s and 1980s to 8 in the 1930s and 10 in the 2010s.

The mathematics department was begun and was certainly shaped by Charlotte Angas Scott, who retired in 1924 (under mandatory retirement rules, at the age of 65). Scott, like many of her eventual colleagues, was from England. Her undergraduate studies were at the women's college Girton College in Cambridge. She was able to take the Cambridge University Mathematics Tripos exam, but only the men's results were official. Scott's performance shook the mathematical community, as she placed eighth among all who took the exam. (Her performance was reported widely, including in the *New York Times*. [p. 10]) She stayed on in Cambridge to study under Cayley, although she could not be a graduate degree candidate there. Her Doctor of Science was awarded by the University of London in 1885.

Scott was one of the first two faculty members appointed at Bryn Mawr. (Soon after, Woodrow Wilson was appointed in history and political science; he taught there for three years.) Her initial job was to create a mathematics program out of nothing, this just after completing her graduate work. She was determined that the curriculum not be watered down for the women students. She created mathematics admission requirements, the mathematics entrance exam, the undergraduate degree requirements, and the requirements for the doctoral degree. The latter

specified that the dissertation must be a published paper. Over her decades at Bryn Mawr, she also struggled to develop a library with little financial resources. After retirement she donated her personal library of journals and books to the Bryn Mawr library.

The New York Mathematical Society was started in 1888 and soon developed into the American Mathematical Society (AMS). The Society started accepting female members in 1891, and Scott was one of the first to join. Her prominence in the mathematical community was recognized by her election in 1894 as a member of the AMS Council, and as the first woman vice president of the AMS in 1906. (The second female vice president of the AMS was Mary Gray, in 1971.) She was very active in the AMS, attending and presenting at the meetings, and publishing in the *Bulletin of the American Mathematical Society* and in *Transactions of the American Mathematical Society*.

Scott attended (at least) the first two occurrences of the International Congress of Mathematicians, in Zurich in 1897 and in Paris in 1900. Before the Zurich Congress she wrote to an organizer to ask if women would be welcome and got a positive reply; she was one of four women attendees. Indeed, the University of Zurich was one of the first European universities to admit and award doctorates to international women students.

Besides her published research, Scott's legacy resides in her training of students, including undergraduates and graduate students, in addition to the eight whose PhDs she supervised or co-advised. The author gives extensive descriptions of the research of four of these, Ruth Gentry, Isabel Maddison, Virginia Ragsdale, and Mary Haseman. Included are over 60 figures, many reproduced from Scott's and her students' publications. One shows Mary Haseman's complete classification of "amphicheiral knots of order 12" (61 types) [p. 166].

The descriptions of her students' work are in the context of Scott's own work. There is much discussion of Scott's philosophy and general approach to geometry, as well as her specific contributions. Her students' work was closely related to her own.

Scott's seven PhD students earned their degrees from 1894 to 1925. Three of them spent time (at least a year) in Europe, where they attended lectures of various mathematicians, although there is no indication that they received advising from these. Ruth Gentry attended lectures by Fuchs and others in Berlin, and by Picard, Darboux, and others at the Sorbonne in Paris. Both Isabel Maddison and Virginia Ragsdale spent a year in Göttingen, attending lectures by Klein and Hilbert.

An important part of the mathematics education at Bryn Mawr in Scott's time was the Mathematical Journal Club, formed in 1896. This was essentially a biweekly seminar, with presentations by students and faculty. But it was much more than a typical seminar, because each contributor was to write a report of their presentation in the *Journal Club Notebooks*, and these were kept in the library as a resource for current and future students (and for historians!). Included were literature reviews, commentary on lectures, research ideas and drafts, and

even records of false starts. Scott encouraged students to start by rediscovering or reproving known results, in the hopes that this work would lead to new understandings and connections. Unfortunately, the *Journal Club Notebooks* did not continue after Scott's retirement.

At first Scott was the entire mathematics department. In 1888 James Harkness, also from England, was appointed as an associate in mathematics. He remained there until 1903, when he moved to McGill University. The size (2) of the math department in 1900 compares with 7 at the University of Chicago, 4 at Johns Hopkins, and 10 at Harvard [p. 178]. For a replacement, Scott's eyes were on Hadamard, but President Thomas's antisemitism prevented her from pursuing him. A young British mathematician, James E. Wright, was hired, and taught at Bryn Mawr until he died in 1910.

There followed a succession of four faculty members, Harry Bateman, James Conner, Charles Bramble and Olive Clio Hazlett. President Thomas was hesitant to hire Bateman, who had been recommended by Russell and Whitehead, because of his social status. She did not renew his position for a third year, citing his teaching. The next hire, Conner, apparently had an alcohol problem and ended up on a paid leave of absence. Bramble stayed just one year, since he had still not completed his dissertation. Hazlett failed to satisfy Scott and Thomas in terms of her teaching; her position was not renewed after two years, and she moved to Mount Holyoke.

Finally, a long-term hire was made: Anna Johnson Pell Wheeler. She taught at Bryn Mawr from 1918 to retirement in 1948. Pell came to Bryn Mawr with a strong publication record. She had earned her PhD at the University of Chicago (and also spent time in Göttingen) and had been disappointed not to get a position in a research university. After a few short-term appointments, she taught at Mount Holyoke for seven years. The author tells us that Pell's husband was an invalid, after

suffering a stroke. (A footnote mentions the remarkable life of Alexander Pell—I encourage the reader to look him up on Wikipedia; his original name was Sergey Petrovich Degayev, and he is described there as a “Russian revolutionary terrorist.”)

I was particularly interested to read that Mary Frances Winston (Newson) spent the year 1891–1892 at Bryn Mawr. She was the second woman (after Grace Chisholm Young) to receive a doctorate in mathematics at Göttingen. When she returned to the US, she taught for a year at a high school in Missouri, and then became the one-person mathematics department at Kansas State Agricultural College (now Kansas State University). She left there when she married Henry Byron Newson, the head of my department at the University of Kansas. When Henry Newson died in 1910, many people thought that Mary Frances would be hired at KU, but anti-nepotism rules prevented it, as her sister taught in the English department. She ended up teaching first at Washburn College in Topeka, and then Eureka College in Illinois.

This book puts more emphasis on the accomplishments of Scott and her students than on the barriers they faced as women, but of course, the latter cannot be ignored. Of major importance was the inability of the PhD graduates to get jobs at research universities. Here are a few other examples. In its early years, the women's college at Cambridge University, Girton College, had no library, and Girton students were not permitted to use the Cambridge University libraries. In 1873 Girton College received a gift of the mathematics books of Mary Somerville. When Scott came to Bryn Mawr, she received a salary of \$2000 per year. At Smith College at the time, male professors were paid \$2500 per year, while female instructors there earned \$500 per year.

One last note for AWM readers. Jemma Lorenat used a multitude of sources for this book, including some by AWM members. Prominent among them was the extensive research done by our late colleague Patricia Kenschaft.



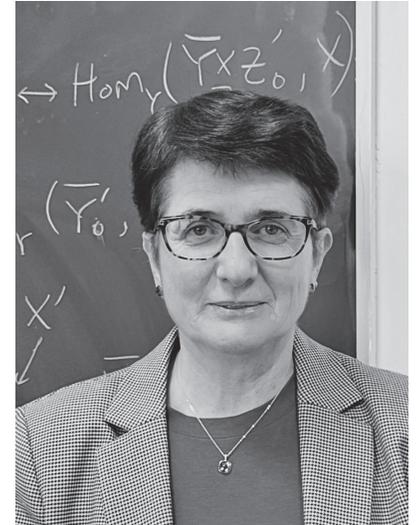
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Fioralba Cakoni Named AWM-SIAM Sonia Kovalevsky Lecturer

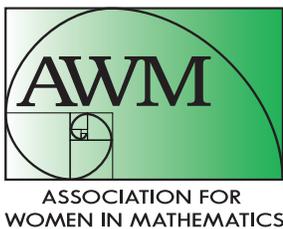
The Association for Women in Mathematics (AWM) and the Society for Industrial and Applied Mathematics (SIAM) announce that **Fioralba Cakoni** has been selected as the 2026 Sonia Kovalevsky Lecturer. Her lecture will be delivered at the 2026 SIAM Annual Meeting taking place in Cleveland, Ohio, July 6–10, 2026.

Citation. Professor Fioralba Cakoni is a Distinguished Professor of Mathematics at Rutgers University and is a fellow of both the American Mathematical Society (AMS) and SIAM. She is on the editorial board of the *SIAM Journal of Mathematical Analysis*, the SIAM Classics in Applied Mathematics book series, and has recently been appointed as the editor in chief of the journal *Inverse Problems*. Professor Cakoni is one of the founders and leading proponents of the qualitative approach to inverse scattering theory, a development that has been described as a paradigm shift in the field of inverse problems. Her influential research in inverse scattering has shaped the design of new methods in nondestructive testing and wave-based imaging. Central to her work is the study of a new class of non-self-adjoint eigenvalue problems known as transmission eigenvalues, which have attracted substantial attention in both the mathematical community and in applications to inverse problems. This research area is the focus of her book *Inverse Scattering Theory and Transmission Eigenvalues*, coauthored with David Colton and Houssem Haddar, the second edition of which has recently appeared in the National Science Foundation–Conference Board of the Mathematical Sciences (NSF-CBMS)—the NSF-CBMS Regional Conference Series in Applied Mathematics published by SIAM.



Biographical Sketch. Fioralba Cakoni is a Distinguished Professor of Mathematics at Rutgers University, New Brunswick, where she has been since 2015. Prior to joining Rutgers, she was a postdoctoral Alexander von Humboldt Research Fellow at the University of Stuttgart, Germany, and later a faculty member in the Department of Mathematical Sciences at the University of Delaware. She has also held visiting research positions at École Polytechnique and École Nationale Supérieure de Techniques Avancées (ENSTA) in Paris. Professor Cakoni was named a Simons Fellow in Mathematics in 2016, elected a Fellow of the American Mathematical Society in 2019, and a Fellow of the Society for Industrial and Applied Mathematics in 2023. Professor Cakoni works in inverse scattering for inhomogeneous media, noniterative reconstruction methods, spectral methods in inverse scattering, and inverse problems for partial differential equations. She has coauthored more than 120 research articles and three monographs, and her work has had a significant impact on the fields of inverse scattering and inverse problems.

The Kovalevsky Lecture honors Sonia Kovalevsky (1850–1891), the most widely known Russian mathematician of the late-nineteenth century. In 1874, Kovalevsky received her Doctor of Philosophy degree from the University of Göttingen and was appointed lecturer at the University of Stockholm in 1883. Kovalevsky did her most important work in the theory of partial differential equations.



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Gigliola Staffilani Named 2027 AWM-AMS Emmy Noether Lecturer

The Association for Women in Mathematics (AWM) and the American Mathematical Society (AMS) announce that **Gigliola Staffilani** has been selected to deliver the 46th Emmy Noether Lecturer at the Joint Mathematics Meetings to be held in Chicago, IL on January 12–15, 2027.

Citation. Gigliola Staffilani is the Abby Rockefeller Mauzé Professor of Mathematics at the Massachusetts Institute of Technology (MIT), where she has been a faculty member since 2002. She received her PhD in 1995 from the University of Chicago under the supervision of Carlos Kenig. Before joining MIT, she held positions at Princeton University, Stanford University, and Brown University.

Gigliola Staffilani is a leading figure in the field of nonlinear dispersive partial differential equations, whose pioneering contributions have fundamentally advanced the analysis of Schrödinger and Korteweg–de Vries (KdV) equations. Her early work produced breakthrough advances in understanding the growth of high Sobolev norms and in establishing Strichartz estimates for equations with rough coefficients. As a member of the influential “I-Team,” she codeveloped the I-method and achieved landmark results on global well-posedness and scattering in nonlinear Schrödinger and KdV equations. Her work also deepened our understanding of energy transfer and weak turbulence in dispersive systems, connecting rigorous analysis with phenomena from mathematical physics. More recently, she has led groundbreaking developments applying probabilistic methods to dispersive equations, establishing almost sure well-posedness and revealing new aspects of random dynamics in nonlinear PDEs.

Alongside her outstanding research, Staffilani is a deeply dedicated teacher and mentor. She has received numerous prestigious teaching awards and has guided many young researchers, including PhD students who have gone on to excel as postdoctoral fellows and faculty members. Staffilani is an inspiring advisor whose careful mentorship prepares her students for successful careers in mathematics. Beyond her direct mentorship, she has played significant scientific leadership roles at MIT and within the broader mathematical community, serving on key committees of the American Mathematical Society, and on the Scientific Advisory Committees of the Simons Laufer Mathematical Sciences Institute (formerly MSRI) and the Clay Mathematics Institute.

Staffilani’s distinguished career has been recognized with many honors, including a Sloan Research Fellowship, an election to the American Academy of Arts and Sciences and the National Academy of Sciences. She is also an inaugural Fellow of the American Mathematical Society.

In her scholarship, leadership, and mentorship, Gigliola Staffilani exemplifies the enduring spirit and influence of Emmy Noether.

Photo © Christopher Harting Studio

AWM established the Emmy Noether Lectures in 1980 to honor women who have made fundamental and sustained contributions to the mathematical sciences. The lecture honors Emmy Noether (1882–1935), one of the great mathematicians of her time. She worked and struggled for what she loved and believed in. Her life and work remain a tremendous inspiration.



Mathematicians on Capitol Hill!

AWM Government Advocacy Committee

On January 8, 2026, AWM was on Capitol Hill in Washington, DC, with over 275 members of the mathematical sciences community, coming from 12 national societies that support students, teachers, educators, and researchers in schools, higher education, national labs, industry, and government. This #MathSciOnTheHill event was, as far as we know, the largest group of mathematicians to ever assemble on Capitol Hill! Taking advantage of the location of the Joint Mathematics Meetings (January 4–7) in Washington DC, 285 mathematicians extended their stay to spend a full day meeting with legislative offices in the Senate and House of Representatives, advocating for the mathematical sciences. In groups ranging from just a few people to over 20 people, we were able to participate in 268 meetings (94 in the Senate and 174 in the House). Most of these were with Congressional staffers, whose job is to track the issues and often are the ones who write the legislation. We had 47 meetings with the elected officials, and several more groups were able to meet with officials impromptu. Our participants were easy to spot across the Capitol by our coordinated gray-and-black-striped scarves.

Our participants came from 47 different states. (If you are from Alaska, South Dakota, or Wyoming, maybe we can convince you next time!) The AWM was well-represented, with 38% of participants being AWM members! Most participants had never done anything like this before but bravely stepped outside of their comfort zone. Organizers offered an online training in December so that participants would know what to expect and, most importantly, know to pack comfortable shoes for a long day walking on marble floors. On the evening before, we all assembled for an in-person training, where we got to meet our groups and plan out what we wanted to say in the meetings.

The overall message was concise: mathematics is important across a wide range of relevant topics. In each meeting, our participants presented the broad case for mathematics, then focused on the areas that mattered to them and their elected officials more specifically. Our message was simple: mathematics, statistics, and data science are used in the world and across a variety of technologies, industries, and federal mission spaces. Because they span all these different policy issues, we as a mathematical sciences community are supported through a whole range of government agencies, and we asked legislative offices to support these agencies with both policies and funding. In each meeting, we left behind a folder of information about the value of mathematical sciences across

teaching, national security, education, workforce, health, energy, statistics, and emerging technologies (including AI and quantum computing).

To stay a world leader on scientific advances and technological innovations, our country cannot afford to degrade the foundation we have built in the mathematical sciences. With massive computing technologies being used by more people than ever before, we need a math savvy workforce to build, monitor, maintain, and test this work, and call it out when it is not working. The message was well received by most offices, to continue to maintain this important work.

At the end of the day, all the participants convened at the National Academies of Sciences, Engineering, and Medicine for a reception, to share stories and decompress after a long day. When asked to describe what they were feeling at the end of the day, people reported “tired but inspired,” “community,” “energized!,” “capable,” “empowered,” and “Staffers and Senators/Representatives are much less scary than I thought.”

The AWM was so pleased to be part of a powerful unified voice, including representatives from these other participating organizations:

- American Mathematical Association of Two-Year Colleges (AMATYC),
- American Mathematical Society (AMS),
- Association of Mathematics Teacher Educators (AMTE),
- American Statistical Association (ASA),
- Consortium for Mathematics and its Applications (COMAP),
- Institute for Operations Research and the Management Sciences (informs),
- Mathematical Association of America (MAA),
- National Association of Mathematicians (NAM),
- National Council of Teachers of Mathematics (NCTM),
- Society for Industrial and Applied Mathematics (SIAM), and
- Association for LGBTQ+ Mathematicians (Spectra).

Obviously, AWM *hoped* that this effort could affect change in the people that we met with, but we *know* that this will effect change within each of the participants, which is an equally important reason that AWM supports this programming: so that individuals know how to approach their elected representatives.

To find out more about the Hill Days and how you can get involved, check out our website and get on our mailing list for future events. Visit <https://awm-math.org/policy-advocacy/hill-day-visits/>



Outside the office of Senator Thom Tillis (NC). From left to right: Johnny Houston, Allison Cruikshank, Rachel Levy, Eva Engel, Jenna Carpenter, Andie Whelan, Kaitlyn Hohmeier, Dylan King, Auroni Hashim, Aaron Jacobson, Darla Kremer, Jonathan Mattingly, Hwayeon Ryu, Lilit Schuckers, Staff Assistant Marshall Overcash, and unknown staffer. Not pictured: Adeli Hutton.



In the office with Representative John Carter (TX). From left to right: Boluwatife Awoyemi, Matt Dallas, Alison Marr, Representative Carter, Raegan Higgins, Jianzhong Su, and Darsh Gandhi.



With Representative Greg Stanton (AZ). From left to right: Megan He, Matthew Jensen, and Laura Watkins.



All the #MathSciOnTheHill participants assembled behind the Capitol Building at the start of the day, showing off our matching gray and black scarves. These made it easy to identify each other during the course of the day!

MATHEMATICIANS ON CAPITOL HILL! *continued from page 19*

In the office with Representative Carol Miller (WV). From left to right: Maliha Binte Mohiuddin, Brian Laverty, Jessica Deshler, Tom Cuchta, and Representative Miller.



Below: Meeting with Representative Sarah McBride (DE) in her office. From left to right: Elizabeth Stuart, Representative Sarah McBride, Dawn Lott, Sean Macdonald, and staffer Monica Luna.



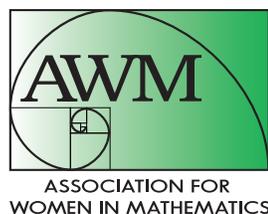
Below: Meeting with the office of Senator Gillibrand (NY). Clockwise from the top right: Charles Steinhorn, Ben Galluzzo, Max Galluzzo, Spiros Manolas, Glenn Henshaw, Jasmin Enriquez, Johanna Franklin, Amanda Beecher, Alice Chen, Moshe Cohen, Abbe Herzig, Darren Narayan, Chanell Cunningham, Juliana Cabrera, Renee Bell, Chrishirly Paulino, Joel Louwsma, and Justin Curry. Out of frame: Margje Guzman and Benjamin Lotto.



Outside of the office of Senator Tammy Baldwin (WI), who was a math major! From left to right: Prairie Wentworth-Nice, Temitope Iroko, Michelle Snider, and Karoline Pershell.



Outside the office of Senator Elizabeth Warren (MA). From left to right: Catherine Roberts, Kathi Crow, Staffer Branden Alberts, Zoe Siegelnickel, Skyler Marks, Elsa Frankel, and Suzanne Weekes. Not pictured: Natalie Welling.



AWM Workshop at the 2027 Joint Mathematics Meetings

Application deadline for graduate student poster session: August 15, 2026

For many years, the Association for Women in Mathematics has held a series of workshops in conjunction with major mathematics meetings. The AWM Workshops serve as follow-up workshops to Research Collaboration Conferences for Women (RCCW), featuring both junior and senior speakers from one of the AWM Research Networks. An AWM Workshop will be held in conjunction with the Joint Mathematics Meetings in Chicago, IL from January 12–15, 2027.

FORMAT: The JMM workshop will include Special Sessions showcasing recent work by AWM Research Networks Women in Symplectic and Contact Geometry and Topology and Women in Topology. A juried poster session for graduate students, a professional development panel, and a mentoring luncheon are all being organized by the AWM JMM organizing committee.

POSTER SESSION: The Poster Session is open to all areas of research; graduate students working in areas related to Symplectic and Contact Geometry or Topology are especially encouraged to apply. Poster presenters will be selected through an application process. Partial funding for those selected may be available.

ELIGIBILITY: To be eligible for participation and funding, a graduate student must have made substantial progress towards their thesis. Mathematicians with grants or other sources of support are welcome to apply.

All applications should be submitted on mathprograms.org and include:

- a title of the proposed poster
- an abstract in the form required for AMS Special Session submissions for the Joint Mathematics Meetings
- a curriculum vitae
- one letter of recommendation from the applicant's thesis advisor.

Applications must be completed electronically by **August 15, 2026**. See <https://awm-math.org/meetings/awm-jmm/> for details.

MENTORS: We seek volunteers to act as mentors for graduate students as part of the workshop. If you are interested in volunteering, please contact the AWM office at awm@awm-math.org by **September 15, 2026**.

JUDGES: We also seek volunteers to act as judges for the Poster Session. If you are interested in volunteering, please contact the AWM office at awm@awm-math.org by **September 15, 2026**.

All JMM participants are invited to attend the talks and poster presentations. Departments are urged to help graduate students and junior faculty who are not selected for the workshop to obtain institutional support to attend the presentations.

EDUCATION COLUMN

Education Column Editor: Jackie Dewar, Loyola Marymount University, jdewar@lmu.edu

Balancing AI and Analog

Jo Hardin, Pomona College

It seems to me that I'm writing the n th (n quite big) article on teaching in the new age of artificial intelligence (AI). It is good news to see so many articles, because it means that many of us are thinking about the changes in our classrooms due to AI. And if we work together, maybe we can figure out how to navigate the new technology that has upended our classrooms.

My perspective is just one additional voice thinking about how to combine traditional teaching methods in the classroom (which I'll refer to as "Analog") with learning from large language models (LLMs) (which I'll refer to as "AI"). I believe that there are good reasons to embrace both Analog and AI in college classes of all levels. Below I describe both the why and the how of implementing different learning approaches in my classrooms. I hope that some of the ideas I've presented will translate well to your classroom.

Artificial Intelligence

Instructors who believe they can teach without students using AI are fooling themselves. The fast pace at which AI has become ubiquitous is shocking for those of us who did not even have cell phones in college. But for our students, AI is simply one more new technology to embrace on their educational path. College students today use AI for *everything*, and most importantly, they use it for their homework, their studying, their learning.

Another reason to embrace teaching with AI is that future employers expect candidates to be able to use AI efficiently and effectively. A candidate who has no experience with AI is at a substantial disadvantage as compared to their colleagues who can accomplish the same tasks in a much shorter time frame with AI.

So, maybe we all believe that AI should be used in the classroom. But how do we do it? I'll provide some suggestions below, but I recommend you reflect on your own experiences with AI and how they might be similar to what students are going through.

- **Autocomplete:** autocomplete is so much better to use if you have a sense of the language already. Personally, when I'm coding in R (I'm an advanced coder), autocomplete is awesome. I know what I want to do, and I can easily keep or reject the AI suggestions. But when I'm coding

in Python (I'm a newbie coder), autocomplete is terrible. I don't know what the language structure is, and I can't tell whether the suggestions are what I want to do. For students who don't program yet, you might extend the analogy to natural languages. Autocomplete in their first language is probably quite helpful. Autocomplete in a new language may or may not provide the correct words. Talk to your students about the difference between AI use on a topic they know versus a topic they don't know anything about.

- **Pair work:** set up opportunities for pairs of students to work through AI-generated output (e.g., code, proof, derivation, etc.). As the students discuss each line of the output, they will process the structure of the results.
- **Practice:** give them ways to practice using AI. Find assignments that make sense for AI use. Describe when it is okay to use AI and when it isn't. In my own classrooms, I allow all AI use in homework and projects. While it is possible that their AI use in homework assignments diminishes their learning of the core concepts, I am giving them experience in working with AI tools effectively. The projects in my class are scaffolded in such a way that, even with the use of AI, students have to push the boundaries of the course content.
- **Model the use of AI:** model the use of AI in the classroom or in office hours. In particular, ask the AI why something is true. If the use of AI is focused on learning instead of on obtaining a solution, the AI can act as an additional instructor. Students with imposter syndrome can dig into ideas without feeling embarrassed about asking "stupid questions."

Analog

Regardless of where you are in your AI journey, there should be plenty of room to engage with Analog learning styles in the classroom. The work done in an Analog learning style is where students can really stretch their brains and practice without AI support. As with AI, instructors should discuss why the analog methods are important to learning. And connections can be made back to AI—if the Analog learning is done, the AI learning will be improved and even more efficient.

I've detailed some of the ways that I make my class Analog. My focus is on having students report what they know so that I can assess them, but more importantly so that they know where they are in the learning process. The analog approaches allow the students to reflect on what they do know of the course material and what they want to know of the course material.

With the personal reflection they can choose to learn more, either with TAs, with professor office hours, or with AI.

- **Worksheets:** every day in every class I have each individual student work on a quick (5–10 min) worksheet related to that day’s class material. The worksheet is very low stakes (complete /incomplete) and serves myriad purposes. I get to know how the students are engaging with the materials; the students get a sense for their own understanding; I know who is attending class; and they provide sample questions that the students can use for studying. I look at the worksheets between every class period, which can be time consuming. In my classroom, worksheets are low-stakes, which is valuable because taking risks is not heavily penalized.
- **Random seating:** as the students walk into the classroom, they are assigned a random number. The tables are already numbered (with small stickers), and so the students sit randomly (with respect to the physical space of the room and with respect to which classmates they sit with). Students complete the worksheet with a new group of classmates each day, giving everyone a chance to get to know all the students in the class.
- **Clickers:** I use clickers¹ to infuse the class period with interactivity. It is important to me that the clickers not be connected to any phone or computer. I find that it is too easy for students to get distracted (“I just need to respond to that one text...”) when using their personal devices (in my classroom I do not allow computers to be used or open at all). Instead, I use iClickers that are connected only to a base which receives the signal. If I didn’t have access to iClickers, I would choose to have students use pieces of paper with big letters on them (e.g., *A*, *B*, etc.) instead of having them answer clicker questions on their phones. The clicker questions invariably lead to great discussions (“Why wasn’t answer *D* correct?”) and gives students a sense of both their understanding of the material and of their place in the classroom (“Am I getting more correct than most people?”). I do not use clickers for attendance, and so the clicker responses are truly anonymous. Answering questions via clickers is a low-stakes assignment.

- **Quizzes:** approximately every other week, I have an in-person quiz done using a pen or pencil. The students can bring in one sheet of notes (a “cheat sheet”) on which they’ve written anything they want. Ideally, if they have created a good cheat sheet, they won’t actually ever look at it. The quizzes serve to ensure that students are learning the material well enough to take a test using no technology. The quizzes are not low-stakes, but there are enough of them that a single quiz cannot ruin a student’s grade. Additionally, while I do sit in the classroom while the quiz is being taken, I allow for students to take as long as they need (i.e., I work to reduce the stress associated with a timed assessment).

I don’t claim to have figured out how to perfectly balance AI and Analog learning. But I do claim to be thinking about it. I want to help my students be effective in a twenty-first century workplace, and I know that means they will need some fluency working with LLMs in technical ways. But I also know that if I don’t continue to employ Analog learning methods, my students will let AI do all the work for them, clearly not an ideal situation for learning! For now, I’ve landed on a course design that allows for students to practice boosting their technical abilities using AI. And at the same time, I hold students accountable for the course content by having in-class written assessments.

As LLMs and other technologies continue to develop so do my own pedagogical approaches to using AI in the classroom. I appreciate learning from other educators who are grappling with the same issues that I am. As a statistician, my education community comes primarily through the American Statistical Association’s Section on Statistics and Data Science. The open access flagship journal, *The Journal of Statistics and Data Science Education*² has had myriad recent publications on AI. Two conferences, eCOTS³ (electronic Conference on Teaching Statistics: with its 2026 theme *Sparking Joy and Discovery In a World of AI*) and ICOTS⁴ (International Conference on Teaching Statistics), promise many talks at the interface of teaching and AI. I hope that my reflections have helped you, and I look forward to discovering your reflections (in blogs, journal articles, and conference presentations), which will help me move forward in my own classroom.

¹For example, the clicker questions I use for Introduction to Statistics can be found at https://m58-intro-stats.netlify.app/clicker_study.

² <https://www.tandfonline.com/journals/ujse21>

³ <https://www.causeweb.org/cause/ecots/ecots26>

⁴ <https://icots12.oa-event.com/>

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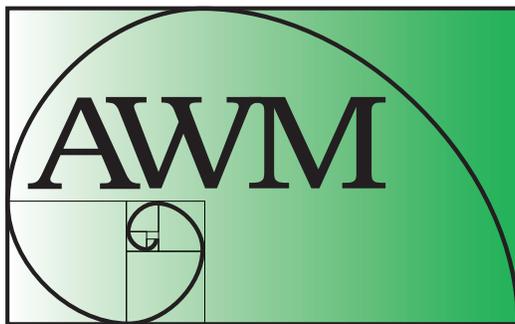
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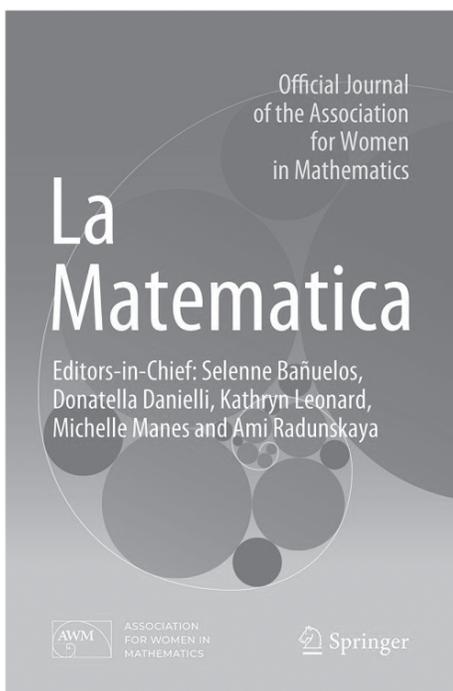
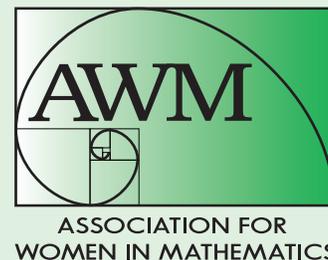
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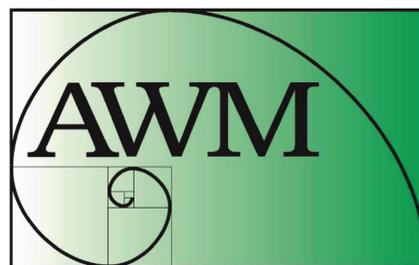
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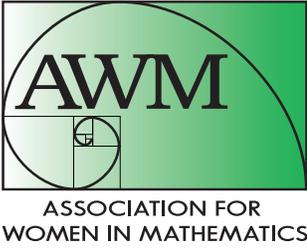
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