



Activities of the Office of Government Relations

Karen Saxe

This quarterly column provides information on different facets of the American Mathematical Society Office of Government Relations (OGR) portfolio and activities. This offering focuses on our activities at the Joint Mathematics Meetings and gives an overview about the new members of the 116th Congress and newly configured Congressional committees that have jurisdiction to support research and education in the mathematical sciences.

Office of Government Relations Activities at the Joint Mathematics Meetings

The Joint Mathematics Meetings (JMM) are busy for the Office of Government Relations (OGR), which annually organizes four events.

On the day preceding the official start of the JMM, we host a workshop for department chairs.¹ This year's workshop featured four interactive sessions, encouraging networking and sharing of ideas amongst participants. Almost seventy chairs and other department leaders attended, and it was a lively and productive day. The last session of the day was a "What's on your mind?" discussion, and this proved quite interesting. Many participants wanted to focus on the changing demographics of our national undergraduate student body—what will this look like in ten or fifteen years? What about the shrinking number of eighteen-year olds? How do we address the mental health

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¹www.ams.org/profession/leaders/workshops/chairsworkshop

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of our students? Each year, at the end of the day's activities, we hold a reception for the group and invite attendees from previous years—this is always a good time. Please join us next year in Denver on Tuesday, January 14.

The OGR works with two of the AMS policy committees—the Committee on Education and the Committee on Science Policy—helping each to organize a panel discussion.² This year the Committee on Education opted to hold an active session, adopting the mantra that "the audience is the panel." Organizers David Pengelley (Oregon State University), Dev Sinha (University of Oregon), and Ravi Vakil (Stanford University) redesigned the format to model this pedagogy at the center of the discussion. They recruited fifteen "discussion leaders" (rather than panelists) and officially renamed the event as a "guided discussion" on "Evidence-based teaching: How do we all get there?" as it was listed in the JMM program. The room was full the entire time—the participants were broken into small groups, and they engaged in creative problem solving on the spot. The organizers provided a bit of background and questions, which small groups then discussed, facilitated by the discussion leaders, followed by reporting out and

²www.ams.org/about-us/governance/committees/gov-committees

whole-room discussion after each small-group period. The session probed the interests of the audience in scaling up active learning in their departments, the basic steps and challenges they face in pursuing those interests, the existing resources to support those interests, and resources the audience would like to see developed to support their efforts. Some especially interesting observations and suggestions came from the early career “leading from below” group. The challenges this group feels they face are not surprising—lack of experience, lack of influence, low expectations in terms of their contributions in their departments. Their requests to overcome these challenges include offering more “on-ramps” in their department settings. One specific request asks departments to “normalize” conversations about education by including seminars and colloquia on education issues (some by distinguished visitors, just as mathematical talks are).³

The Committee on Science Policy decided to take advantage of the proximity to Washington, DC, by “using” their panel time to have a conversation with the National Science Foundation’s (NSF) new heads of the Directorates for Mathematical & Physical Sciences (MPS) and Education & Human Resources (EHR). Dr. Anne Kinney is a PhD astrophysicist who came to NSF/MPS in January 2018. MPS supports fundamental research in astronomy, chemistry, physics, materials science, and mathematics. Dr. Karen Marrongelle holds a PhD in mathematics education and joined NSF/EHR in October 2018. EHR supports STEM education at all levels. I was to facilitate a conversation about Dr. Kinney’s vision for the Division of Mathematical Sciences, Dr. Marrongelle’s vision for mathematics work in EHR, and their joint views on how the mathematical sciences fit with larger programs at the NSF. Unfortunately, the NSF was closed as part of the partial government shutdown, and the session was cancelled. The NSF was shuttered because its funding is tied up in the border wall fight.⁴ The shutdown has affected science in many ways: the NSF reported more than one hundred postponed panels, and there were declines in participation at many scientific conferences including at the JMM. The lingering effects of a government shutdown are felt for months, if not years.

³Slides and notes can be found at <https://web.nmsu.edu/~davidp>.

⁴The NSF and the potential border wall funding are both part of one of the twelve appropriations bills that package Commerce, Science, and Justice together (NSF is in science; the wall in justice). For more on how appropriations work see <https://www.ams.org/government/dc-budgetprimer>.



AMS Committee on Education session at JMM.

Lastly, at each JMM we host the Congressional Fellowship Session in order to spread the word about this great opportunity to spend a year in Washington. This one-year fellowship provides a public policy learning experience, demonstrates the value of science-government interaction, and brings a technical background and external perspective to the decision-making process in Congress. Panelists this year were the current AMS Congressional Fellow James Ricci (office of Senator Amy Klobuchar, MN) and Jennifer Pearl (PhD mathematician and Director of the Science & Technology Policy Fellowships Program at the American Association for the Advancement of Science). Other alumni fellows were on hand to answer questions and share their experiences.⁵ The annual application deadline for the AMS Congressional Fellowship is in mid-February.⁶

In addition to the four programs that we run, I played a role in a few other programs.

Since 2018 the AMS has hosted a Graduate Student Chapter Luncheon. In addition to the graduate students who attend, several AMS leaders (staff and elected officers) participate. This year, I was the “speaker,” and talked about the importance of being involved, and how to become

involved in advocacy efforts that support the mathematical community. I told them about our newly launched CASE fellowship⁷ opportunity, and we had a lively debate about redistricting, including whether or not mathematicians and statisticians should play a formal role in the process.

A JMM 2019 highlight for me was the JPBM Communications Award ceremony honoring Margot Lee Shetterly, author of *Hidden Figures*. As part of *Mathemati-con*, she received her award and was interviewed by Talithia Williams of Harvey Mudd College. Each year I invite certain Congressional members to participate at the JMM; most often these are members with particular ties to mathematics and the local representatives. US Senator Chris Van Hollen joined us and gave remarks at the beginning of this event. Senator Van Hollen represents Maryland and is a cosponsor of a bill to award Congressional Gold Medals to the *Hidden Figures*: Christine Darden, Mary Jackson, Katherine Johnson, and

⁵I was there, and so were David Weinrich, Dan Ullman, Catherine Paolucci, and Margaret Callahan. Also, on hand were alumni Mass Media Fellows Ben Thompson and Yen Duong, and other mathematicians who have served as AAAS Fellows in the Executive Branch.

⁶Learn more at <https://www.ams.org/programs/ams-fellowships/ams-aaas/ams-aaas-congressional-fellowship>.

⁷This is a three-day workshop for students; learn more at <https://www.ams.org/government/dc-case-fellowship>.



AMS Executive Director Catherine Roberts, *Hidden Figures* author Margot Lee Shetterly, and US Senator Chris Van Hollen (MD).

Dorothy Vaughan. The Congressional Gold Medal is the highest civilian award in the US. (An interesting piece of trivia is that the first medal went to George Washington in 1776 for his “wise and spirited conduct” in bringing about the British evacuation of Boston.⁸) The conversation between Talithia Williams and Margot Lee Shetterly was a real treat. Shetterly described what it was like working with stars Janelle Monae and Kevin Costner on the movie project. I found it interesting to learn about her next book project, which will be about early twentieth-century African American entrepreneurs in Baltimore. Williams told me that she loved hearing the author “talk so beautifully about the life and legacy of Rudy Horne,” the math consultant on the movie,⁹ and that Shetterly’s remarks made clear “that she knew him and was intricately a part of the production of the movie, and didn’t just hand her book over and step away.”

Representative Jerry McNerney (CA 9),¹⁰ a PhD mathematician and—perhaps needless to say—the only one in the US Congress, always enjoys the JMM and attends as often as his congressional schedule allows. This year he spent much of Friday with us. He went to the MAA Un-

⁸<https://fas.org/sgp/crs/misc/R45101.pdf>

⁹The mathematics community lost Dr. Horne in 2017: <https://www.ams.org/journals/notices/201902/rnoti-p202.pdf>.

¹⁰Parenthetical reference indicates that he represents California’s congressional district 9, in the US House of Representatives. Senators’ states are indicated in a similar manner.

dergraduate Student Poster Session, spending time with students from his district in California; to talks on the mathematics behind elections; and to the Current Events Bulletin Session.

The 2018 Election and Implications for the Mathematics Community

According to the *New York Times*, the 2018 midterm election resulted in ten new senators and 101 new members of the House of Representatives.¹¹ All House seats and one-third of the Senate seats are up for election every two years. All ten of the new senators graduated from college, and seven of them received graduate degrees. Almost all new House members also graduated from college, and about ninety percent of them hold graduate degrees.¹²

Seven of the newcomers in the House hold a graduate degree in a STEM field, or a medical degree:

- Sean Casten (IL 6) has his undergraduate degree in molecular biology and biochemistry, a master of engineering management, and a master of science in biochemical engineering. His career has been in

¹¹<https://www.nytimes.com/interactive/2018/11/28/us/politics/congress-freshman-class.html>

¹²For more on the education of members of the 116th Congress see <https://www.forbes.com/sites/michaelnietzel/2018/12/10/the-college-profile-of-the-116th-congress-first-year-class>.

the private sector and is focused on clean energy technologies.

- Joe Cunningham (SC 1) has a bachelor’s degree in ocean engineering. He worked in this field, in industry, until the 2008 recession when he returned to law school.
- Chrissy Houlahan (PA 6) has an undergraduate engineering degree from Stanford and a master of science in technology and policy from MIT. She has taught high school science and most recently worked for a nonprofit focusing on early childhood literacy in underserved populations.
- Elaine Luria (VA 2) has an undergraduate degree in physics and a master of engineering management. As an engineer, she operated nuclear reactors in the Navy.

The others are pediatrician Kim Schrier (WA 8); Lauren Underwood (IL 14), a registered nurse; and dentist Jeff van Drew (NJ 2).

Re-elected to Congress are PhD mathematician Jerry McNerney (CA 9) and PhD physicist Bill Foster (IL 11). The House lost Jacky Rosen—a computer programmer, software developer, and proponent of programs to support women and girls in science—but she won her bid for the Senate seat, so she will remain in Congress, representing Nevada.

All this is not to say that legislators with science backgrounds are our *only* allies. Congressional members can introduce legislation on any topic they want, but are most easily able to introduce legislation and promote policies through the committees on which they serve.

There are four congressional committees with power over the NSF—the “appropriating” and “authorizing” committees for each of the House and Senate. The Appropriations Committees—specifically, the Subcommittees on Commerce, Science and Justice in each chamber—decide how much money the NSF receives each year. This money, in turn, is awarded to scientists to support their research through grants. Appropriations committees are powerful, and membership on these committees is sought by many members of Congress.¹³ While the Appropriations Committees in each of the House and Senate are the same in their names and subcommittee structure, this is not the case for the authorizing committees. The NSF authorizing committees are the House Committee on Science, Space, and Technology (SST) and the Senate Committee on Commerce, Science and Transportation (CST). In the House, the

¹³Each of the House and Senate has rules for how committee assignments are made, the structure of each committee, how many committees each member can sit on, etc. These rules are updated and evolve with each new Congress; each chamber has a website with an explanation:

Senate: <https://www.senate.gov/artandhistory/history/common/briefing/Committees.htm>

House: clerk.house.gov/committee_info/index.aspx

This site is also informative: <https://www.congress.gov/committees>.

SST’s Subcommittee on Research and Technology holds jurisdiction over the NSF, as well as university research policy and all matters relating to STEM education. In the Senate, it is the CST’s Subcommittee on Science, Oceans, Fisheries, and Weather.¹⁴

The authorization committees provide guidance about how the NSF spends and manages its appropriated funds. In January 2017, just as he was leaving office, President Obama signed into law the most recent NSF authorizing law—the *American Innovation and Competitiveness Act*. Just to give you an idea of what sort of things are in such an authorization law, the Republicans had been pushing for Congress to have the power to determine how much money goes to each research area funded, that is, to fund the NSF “by directorate.” In part due to efforts by scientists reaching out to their members of Congress and the concerted efforts of scientific society government relations staff, this particular provision did not succeed in making it to the final law, and leaves (at least for the time being) the NSF to determine for itself how to distribute funds among research areas. This effort was pushed by Lamar Smith, who retired at the end of last year but was the powerful chair of the House Committee on Science, Space, and Technology at the time the *American Innovation and Competitiveness Act* was signed into law.

Here are the leaders of the four NSF appropriating and authorizing committees (the Chair is always of the majority party, and the Ranking member is from the minority party):

Subcommittee on Commerce, Science and Justice (of the Senate Appropriations Committee)

Chair Jerry Moran (KS)

Ranking member Jeanne Shaheen (NH)

Subcommittee on Commerce, Science and Justice (of the House Appropriations Committee)

Chair José Serrano (NY 15)

Ranking member Robert Alderholt (AL 4)

Subcommittee on Science, Oceans, Fisheries, and Weather (of the Senate Committee on Commerce, Science and Transportation)

Chair Cory Gardner (CO)

Ranking member Tammy Baldwin (WI)

Subcommittee on Research and Technology (of the House Committee on Science, Space, and Technology)

Chair Haley Stevens (MI 11)

Ranking member Jim Baird (IN 4)

It is important for mathematicians to know which congressional members hold decision-making power about how much money the NSF spends and how it is spent. Lawmakers are especially interested in the concerns of their own constituents. If you have an NSF grant and are doing research that you can convince them is important, or if you

¹⁴For more on these committees in the 116th Congress, see: <https://blogs.ams.org/capitalcurrents/2019/02/16/which-members-of-congress-have-a-say-over-the-nsf>

are working to engage students in STEM fields in their home district or state, they will be interested and may perhaps use your story as ammunition in arguing for Congress to fund the NSF at a robust and sustainable level in years to come. The leaders of the committees, in large part, set the priorities and agendas for the committee work, and they can push legislation that they favor.

There are, of course, other congressional committees with jurisdiction over matters of concern to many mathematicians. For example, the Senate Homeland Security and Governmental Affairs Committee has considered whether or not papers that report on federally funded research should be made available to the public for free. I wrote about “open access” in my March *Notices* column, and it is a topic to watch, perhaps especially as Plan S is implemented in Europe.¹⁵ As another example, the House Education and Labor Committee covers topics ranging from workforce training to student financial aid in higher education to improving employment conditions for contingent faculty—those employed outside of the tenure track. The shift from a Republican-controlled House to a Democratic-controlled House means that the committees’ agendas have shifted. The new Democratic leadership’s ideas about how to ensure access to higher education, reduce cost, and increase graduation rates are markedly different from those of their Republican predecessors.¹⁶ For example, the Democrats propose far more substantial investments in the Pell Grant program than do the Republicans—the Democrats support a larger maximum Pell Grant and propose to index the award amount to inflation in subsequent years. The Democrats would create a new grant program to help community colleges boost graduation and transfer rates.

I write a biweekly blog, and my posts often touch on congressional priorities and actions that might affect mathematicians and mathematics research.



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Credits

Photo of the AMS Committee on Education is by Anita Benjamin.

Photo of Catherine Roberts, Margot Lee Shetterly, and Chris Van Hollen is by Kate Awtrey.

Photo of Karen Saxe is courtesy of Macalester College/David Turner.

¹⁵There has been much written on Plan S; National Academies of Sciences President Marcia McNutt has written an article about how it might interact with society publishers: <https://www.pnas.org/content/early/2019/01/24/1900359116>

¹⁶See www.ihep.org/sites/default/files/uploads/prosper-aha_ihep_analysis_final.pdf.