Department Chairs Discuss Challenges and Solutions at Annual Workshop

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Mathematicians excel in learning from books and papers. But serving as an academic department chair presents a different set of challenges—nuanced interpersonal situations requiring soft skills no mathematics textbook can teach.

“We don’t have any management training, […] and all of a sudden we’re middle management,” said May Mei, who is starting her second year as the chair of the mathematics department at Denison University. “On the one hand, I now report to someone that’s much higher up than me, and on the other hand, I’m in charge of people.”

According to Mei, the only way to learn how to be an effective department chair is to talk with the leaders of other mathematics departments. To that end, the annual AMS Workshop for Department Chairs and Leaders provides a space for chairs from around the country to share their experiences and build a supportive community. The workshop is typically held in January immediately preceding the Joint Mathematics Meetings.

Around 50 participants gathered virtually on April 5 for this year’s workshop, which focused on equity, diversity, and inclusion (EDI) in math departments. Attendees represented departments ranging in size from seven faculty and staff to more than 50 and spanning community colleges, liberal arts schools, and large research universities.

Making a Difference as Chair

Dave Kung began the workshop with an interactive session about diversifying the mathematics community. Kung, the director of policy at the Charles A. Dana Center and the director of MAA Project NExT, urged participants to consider how structures that seem neutral might actually hinder EDI. For instance, at many institutions, students with the most earned credits enroll before the rest of their peers each semester. Given that white students are more likely than Black students to enter college with credits, this system tends to push Black students out of the classes that they want or need in their first year, exacerbating an inequity that persists through graduation, he said.

Next was a session on inclusive hiring practices co-led by Emille Davie Lawrence, the chair of the Department of Mathematics at the University of San Francisco. “I feel like the conversation needs to start to shift and expand away from these very strict notions of what math faculty should look like,” she said later. Rather than just considering the length and prestige of a candidate’s publication list, she said, hiring committees should ask themselves, “[Does the candidate] reflect the students in your
Ongoing Challenges

Luca Capogna, a three-time co-organizer, first attended the workshop in 2014 and finds it valuable every year. Capogna served as department head at Worcester Polytechnic Institute from 2013 to 2020 and is now department chair at Smith College. Like Lawrence, he enjoys helping colleagues and students, though he acknowledges the many challenges that come with the role. Math departments are involved in research, teaching of majors, teaching of other STEM students, service to the college, and service to society at large. “Some of these needs are actually at odds with each other,” he said. “It’s a constant effort in trying to find an equilibrium.”

Multiple workshop attendees noted that they carry substantial responsibility yet little authority. Limited resources, already a perennial concern, have taken center stage as a result of the COVID-19 pandemic. Capogna and others are struggling to fill gaps in the teaching staff. At schools like Denison, with increasing enrollment, but no budget for hiring new math faculty, “Our choice is basically to cut an upper-division course or to increase the size of [calculus] classes,” Mei said. “Neither of those are comfortable options.” Meanwhile, more faculty and students alike are struggling with their mental health.

All these stresses can lead to difficult conversations with students, faculty, staff, or university leadership. In the final workshop session, Kevin Knudson of the University of Florida and Anne Fernando of Norfolk State University advised attendees to approach these potentially fraught interactions with a place of empathy. First and foremost, Knudson said, a chair must listen and help people feel understood.

“A Deeply Human Endeavor”

During session breaks, participants continued a lively discussion of the issues they faced. Juan Gutiérrez talked about his efforts to increase student success in introductory mathematics courses at the University of Texas at San Antonio (UTSA). Around 13,000 students—nearly one-third of the student body at this Hispanic-Serving Institution—take courses in the department each year.

When Gutiérrez became chair in 2019, he requested granular data on students’ grades, choices of majors, and more. He found that success or failure in mathematics was the largest factor in whether students stayed in STEM majors or even graduated at all. “Mathematics truly is a measurable gateway to social mobility,” he said.

For courses with a large standard deviation in the number of D’s, F’s, and withdraws (DFWs) across sections, the UTSA math instructors implemented tighter coordination of curriculum. Now a wiki holds lesson-by-lesson details for most courses. As a result of this and other data-driven efforts, the rate of DFWs in the department dropped from 38% to 25% in just two years.

For Gutiérrez and Lawrence, the workshop provided valuable insights into the broader trends in mathematics departments. “Once you are embedded in one single environment it is very difficult to know what is specific to you and what is general,” Gutiérrez said. “The importance of knowing general problems is that they might permit general solutions, or at least the input of many people to try to find a solution.” The event also fostered camaraderie and connections: The following week, Gutiérrez had one-on-one meetings with two fellow attendees to share more of the strategies that are working for him at UTSA.

As more than four dozen department leaders shared their perspectives, one common theme emerged. Whether a chair is negotiating with the dean, addressing student concerns, or sitting on a hiring committee, “it is a deeply human endeavor to try to lead other humans,” said Mei.