

# Do A Little Every Day: Supporting Diversity in Mathematics Departments

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# Outline

- Introduction
- Building community
- Supporting diversity
- Students taking control
- Working together — and listening
- (Diversity Trainings)
- So where do we start?

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What barriers to building community do you face at your institution?

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- ④ Repeat steps 1-4.

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- A mini-website on how to ask for a recommendation letter.

How do students find such information at your institution?

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So students turn to their connections.

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- Graduate students and professors will talk to them, give them advice, encourage them forward, tell them about opportunities;
- They are surrounded by similar students and faculty, in terms of: race or ethnicity, gender identity, religion, background, socio-economic status, etc.

## Leveling the playing field

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All our informational events are aimed at making members (or prospective members) of the department feel like they are welcome; like they can participate fully; like they can find the support they need like their peers do — even though they might not have the social and support network that their peers have.

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From this stemmed two things:

- an ongoing collaboration with a few key students, highly motivated to have better gender diversity in the math major;
- and a discussion among 2 other faculty members and me, about what we can do to support diversity.

# Faculty diversity discussions

With other faculty members who came to the gender gap panel:

- Over the summer, started reading literature on supporting diversity.
- Brainstorming about how to include more faculty, what our goals were, what our needs were, what we thought the needs of the students might be, how we could support teaching staff grappling with issues of diversity...

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Led me to organize a little “diversity training” at our fall teacher training. **This changed everything.** The last part of my talk will be about such trainings, what they look like and what purpose they serve.



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  - ▶ Incorporated some of those ideas in a training for our course assistants.
  - ▶ (Other available trainings: bystander training from Office of Sexual Assault Prevention and Response, online course on religious literacy, negotiation/mediation/listening skills workshop...)

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- Coming up:
  - ▶ Chocolate tour of Cambridge? (Advising event.)
  - ▶ Dedicated posterboard for math student groups to advertize events.

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- Some social events where they discuss how things are, without faculty present. They might tell me a few major things that came out (such as difficulty to find a study group, which we later addressed).



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Gripe sessions are highly recommended if you are willing to listen (not to defend yourself), if you take it seriously, and if you get back to students about it.

# Results?

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- The word is getting around that we want to support our students coming through calculus (as opposed to those more advanced first-year courses) who want to become math majors.
- We have gained credibility, at least among some students, that some of us really care and are trying our best. That gives students more confidence and trust in us and the department.
- The “Gender Inclusivity” student group is highly successful — at the expense of the math association...
- Some students are still quite critical — all the better to keep us going.

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- More support and outreach to our underrepresented students about specific opportunities for them, in and out of campus; answering their specific needs; bringing down barriers we do not see but they experience.

Pause for questions!

# More on diversity trainings

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PS: They will not solve all your problems, and probably should not be made mandatory.

Sue is a sophomore. Last year, in her math class, students were regularly asked to present proofs at the blackboard in front of other students in their section. Sue's section had 12 students. Below is the order in which the students presented on the first day:

Travis, Sue, Andy, Liz, George, Jimmy, Bob, Paul, Mark, Rick, Zack, Vlad.

Here is what she had to say about her experience:

*Last year, in my math class, all students had to present a proof at the board during section. The first time we did this, Liz started her proof and made a minor mistake (like the kind that Travis, another student, had done before her). The majority of the men in the class put their heads down, groaning. But a few students actually wouldn't let Liz correct herself and they attempted to do the proof for her from their desk.*

*Afterwards, I noticed the guys only started talking to me after I had presented perfectly. I had the feeling that, to be taken as seriously as the average guy, a woman would have to perform above and beyond the norm.*



## Discussion questions for The Case of Sue

- 1 What do you think made Sue feel that “in order to be taken as seriously as an average guy, a woman would have to perform above and beyond the norm”? What is it about the situation that could have made her draw such a conclusion?
- 2 How do you think the class dynamics might have affected Sue, other than what she tells us in the second paragraph?
- 3 As a teacher in the room, what would you have done if you had noticed such a dynamic? What about if Sue, or Liz, or another student, had come to talk to you about it afterwards?
- 4 Think of other factors that might make a student feel different, isolated, self-conscious, ostracized, uncomfortable, etc. How many can you list?
- 5 Have you ever witnessed sexism, racism, etc in a school setting?

Another pause for questions!

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- Are teaching assignment decisions clear? Can students state preferences? Do some students find a more sympathetic ear than others on their preferences?
- What are some issues that graduate students face? Is there a way for them to communicate that? Is there someone listening?

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- Are service and teaching expectations clearly communicated? Does everyone share the burden equally? How can faculty say yes or no, can they state preferences? What happens if someone does not perform well in their service? In their teaching?
- (This applies to graduate students too:) How do you recruit for tenure-track and post-doc positions? Who applies? Who does not apply?

## Other techniques on increasing and supporting diversity

- Teaching techniques (active learning, inquiry-based learning, project learning, teamwork).
- “Emerging Scholars” types of programs, to support STEM-intending underrepresented minorities.
- Curriculum adaptations or changes, or supporting teachers in that.
- More mentoring opportunities: summer, weekend or day programs for underrepresented minorities, ongoing seminars. Research Experience Opportunities (REUs).
- Interventions on students: addressing or reducing stereotype threat, decision gaps, fixed mindset (vs growth mindset).
- Interventions on faculty: trainings on biases and implicit biases, diversity trainings, reading groups.
- Building a “social net” for underrepresented groups, and mathematicians (students, faculty) in general.
- Showcasing alumni, especially ones with non-traditional paths or careers. (Written or video interviews?)

# The money stuff

- MAA (Mathematical Association of America):
  - ▶ Tensor-SUMMA (Strengthening Underrepresented Minority Mathematics Achievement) grants.
  - ▶ NREUP (National Research Experience for Undergraduates Program).
  - ▶ Check out the MAA website, under “Programs” then “Underrepresented Groups” for more resources, for faculty and students.
- AWM (Association for Women in Mathematics) can help student chapters bring speakers in.
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**Note: it might be harder to find time, colleagues and students to work with on this, than it is to find money.**

## So, where do I start?

- Add a blurb to your personal homepage about how you support diversity. (See my website for example and links.)
- Get someone to do a training in your department! Ask around for a few colleagues who will commit to come, then invite the whole department. (And/or offer such a training yourself.)
- Talk to students. Seek them out. Interview graduating seniors or graduate students.
- Ask students what they want or need, and ask them to help you make this happen. Seek their input and help. (“Gripe session”.)
- Attend student events, if they are ok with it. Support students in organizing what they want to organize.
- Start a discussion group — or an AWM chapter! Or even just read one thing with a couple colleagues. Find a way to spark discussions. You never know who your allies might turn out to be.

Visit my website for tips: [scholar.harvard.edu/rbr/diversity](https://scholar.harvard.edu/rbr/diversity)



## Some key take-aways

- Find collaborators, allies at all levels: undergrads, grads, post-docs, faculty.
- The hope is that the social net you build will be self-sustaining.
- Any little thing you do, word will get around.
- Start with one thing, then another, then another. See where this takes you.

Who will commit to doing one thing  
to support diversity  
during the next academic year?