
# People Over Math

## A Co-created Principle for Successful Research Communities

Faculty authors: *Rebecca Garcia, Pamela E. Harris, and Dwight Anderson Williams II*
Graduate student authors: *J. Carlos Martínez Mori and Casandra Monroe*
Undergraduate student authors: *Tomás Aguilar-Fraga, Yasmin Aguillon, Daniel Alofamoni Quiñonez, Dylan Alvarenga, Aalliyah Celestine, Parneet Gill, Imhotep Hogan, Jakeyl Johnson, Kobe Lawson-Chavanu, Lina Liu, Aaron Ortiz, Lauren Quesada, Cynthia Marie Rivera Sánchez, Christopher Soto, Camelle Tieu, Dirk Tolson III, Jacob van der Leeuw, and Pamela Vargas*

**The Mathematical Sciences Research Institute Undergraduate Program (MSRI-UP) is a com-**prehensive research and mentoring program for undergraduates interested in the mathematical sciences, housed at the MSRI and funded in part by the Sloan Foundation, the National Science Foundation, and the MSRI. The main objective of MSRI-UP is to identify and support talented students, especially those from underrepresented backgrounds, through a structured program of mathematical research and professional development opportunities. The theme of the 2021 iteration was "*Parking Functions: Choose your own adventure.*" Bringing together a diverse group of people to connect over mathematics, the mentoring team kickstarted the summer program with an orientation grounded in the idea of building a community of scholars who value people over mathematics.

The "*People over Math*" concept was initially spoken about during Pamela E. Harris's talk "People Over Math: Using Restorative Practices to Build Community," which she gave as the 2020 recipient of the MAA Northeast Section Award for Distinguished College or University Teaching. In her talk, she described her philosophy of building collaborations through honest and sincere relationships that focus on individual responsibility and shared accountability. These practices are the foundation on which she and her collaborators have worked to build communities that value and center people over mathematics. In turn, participants of these communities have published many research manuscripts and articles on the profession. These publications are notable contributions to the field and have been used by funding agencies as a measure of the program's success.

*Clockwise from top left: Dr. Pamela E. Harris, Dr. Rebecca E. Garcia, Dr. Dwight Anderson Williams II, J. Carlos Martínez Mori, and Casandra Monroe,*

But most notable in those past experiences were the student remarks on the joys experienced in these collaborations. Knowing this, we welcomed new MSRI-UP 21 participants by collectively working on a community-building exercise with the following three components: Community Agreement, People Over Math, and Co-created Practices. We describe these three components next.

## Community Agreement

The sample community agreement we utilized is based in part on statements by the Encuentro Colombiano de Combinatoria, the Association for Women in Mathematics, the XOXO Festival, and on confcodeofconduct.com. We provide ours to the right.

## People Over Math

In an effort to co-define our guiding principle, we split the participants into breakout rooms and asked them to discuss their reactions to and interpretations of the motto: People Over Math. Participants subsequently had the opportunity to anonymously share their thoughts. We compile their responses below:

*Before anything else, we are human beings with thoughts, feelings, and emotions.*

*Regardless of what we do in math or how we struggle, we are still people. The subject we love or hate does not define who we are or what we do.*

*Building a community that first values humanity and every aspect of an individual; mathematics then brings this community together.*

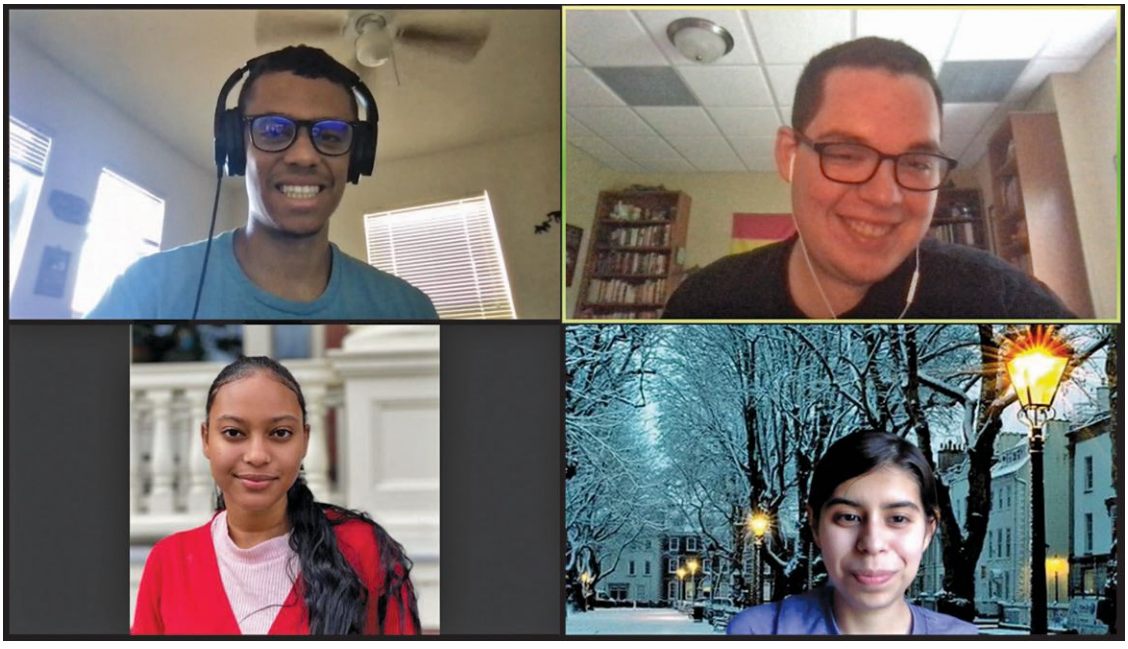
*Regardless of a person's mathematical background or other identifying factors, we should treat them with common decency, respect, and attention.*

### The MSRI-UP 2021 Community Agreement

A rewarding experience for all. The Mathematical Sciences Research Institute Undergraduate Program (MSRI-UP) aims to offer a joyful, rigorous, and empowering experience to every participant. We will build rich experiences together by devoting our strongest efforts to all the activities. You will be challenged and supported. Please be prepared to take an active, critical, patient, and generous role in your own learning and that of the other participants.

A welcoming experience for all. MSRI-UP is committed to creating a professional and welcoming environment that benefits from the diversity of experiences of all its participants. We will not tolerate any form of discrimination or harassment. We aim to offer equal opportunity and treatment to every participant regardless of their mathematical experience, gender identity, nationality, race, ethnicity, religion, age, marital status, sexual orientation, different ability, or any other factor. Behavior or language that is welcome or acceptable to one person may be unwelcome or offensive to another. Consequently, we ask you to use extra care to ensure that your words and actions communicate respect for others. This is especially important for those in positions of authority or power, since individuals with less power have many reasons to fear expressing their objections regarding unwelcome behavior. If a participant engages in discriminatory or harassing behavior, the organizers may take any action they deem appropriate, from warning them to immediately expelling them from the program.

If you or someone else is being harassed, you feel uncomfortable with how you are being treated, or you have any other concerns, please contact Rebecca Garcia or Pamela E. Harris immediately. If you prefer, you can email us anonymously at confidential.msriup@gmail.com which only Rebecca and Pamela have access to. All reports will be handled in confidentiality.



*Clockwise from top left: Jacob van der Leeuw, Tomás Aguilar-Fraga, Yasmin Aguillon, and Pamela Vargas*


*Clockwise from top left: Jakeyl Johnson, Aalliyah Celestine, and Lauren Quesada*

*You are worth more than what you produce. It's all about learning new, interesting things. This can be fulfilling and empowering.*

*It's important we establish a community in which we are all respected, in order to make progress in our mathematical understanding and careers.*

*Our respect for one another stands above our mathematical work.*

*It's about sharing experiences in common with others: the challenges we overcome as a group, the new knowledge we all learn, and most importantly having fun together.*

*Prioritizing the well-being of others over the work we do.*

*Prioritizing and respecting the humanity of others even in this professional academic context.*

*We value the growth and development of our fellow mathematicians over the results of the program. We find strength in collaboration and listening to each other, rather than disregarding our peers in pursuit of individual goals and answers.*

*Ultimately, mathematics is made up of the thoughts, observations, theories, and ideas of people (people are the foundation of our understanding of mathematics; although mathematics can exist on its own, it is through people that others are able to understand and access it), and so by respecting the people involved we are in turn respecting the mathematical community as well. If we exclude any group or person from math, we end up achieving less, because the mathematics produced would lack the input and insights from those person(s).*

*We have to remember that we are humans that make errors and have feelings.*

*We understand the inherent humanity of the practice of mathematics. We, as people, come together to do mathematics, and that mathematics cannot be separated from us and our backgrounds. Our identities are not erased when good mathematics is done, but rather uplifted and celebrated.*

*No one should be judging each other based on their mathematical abilities. While we are here to make mathematical findings, we must respect one another.*

*Making space for others to feel at home and welcome such that they can feel comfortable sharing and contributing.*

*We will be compassionate, respectful, and accepting of the people around us, and this is more important than just 'getting things done.'*

*Not letting the pursuit of mathematical truths override the truth of other people's lived experiences. It means thinking of math as a collaborative project done empathetically with fellow humans, and not just as a thing that 'needs to get solved at all costs.'*

We furthermore raised the question of whether *People Over Math* is in contradiction to creating "good" math. Then, we once again split participants into breakout rooms, had them discuss among themselves, and allowed them to anonymously record their thoughts. We compile their responses below:

*Absolutely not! Mathematics is often viewed as someone secluded in a room alone doing mathematics, but it's not. Think about all the wonderful ideas that would be missed without collaboration and inclusion.*

*The motto is not a contradiction because good mathematics has values within a community of people that have healthy and beautiful relationships. These relationships help flourish mathematics for the better.*

*No. 'Good' mathematics can be where people connect, respect each other, and share their love of mathematics.*

*I don't believe it is contradictory. 'Good' mathematics is a product of community work amongst people. It is not an individual sport!*

*Well, in my perspective I think no. But in reality I think it is a contradiction. Not everyone thinks that way and sees everything as a competition, instead of a path we are all on together.*

*I do not think it's in contradiction. Mathematics is a community, where we collaborate, help each other, and push each other to do better. Different perspectives make up our community.*

*No! Math is oftentimes very creative, and having diversity of experiences/opinions is key in that regard.*

*No. Good mathematics doesn't necessarily mean turning yourself into a robot and cutting out all emotion. It's absolutely possible for people to grow in spaces where expression is encouraged. This allows our understanding to truly grow as a whole.*

*No, we need everything from above to do GOOD mathematics. When the relationship in mathematics and the culture of the workspace becomes negative, the math deteriorates too.*

*The motto is in connection to being good in mathematics or any subject. Understanding we are people first and the challenges we go through impact how 'good' we do in anything.*

*It's not a contradiction, but it's greatly underestimating the potential described by the motto. Under this motto-valuing diversity and people first. I think great mathematics is achievable. People over math is more than good mathematics: it's where we find breakthroughs and reach new heights and discoveries via collaboration. I think this motto is capable of so much more than 'good' mathematics.*

*Not at all! If anything, putting people over math is a catalyst to learning and discovering mathematics. Just looking at this past year, it's become super apparent that we learn best when we do it together and collaborate with others.*

*No, it is not. Biased mathematics is not 'good' mathematics. Often, in the future mathematics (or whatever product) gets viewed through a lens which sometimes needs to be undone, ultimately creating more unnecessary work that could have been solved through community.*

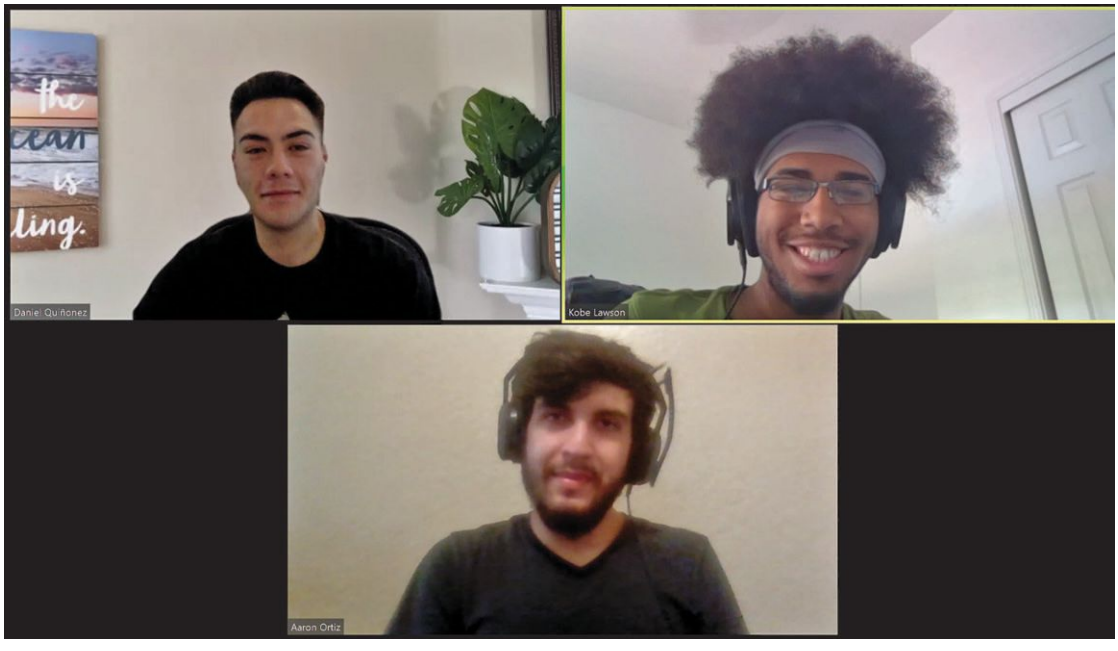
*Within reason it isn't a contradiction, supporting each other helps everyone do their best (With that being said, communication is a complicated and imperfect process).*

*When I hear the phrase 'good mathematics,' I think of a particular model used by people who see the practice of math, in its current form, as a meritocracy, and thus dehumanise mathematics. So I do think 'people over math' is in contrast to this definition of 'good mathematics.' However, that's amazing! The 'good mathematics' model is built on oppressive structures that, by practicing a human-centred mathematics, we can start to dismantle. This helps mathematics be a place of flourishing for all, making it truly good."*

*"In my opinion, absolutely not. Like what was just said, 'people do math,' so people are what need to be welcomed and respected. It is difficult for people to flourish to their fullest potentials when they are in toxic environments and their identities are invalidated. So, how can we expect math and creativity to flourish under such conditions?"*

## Co-created Practices

The *People Over Math* exercise helped us guide participants through a creation of "I statements" which would describe




*Clockwise from top left: Daniel Alofamoni Quiñonez, Kobe Lawson-Chavanu, and Aaron Ortiz*

how we would act and treat each other in order to uphold our motto. After creating a comprehensive list, we voted and selected the following as our practices of MSRI-UP 21.

- I will be honest with my own capabilities and knowledge.
- I will ask when I need help and create an environment where others can do the same.
- I will extend help to those who need it.
- I will listen to my peers.
- I will not assume that everyone knows what I know.
- I will respect that everyone has a different background and knowledge.
- I will not share others' stories without their permission or consent.
- I will make sure everyone has had a chance to voice their opinion.
- I will try to be as inclusive as possible in my communication style.
- I will give others the space to share their ideas.
- I will reach out to my peers and mentors when I am struggling
- I will be open-minded and receptive to the ideas of others.
- I will communicate clearly with my peers when I wish to change something about a shared project, and not do so without their permission.
- I will use language (in writing and in speech) that is clear to everyone and not intentionally hard to understand. In addition, if someone asks for clarification, I will provide it.
- I will respect my peers' ability to make decisions. If a strategy is suggested, it should be open to both respect and helpful criticism.
- I will make sure to always include the time-zone when scheduling time sensitive activities (meetings, hangouts,…)
- I will do my best to look at other's perspectives and work with it even if it is outside of my comfort zone (I will be empathetic towards my peers).
- I will be open to discussion when conflict arises.
- I will try to see my mistakes as ways to improve.
- I will treat everyone with respect.
- I will try to be open to getting to know others.
- I will respect everyone's opinion, thoughts, and values as long as they do not violate human rights or other bylaws previously stated.
- I acknowledge that I and others may carry past negativities or future anxieties. I will try to address them in a way that allows me to thrive in a learning space, understand that others are also on this journey, and meet them where they're at.
- I will make sure that everyone is being included.
- I will be honest and communicate with others.
- I will listen to the advice given by our mentors.
- I will be inclusive and understanding towards this entire community (MSRI-UP '21), as we all come from different backgrounds. We will support this collective diversity, and if we stumble, we will work to build healing and deep understanding.

## Reflections

This set of exercises have helped us build a strong (virtual) community and after a few weeks of working together we see that the exercise has continued to serve us well in our motto

*Clockwise from top left: Cynthia Marie Rivera Sánchez, Dylan Alvarenga, Dirk Tolson III, and Parneet Gill*


*Clockwise from top left: Imhotep B. Hogan, Camelle Tieu, Christopher Soto, and Lina Liu*

of emphasizing people within the mathematical collaborations we are building.

We conclude by summarizing our reactions to *People Over Math* with the following co-created definition:

**Definition (People Over Math):** *Mathematics and its people (i.e., mathematicians) cannot be decoupled. Diverse people produce diverse math; there is no one-size-fits-all in people, neither should there be in math. In doing math, we must not forget the people aspect: we learn differently, we communicate differently, we value things differently.*

Moreover, we complement this definition with the following co-created remark about *People Over Math* and doing "good" mathematics:

**Remark:** *People Over Math is not only not in contradiction to doing "good" math; it is a catalyst for it.*

**Acknowledgment.** Our community agreement is based on the Encuentro Colombiano de Combinatoria Community Agreement, which credits statements by the Association for Women in Mathematics, the XOXO Festival, and confcodeofconduct.com.

*Rebecca E. Garcia is professor of mathematics at Sam Houston State University, co-director for MSRI-UP, and project director for the MAA National REU Program. Pamela E. Harris is associate professor of mathematics and faculty fellow of the Office of Institutional Diversity, Equity and Inclusion at Williams College. Dwight Anderson Williams II is MathDwight, co-organizer of Black in Math week, and the MSRI-UP 2021 postdoctoral research advisor. Tomás Aguilar-Fraga, Harvey Mudd College, Class of 2023; Yasmin Aguillon, Swarthmore College, Class of 2022; Dylan Alvarenga, California Polytechnic State University, Pomona, Class of 2022; Aalliyah Celestine, Xavier University of Louisiana, Class of 2022; Parneet Gill, California State University, Fresno, Class of 2022; Imhotep B. Hogan, Florida A&M University, Class of 2022; Jakeyl Johnson, San Francisco State University, Class of 2022; Kobe Lawson-Chavanu, Morehouse College, Class of 2023; Lina Liu, University of Wisconsin at Madison, Class of 2022; Aaron Ortiz, The University of Texas at El Paso, Class of 2022; Lauren Quesada, Pomona College, Class of 2022; Daniel Alofamoni Quiñonez, University of California at Irvine, Class of 2023; Cynthia Marie Rivera Sánchez, University of Puerto Rico at Río Piedras, Class of 2024; Christopher Soto, Queens College, City University of New York, Class of 2023; Camelle Tieu, University of California at Irvine, Class of 2022; Dirk Tolson III, Sonoma State University, Class of 2022; Jacob van der Leeuw, University of Arizona, Class of 2022; Pamela Vargas, Smith College, Class of 2022.*

## Calling all Math Photojournalists!

To celebrate the joy of talking about math in person, *MAA FOCUS* would like to see the view of MAA MathFest from the conference floor. Can you help? We would like your best photos of the joy and excitement that comes from doing math with your friends at the conference. Help share with others using the hashtag #MAAthFestPics and if you submit your photo to this form

bit.ly/3lAu4vC

by Aug 15th it will go into consideration for the October/November cover!

Please be respectful of others when taking photos and record who is in the photograph.