MAA Project NExT

NEW EXPERIENCES IN TEACHING

AUGUST 2-6, 2021

INCOMING COHORT: GOLD'21

RETURNING COHORT: BROWN'20

Important Information

ALL TIMES ARE MOUNTAIN TIME!

The room numbers in the program are links to the Zoom rooms.

All MAA Project NExT Zoom rooms use the same easy-to-remember **password: 314159**

- Room 1 - maa.zoom.us/j/7868662237
- Room 2 - maa.zoom.us/j/9423952982
- Room 3 - maa.zoom.us/j/6516512938
- Room 4 - maa.zoom.us/j/4742857194
- Room 5 - maa.zoom.us/j/6569498968
- Room 6 - maa.zoom.us/j/2397039967
- Room 7 - maa.zoom.us/j/8783348827
- Room 8 - maa.zoom.us/j/3136455430

Social hours, homerooms and courses are listed with "Schedule" rather than a room in the program. That link goes to the public schedule so you can see the different rooms and choose the correct one.

Additional sources of scheduling information:

- the public schedule
- the list of Gold '21s and their assignments

NOTE: All times are Mountain Time.

MAA Project NExT SILVER'19 Fellows at MAA MathFest in 2019.

SCHEDULE

MONDAY, AUGUST 2 (GOLD '21)

9:00–9:15 AM	HOMEROOM	SCHEDULE
9:15–10:15 AM	PLENARY **Welcome & Icebreaker** Dave Kung, *St. Mary's College of Maryland* (Gold, 2000) Director, MAA Project NExT	ROOM 8
10:15–10:30 AM	BREAK	
10:30–11:45 AM	PLENARY **Welcome to the Profession** Various	ROOM 8
11:45 AM–12:15 PM	BREAK	
12:15–1:30 PM	PANEL	ROOM 8
	Interactive Teaching Demos **MAA Project NExT Leadership Team:** Alissa S. Crans, *Loyola Marymount University* (Orange, 2004) Matt DeLong, *Marian University* (Brown, 1999) Trish Hammer, *Virginia Tech* Alicia Prieto Langarica, *Youngstown State University* (Brown, 2013)	
1:30–1:45 PM	BREAK	
1:45–3:00 PM	PLENARY	ROOM 8
	Rising to the Challenge of Diversifying STEM Dave Kung, *St. Mary's College of Maryland* (Gold, 2000) Director, MAA Project NExT	
3:00–3:15 PM	BREAK	
3:15–3:30 PM	TEACHING SUPPORT GROUPS	SCHEDULE
3:30–4:30 PM	SOCIAL HOUR	SCHEDULE

NOTE: All times are Mountain Time.

TUESDAY, AUGUST 3 (GOLD '21)

8:00-9:00 AM	SOCIAL HOUR	SCHEDULE
9:00-9:15 AM	HOMEROOM	SCHEDULE
9:15-10:15 AM	PLENARY **Creating Equitable Learning Environments: Mindsets Matter for STEM Teachers** Catherine Good, *Baruch College and The Graduate Center of the City University of New York*	ROOM 8
10:15-10:30 AM	BREAK	
10:30-11:45 AM	BREAKOUT SESSIONS **Experiences in Teaching Introduction to Data Science -** Christopher Malone and Todd Iverson **Collaborative Learning in College Mathematics -** Matt DeLong **Advising Students on Careers in Mathematics -** Shelby Wilson **Starting a New Program When You are not an Expert in the Field: an Example with Actuarial Science -** Marco Martinez **Using Japanese Lesson Study to Structure Peer Classroom Observations -** Nina White **Overcoming Math Anxiety in the Classroom -** Adriana Salerno and Ursula Whitcher	ROOM 1 ROOM 2 ROOM 3 ROOM 4 ROOM 5 ROOM 6
11:45 AM-12:15 PM	LUNCH	
12:15-1:30 PM	BREAKOUT SESSIONS **Experiences in Teaching Introduction to Data Science -** Christopher Malone and Todd Iverson **Collaborative Learning in College Mathematics -** Matt DeLong **Advising Students on Careers in Mathematics -** Shelby Wilson **Starting a New Program When You are not an Expert in the Field: an Example with Actuarial Science -** Marco Martinez **Using Japanese Lesson Study to Structure Peer Classroom Observations -** Nina White **Overcoming Math Anxiety in the Classroom -** Adriana Salerno and Ursula Whitcher	ROOM 1 ROOM 2 ROOM 3 ROOM 4 ROOM 5 ROOM 6
1:30-1:45 PM	BREAK	
1:45-3:00 PM	BREAKOUT SESSIONS **Experiences in Teaching Introduction to Data Science -** Christopher Malone and Todd Iverson **Collaborative Learning in College Mathematics -** Matt DeLong **Advising Students on Careers in Mathematics -** Shelby Wilson **Starting a New Program When You are not an Expert in the Field: an Example with Actuarial Science -** Marco Martinez **Using Japanese Lesson Study to Structure Peer Classroom Observations -** Nina White **Overcoming Math Anxiety in the Classroom -** Adriana Salerno and Ursula Whitcher	ROOM 1 ROOM 2 ROOM 3 ROOM 4 ROOM 5 ROOM 6
3:00-3:15 PM	BREAK	
3:15-3:30 PM	TEACHING SUPPORT GROUPS	SCHEDULE
3:30-4:30 PM	SOCIAL HOUR	SCHEDULE

GOLD '21 SCHEDULE

NOTE: All times are Mountain Time.

TUESDAY, AUGUST 3 (BROWN '20)

8:00–9:00 AM	SOCIAL HOUR	SCHEDULE
8:00–9:00 AM	BREAK	
9:15–10:15 AM	PLENARY	ROOM 8
	Creating Equitable Learning Environments: Mindsets Matter for STEM Teachers Catherine Good, *Baruch College and The Graduate Center of the City University of New York*	
10:15–10:30 AM	BREAK	
10:30–11:45 AM	BROWN '20 SESSIONS (CHOOSE ONE)	
	Equitable Teaching and Grading Practices	ROOM 7
	Panelists: Abbey Bourdon, *Wake Forest University*; Maria Mercedes Franco, *Queensboro Community College CUNY*; and William Yslas Velez, *University of Arizona (Emeritus)* **Organizers:** Amanda Laubmeier, Jeffery Musyt, Emily Fischer, and Tova Brown	
	Alternatives to Exams and Grading	ROOM 8
	Panelists: Spencer Bagley, *Westminster College*; Marko Budisic, *Clarkson University*; Jakob Kotas, *University of Portland*; Liz Stanhope, *Lewis & Clark College*; and Ian Whitehead, *Swarthmore College* **Organizers:** Derek Tomlin, Lucas Van Meter, Simone Sisneros-Thiry, and Diego Ricciotti	
11:45 AM–12:15 PM	LUNCH	
12:15–1:30 PM	BROWN '20 SESSIONS (CHOOSE ONE)	
	Adventures in Undergraduate Research	ROOM 7
	Panelists: Kumar Pial Das, *University of Louisiana at Lafayette*; Vinodh Chellamuthu, *Dixie State University*; and Luciano Medina, *New York University* **Organizers:** Sun Mingwei, Amakoe Gbedamah, Md Sazib Hasan, and James Cornish	
	Professional Activities for Teaching Focused Faculty	ROOM 8
	Featuring: Su Dorée, *Augsburg College*; Stan Yoshinobu, *University of Toronto;* Sayonita Ghosh Hajra, *California State University-Sacramento*; Emily Cilli-Turner, *University of La Verne* **Panelists:** Jono Herman, Tori Akin, Wei-Kai Lai **Organizers:** David Duncan, Francesca Gandini, Amy Grady, and Whitney Liske	
1:30–1:45 PM	BREAK	
1:45–3:00 PM	BROWN '20 SESSIONS (CHOOSE ONE)	
	Mathematics for Social Justice	ROOM 7
	Panelists: Kenan Ince, *Westminster College*; Gizem Karaali, *Pomona College*; Lily Khadjavi, *Loyola Marymount University*; Katy Ott, *Bates College* **Organizers:** Blain Patterson, John Miller, Kate Meyer, and Sara Chari	
	Best Practices in Developing New Courses/Open Educational Resources	ROOM 8
	Panelists: Csilla Szabo, *Skidmore College*; Nathan Wakefield, *University of Nebraska-Lincoln*; Karina Uhing, *University of Nebraska-Omaha* (OER) **Organizers:** Erica Rutter, Ariel Setniker, Kirsten Hogenson, and Joanne Lin	
3:00–3:30 PM	BREAK	
3:30–4:30 PM	SOCIAL HOUR	SCHEDULE

NOTE: All times are Mountain Time.

WEDNESDAY, AUGUST 4 (GOLD '21)

8:00-9:00 AM	SOCIAL HOUR	SCHEDULE
9:00-9:15 AM	HOMEROOM	SCHEDULE
9:15-10:15 AM	PLENARY	ROOM 8
	Making the Most of Your Precious Time Alissa S. Crans, *Loyola Marymount University* (Orange, 2004)	
10:15-10:30 AM	BREAK	
10:30-11:45 AM	BREAKOUT SESSIONS	
	Active Learning with Active Calculus - Matt Boelkins	ROOM 1
	Charting Your Career Course - Trish Hammer	ROOM 2
	Teaching Proof as a Way of Knowing - Brian Katz	ROOM 3
	Creating a Vibrant & Inclusive Community - Dave Kung	ROOM 4
	Orienting Your Classroom Around Inquiry - Valerie Peterson	ROOM 5
	Real Analysis: An Active Approach - Carol Schumacher	ROOM 6
11:45-12:15 PM	LUNCH	
12:15-1:30 PM	BREAKOUT SESSIONS	
	Active Learning with Active Calculus - Matt Boelkins	ROOM 1
	Charting Your Career Course - Trish Hammer	ROOM 2
	Teaching Proof as a Way of Knowing - Brian Katz	ROOM 3
	Creating a Vibrant & Inclusive Community - Dave Kung	ROOM 4
	Orienting Your Classroom Around Inquiry - Valerie Peterson	ROOM 5
	Real Analysis: An Active Approach - Carol Schumacher	ROOM 6
1:30-1:45 PM	BREAK	
1:45-3:00 PM	BREAKOUT SESSIONS	
	Active Learning with Active Calculus - Matt Boelkins	ROOM 1
	Charting Your Career Course - Trish Hammer	ROOM 2
	Teaching Proof as a Way of Knowing - Brian Katz	ROOM 3
	Creating a Vibrant & Inclusive Community - Dave Kung	ROOM 4
	Orienting Your Classroom Around Inquiry - Valerie Peterson	ROOM 5
	Real Analysis: An Active Approach - Carol Schumacher	ROOM 6
3:00-3:15 PM	BREAK	
3:15-3:30 PM	GOAL SETTING	ROOM 8
3:30-4:30 PM	SOCIAL HOUR	SCHEDULE

NOTE: All times are Mountain Time.

THURSDAY, AUGUST 5 (GOLD '21 AND BROWN '20)

Thursday's sessions are on the MAA MathFest conference platform (HopIn). See email for miniourse assignments. See the Public Schedule for links.

9:00–11:00 AM

PROJECT NEXT COURSES

Jumpstarting your Scholarship Program SCHEDULE
- Alissa Crans, *Loyola Marymount University*
- Zhilan Feng *National Science Foundation, DMS*
- Sandra Richardson, *National Science Foundation, DUE*

The Who, Why, and How of Undergraduate Research in Math SCHEDULE
- Alicia Prieto Langarica, *Youngstown State University*
- Cindy Wyels, *California State University-Channel Islands*

Yes, Mathematics Faculty can Successfully Teach Mathematically Oriented First-Year Seminars! SCHEDULE
- Steve Morics, *University of Redlands*

The Mathematical Education of Prospective K-12 Teachers SCHEDULE
- Yvonne Lai, *University of Nebraska at Lincoln*

Mathematics for Social Justice SCHEDULE
- Maria Mercedes Franco, *Queensborough Community College (CUNY)*
- Gizem Karaali, *Pomona College*
- Lily Khadjavi, *Loyola Marymount University*

Interdisciplinary and Inclusive Modeling Across the Curriculum SCHEDULE
- Carrie Diaz-Eaton, *Bates College*

Mastery Based Grading: Improving student learning, increasing student motivation and celebrating the joy of teaching using a more equitable grading system SCHEDULE
- Robert Bosley, *California State University-Los Angeles*
- Sharona Krinsky, *California State University-Los Angeles*

Visualizing Multivariable Calculus and Differential Equations with CalcPlot3D SCHEDULE
- Paul Seeburger, *Central Michigan University*
- Monica VanDieren, *Robert Morris University*
- Shelby Stanhope, *US Air Force Academy*

FRIDAY, AUGUST 6 (GOLD '21 AND BROWN '20)

9:00–11:00 AM

PROJECT NEXT COURSES

Jumpstarting your Scholarship Program SCHEDULE
- Alissa Crans, *Loyola Marymount University*
- Zhilan Feng *National Science Foundation, DMS*
- Sandra Richardson, *National Science Foundation, DUE*

The Who, Why, and How of Undergraduate Research in Math SCHEDULE
- Alicia Prieto Langarica, *Youngstown State University*
- Cindy Wyels, *California State University-Channel Islands*

Yes, Mathematics Faculty can Successfully Teach Mathematically Oriented First-Year Seminars! SCHEDULE
- Steve Morics, *University of Redlands*

NOTE: All times are Mountain Time.

Friday's sessions are on the MAA MathFest conference platform (HopIn). See email for miniourse assignments.

The Mathematical Education of Prospective K-12 Teachers SCHEDULE
- Yvonne Lai, *University of Nebraska at Lincoln*

Mathematics for Social Justice SCHEDULE
- Maria Mercedes Franco, *Queensborough Community College (CUNY)*
- Gizem Karaali, *Pomona College*
- Lily Khadjavi, *Loyola Marymount University*

Interdisciplinary and Inclusive Modeling Across the Curriculum SCHEDULE
- Carrie Diaz-Eaton, *Bates College*

Mastery Based Grading: Improving student learning, increasing student motivation and celebrating the joy of teaching using a more equitable grading system SCHEDULE
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- Sharona Krinsky, *California State University-Los Angeles*

Visualizing Multivariable Calculus and Differential Equations with CalcPlot3D SCHEDULE
- Paul Seeburger, *Central Michigan University*
- Monica VanDieren, *Robert Morris University*
- Shelby Stanhope, *US Air Force Academy*

11:00–11:50 AM

LEITZEL LECTURE

Lessons from 10+ Years of College Math Instructor Teaching Professional Development
- Stan Yoshinobu, *University of Toronto*

2:00–3:00 PM

GRADUATION AND CLOSING THOUGHTS (BROWN '20S ONLY) SCHEDULE

Staging your Mathematical Career
- Matt DeLong, *Marian University* (Brown, 1999)

BROWN '20 AND GOLD '21

NOTE: All times are Mountain Time.

2021–2022 PROJECT NExT FELLOWS
GOLD '21 COHORT

Soumyadip Acharyya
University of South Carolina Sumter

Ayomikun C Adeniran
Pomona College

Konrad Aguilar
Pomona College

Kyle T Allaire
Worcester State University

Hannah Chang
Alpert Auburn University

Amy Been Bennett
University of Nebraska-Lincoln

John Henry Bergschneider
University of North Georgia

Zhanar Berikkyzy
Fairfield University

Tyler Raven Billingsley
St. Olaf College

Wade Bloomquist
Georgia Institute of Technology

Robyn Kaye Brooks
Boston College

Bradley Lewis Burdick
University of California, Riverside

Lauren Giselle Parker Cappiello
California State University, Sacramento

Lucas Castle
North Carolina State University

Harini Chandramouli
Harvard University

Anastasia M Chavez
University of California, Davis

Sunitta Chepuri
University of Michigan

Philip S. Chodrow
University of California, Los Angeles

Erika David Parr
Rhodes College

Michael Dougherty
Swarthmore College

Joshua Robert Edge
Denison University

Charles Matthew Evans
Oberlin College

Wen Feng
Niagara University

Luis Miguel Fernandez
The University of Texas Rio Grande Valley

Nathan Fox
Canisius College

Federico Galetto
Cleveland State University and Statistics

Joash Geteregechi
Ithaca College Department

Niloofar Ghorbani
University of Texas at Arlington

Juna Goo
Fred Hutchinson Cancer Research Center

Opal Jane Graham
University of North Georgia

Jamie Haddock
UCLA

Wesley Hamilton
University of North Carolina at Chapel Hill

Katherine Elizabeth Harris
North Carolina State University

Alexander M Henderson
Northland Pioneer College

Daniel Hess
University of Chicago

Joseph Ansel Hoisington
University of Georgia

Enahoro Amos Iboi
Spelman College

Daniel Reid Irvine
Georgia Institute of Technology

Peter Jantsch
Wheaton College

Matthew Dolan Jobrack
Ramapo College of New Jersey

Carter Johnson
University of Utah

John H Johnson
The Ohio State University

Tiffany Jones
The University of Arizona

Selvi Kara
University of South Alabama

Omid Khormali
University of Evansville

Minho Kim
Baylor University

Melanie King
Cornell College

Rachel Kirsch
Iowa State University

Joe Klobusicky
The University of Scranton

Cassidy F Krause
University of Kansas

Naomi Lynne Krawzik
Sam Houston State University

Sabine J Lang
University of Denver

Xiyue Liao
California State University, Long Beach

Kate Lorenzen
Iowa State University

Molly Lynch
Hollins University

Rachel Lynn
Purdue University

Kiran Kumar Mainali
University of the Incarnate Word

Alekzander J Malcom
Oklahoma State University

Md Abdulla Mamun
Gonzaga University

Kelsey A Marcinko
Whitworth University

Chase O Mathison
Shenandoah University

Brent M McKain
Nebraska Wesleyan University

Ariana Mendible
University of Washington

Cornelia Mihaila
University of Chicago

Joshua Lee Mike
Saginaw Valley State University

Allison N Miller
Rice University

Alexia S Mintos
University of Delaware

Heather M Muchowski
Iowa State University

Laura Murray
Providence College

Lisa Naples
University of Connecticut

Benjamin Nassau
Rowan University

Rachel Neville
Northern Arizona University

Jessie Oehrlein
Columbia University

Tolulope N Oke
Texas A&M University

Erica Kathleen Oldaker
Washington and Lee University

NOTE: All times are Mountain Time.

2021-2022 PROJECT NExT FELLOWS GOLD '21 COHORT

Nicholas Owad
Hood College

Bruce E Pell
Lawrence Technological University

Dylan Quintana
University of Chicago

Stephanie J Reed
California State University Fullerton

Nandita Sahajpal
Earlham College

Kalila Sawyer
Colorado School of Mines

Noelle Sawyer
Southwestern University

Allechar Serrano Lopez
University of Utah

Jacob Zell Shapiro
University of Dayton

Min Shu
University of Wisconsin-Stout

Alexander Harris Sistko
Manhattan College

Brielle Spencer-Tyree
High Point University

Amelia Stone-Johnstone
San Diego State University

Kathleen Storey
University of Michigan

Cara Jill Sulyok
University of Tennessee, Knoxville

Allison S Theobold
California Polytechnic University

Chung-Nan Tzou
Penn State University

Rosaura Uscanga Lomeli
Oklahoma State University

Marilyn Y Vazquez Landrove
Ohio State University

Rebecca Wakeman
Indiana Wesleyan University

Lu Wang
Western New England University

Enzo Wendler
Colorado Mesa University

Megan Green Wendler
Colorado Mesa University

Jay White
University of Kentucky

Tian An Wong
University of Michigan-Dearborn

Adam Wood
St. Olaf College

Sofya Zaytseva
University of Georgia

Liyang Zhang
Fairfield University

Na Zhang
Towson University

Lihong Zhao
University of California, Merced

MAA Member Discount Programs

MAA Affinity Programs provide our members with real savings opportunities. Our affinity partners offer everything from membership in the NASA Federal Credit Union to discounts on auto insurance and identity theft protection, to hotel stays and office supplies. MAA Member Discounts can save you hundreds of dollars, while every purchase you make helps support the MAA.

List of business partners participating in our Affinity Group Benefits:

- The Great Courses Plus
- Cruises Only
- Wyndham Hotels
- Office Depot
- Hertz
- Dollar Car Rental
- Thrifty Car Rental
- Endless Vacation Rentals
- Orlando Vacation
- LifeLock
- Long-Term Care Resources
- MetLife Auto and Home Insurance

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ABSTRACTS

PLENARY SESSIONS

Creating Equitable Learning Environments: Mindsets Matter for STEM Teachers

Catherine Good

Ability-impugning stereotypes have been implicated in race and gender gaps in students' STEM achievement, aspirations, and learning, a phenomenon known as stereotype threat. Research-based interventions to help students overcome the impact of stereotype threat include shaping their mindsets about ability, effort, and belonging. This session will provide many classroom-based strategies for helping students thrive, such as encouraging students to view intelligence as a malleable quality and fostering students' sense of belonging to the math domain.

Staging your Mathematical Career

Matt DeLong

The early-career professional development provided through MAA's Project NExT addresses all aspects of the academic vocation—teaching, scholarship, service, and professional activity. Careers can also be thought of as having stages. In this closing session, we will project forward and reflect backwards on these stages. In particular we will consider the unique professional development needs and opportunities associated with the different stages, and how we as a mathematical community can support one another along the journey.

BREAKOUTS – Tuesday

Experiences in Teaching Introduction to Data Science

Christopher Malone and Todd Iverson

The curriculum for an introductory data science course varies tremendously as the definition of data science depends on one's perspective. This workshop will discuss how the curriculum for our introductory data science course has changed so that students who have a diverse background in computing can succeed. Best practices, including specific examples, for the teaching of an introductory data science course will be presented.

Collaborative Learning in College Mathematics

Matt DeLong

We will explore, and participate in, using collaborative (small-group) learning strategies in college mathematics courses. We will discuss the advantages and disadvantages of small-group learning. Demonstrations of collaborative learning strategies will prompt conversation about practical matters, such as group size, group formation, group management, assessment, grading, and getting student buy-in. This session is geared towards novice practitioners of collaborate learning. It should equip participants to begin incorporating collaborative learning strategies during class sessions and in out-of-class assignments in courses of various levels, sizes, and venues, including online.

Advising Students on Careers in Mathematics

Shelby Wilson

"You can do anything with a degree in Mathematics." is a saying that we often share with our students. While this adage rings mostly true, guiding our students through the world of opportunities can be daunting; particularly when our own career choices have led us down a particular path. During this session, we will brainstorm how to most effectively have these conversations with our students. We will talk about what motivates them, which characteristics might indicate their success on a particular path, and most importantly, what are the key steps they must take in order to be successful in their choice. Our discussion will center around three main professional categories : K–12 education, academia, and industry.

Starting a New Program When You are not an Expert in the Field: an Example with Actuarial Science

Marco Martinez

Your department may be having conversations about creating new programs (major or minor), in data science, statistics, applied mathematics, or actuarial science. It is possible there are no experts in those fields in your department. A particular issue for smaller universities. In this session, we will discuss how you can become the lead person in the design, launch, and management of these programs even when you are not an expert in any of those fields. I will give insights, lessons learned, and advice with my experience building an actuarial science program at North Central College.

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BREAKOUTS – Tuesday (cont.)

Using Japanese Lesson Study to Structure Peer Classroom Observations

Nina White

In this session we will hone our observation skills using video of classroom mathematics teaching. We will consider ways in which a group of instructors can leverage shared classroom observations to shape collaborative inquiry into instructional improvement.

Overcoming Math Anxiety in the Classroom

Adriana Salerno and Ursula Whitcher

Math anxiety is a collection of negative emotional responses to math or thinking about doing math, often mirroring "fight or flight" responses when experiencing clinical anxiety. These negative emotional responses can have serious detrimental effects on students, including diminished concentration and working memory. In this session, we will discuss some strategies to prevent and address math anxiety by working on some specific classroom scenarios.

BREAKOUTS – Wednesday

Active Learning with Active Calculus

Matt Boelkins

Active Calculus is a collection of three free, open-source textbooks that have been designed for interactively engaging students in precalculus, single variable calculus, and multivariable calculus; see activecalculus.org/ for more information. In this session, we'll focus on first-semester single variable calculus and discuss

- practical tips for using activities to engage students to help them build conceptual understanding
- structuring both an overall course and individual class meetings to promote and support active learning
- the challenges and opportunities of using this approach in a socially-distanced or remote-learning setting

Participants will likely be assigned a short assignment to complete in advance of the session.

Charting Your Career Course

Trish Hammer

Regardless of the stage of your career, there are ways of thinking and doing now that will help ensure a successful and satisfying mathematical academic career. In this session, we'll share examples and engage in activities focused on understanding the 'mystery' of tenure and promotion, saying 'yes' (and 'no'), balancing priorities of work (and the priorities of work/life), and listening to your inner voice as you make big and little career decisions. Topics will be presented by a senior college administrator/mathematics professor with plenty of experience (and real life examples).

Teaching Proof as a Way of Knowing

Brian Katz

Children constantly ask "Why?", but our mathematics education system burns this out of most of them by the time we see them in an intro-to-proofs course. As a result, the learning objectives in these courses often feel willfully purposeless and disconnected from meaning for students, which I think contributes to the well-documented difficulties students have in these courses. In this session, we will explore multiple, connected strategies I use to help students experience proof as a way of knowing in which they are participating. I expect that we will get a taste of multiple strategies and get to dig more deeply into one strategy, but participants will also get access to resources to explore the rest of the strategies more deeply after our short session.

Orienting Your Classroom Around Inquiry

Valerie Peterson

We'll drill down to the heart of inquiry—inquiring into students' thinking and using this to guide your instructional choices—and talk about how to support it in a variety of teaching landscapes. We'll delve into what inquiry is (and isn't), why we might want to engage students in it, the kinds of rich activities that help generate it, and the skills, norms, and methods useful in fostering it. Informed by research and the experiences of those present, our goal will be to arrive at some tangible take-aways to help instructors start building inquiry into their classes immediately. Specific curricular materials for differential equations, linear algebra, and abstract algebra (among others) will be highlighted. Geared mostly towards math faculty who are in the "curious" or "mental try on" stages of pedagogical adoption, this session is also appropriate for more seasoned practitioners—all are welcome!

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ABSTRACTS

BREAKOUTS – Wednesday (cont.)

Creating a Vibrant & Inclusive Community

Dave Kung

All humans long to be accepted members of a community—including our students. We'll look at the many ways some math programs have avoided being the unwelcoming gatekeepers of the STEM fields, choosing instead to create vibrant departments that welcome all students into the mathematics community. No matter where you teach, you'll pick up tips and tricks for creating more cohesive (and successful!) classes, departments, and communities.

Real Analysis: An Active Approach

Carol Schumacher

In an introductory real analysis course, students seriously confront the mathematics of limiting processes for the first time. One of our trickiest tasks as teachers is to find ways of helping students make direct connections between their intuition about limiting processes from their calculus classes and the mathematical formulations that we use to make these precise. This workshop will help fellows think about how to get students actively engaged in the business of proving theorems from real analysis. In particular, this involves reading, understanding and negating statements with stacked quantifiers; using analytical definitions involving quantifiers as "organizing principles" for planning and writing a proof; understanding the difference between proving a theorem in which a complicated sentence involving quantifiers is a conclusion and using such a sentence as a hypothesis in proving a theorem about something else. As time permits, I will also talk about the connections between geometric and analytical ideas, the importance of using good pictures (and some examples of such!), how to help students make connections between heuristic ("closer and closer") language and the precise language of "epsilonics."

COURSES

Jumpstarting your Scholarship Program

Alissa Crans, Zhilan Feng, and Sandra Richardson

The two days of this course will have different foci. One will feature an overview of the NSF, consisting of an introduction to programs that support both research in the mathematical sciences and innovations in learning and teaching, together with tips for writing strong proposals. During the second session, we will discuss numerous aspects of a scholarship program, including how to find possible problems and collaborators, presenting your research, writing up your results, and getting your work published. We will also spend time setting goals and priorities for the upcoming year or two and make a plan for how to achieve those goals. Both days will provide plenty of time for questions and discussion.

The Who, Why, and How of Undergraduate Research in Math

Alicia Prieto Langarica and Cindy Wyels

This course will be an open discussion on undergraduate research in mathematics. From why and how to do it, to where to find, or come up with, good accessible problems, we will discuss our experiences and come up with a plan to be implemented the following academic year. This will be a hands on, active learning workshop and attendants will be expected to work.

Yes, Mathematics Faculty can Successfully Teach Mathematically Oriented First-Year Seminars!

Steve Morics

In this course, we will explore how you can conduct a first-year seminar (FYS) with a mathematical theme. General advice and specific examples of topics, course structures, activities, and assignments will be provided for new and veteran FYS instructors. By the end of the course, you will have a collection of ideas to develop your own first-year experience course containing mathematical content or mathematical or quantitative themes.

Mathematics for Social Justice

Maria Mercedes Franco, Gizem Karaali, and Lily Khadjavi

How can mathematics faculty foster critical thinking and empower students to analyze social justice issues? This session provides examples of applications of mathematics and statistics to real-world issues, such as racial profiling, environmental justice, and more. Participants will be able to incorporate examples and projects into a variety of courses and approach developing their own; beginners and experts are welcome.

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COURSES (cont.)

The Mathematical Education of Prospective K-12 Teachers

Yvonne Lai

This interactive course will address the role of mathematics faculty in preparing prospective K-12 teachers for their future teaching. We will talk about the various guiding documents and what they say, the research basis for these documents, as well as how these documents are artifacts of and responses to the "Math Wars" of the 1980's to 2000's. We will then discuss the concept of mathematical knowledge for teaching, as well as take up issues of equity and equitable teaching practices in courses designed for prospective K-12 teachers. We will go through sample assignments that connect mathematics and K-12 teaching, and discuss how to give feedback on such assignments. This course will be based on current research in the area of mathematics teacher education.

Interdisciplinary and Inclusive Modeling Across the Curriculum

Carrie Diaz-Eaton

We will define and explore models and modeling in a way that promotes inclusivity of people and disciplinary perspectives. Throughout, we will offer multiple opportunities to connect this framework to your research, your classroom, and your life. This should be of interest to anyone teaching general education courses through upper-level applied mathematics courses.

Mastery Based Grading: Improving student learning, increasing student motivation and celebrating the joy of teaching using a more equitable grading system

Robert Bosley and Sharona Krinsky

In this era of focus on equity and learning, it behooves faculty to consider the impact of grading on equitable student learning. In this course, we will explore the fundamental principles of mastery-based grading, a set of grading practices in which student grades are determined by a students' ability to demonstrate mastery of specific learning objectives. Participants in the course will examine how grading impacts students learning, learn about the science of learning, and begin the process of designing a course to utilize mastery grading.

Visualizing Multivariable Calculus and Differential Equations with CalcPlot3D

Paul Seeburger

This course explores the use of CalcPlot3D to visualize topics in multivariable calculus and differential equations. CalcPlot3D is a free, versatile, JavaScript web app for use on phones, tablets and computers, developed by the presenter through NSF-IUSE #1524968. Participants will use the app to visually verify problems from a variety of topics in both courses including the plane through 3 points, the intersection of two surfaces, the domain of a function of two variables, the general solution of a 1st-order differential equation, and general solutions of systems of differential equations. We will explore a series of hands-on concept explorations designed to facilitate student understanding through exploration and visualization of a series of dynamic examples. Exploration topics include: dot product, cross product, velocity & acceleration vectors, Lagrange multiplier optimization, planes and lines in space, translations and transformations of surfaces, and TNB frames. Participants will learn how to save particular CalcPlot3D plots to a URL for sharing with students or placing on websites. They will also learn to create scripts in the app to use as dynamic demonstrations or guided exploration activities that can be assigned to students. Finally, we will demonstrate how to create STL files for 3D printing surfaces from the app. See sites.monroecc.edu/multivariablecalculus/.

BROWN '20 SESSIONS

Equitable Teaching and Grading Practices

Organizers: Amanda Laubmeier, Jeffery Musyt, Emily Fischer, and Tova Brown
Panelists: Abbey Bourdon, Maria Mercedes Franco, William Yslas Velez

How do you make sure your classroom is equitable, especially when incorporating new practices? Is it possible to make grading more equitable without increasing your workload dramatically? In this interactive session, experts will identify common inequities in the classroom and share their solutions for promoting equity, with an emphasis on practical, take-home strategies for teaching practices as well as grading and assessment.

NOTE: All times are Mountain Time.

ABSTRACTS

BROWN '20 SESSIONS (cont.)

Alternatives to Exams and Grading

Organizers: Derek Tomlin, Lucas Van Meter, Simone Sisneros-Thiry, and Diego Ricciotti
Panelists: Spencer Bagley, Marko Budisic, Jakob Kotas, Liz Stanhope, and Ian Whitehead

In this workshop, we aim to inspire you to consider rethinking the traditional approaches to grading and exams. This session will begin with a conversation to help us navigate this spectrum, ranging from alternatives to exams to student-driven evaluations. Following this, there will be breakout rooms created to fit the desires of the audience. Wherever you are on your assessment journey, you'll leave with concrete next steps for implementing structures that better align with your goals and your answer to the question: "What is the value of assessment for me and my students?"

Adventures in Undergraduate Research

Organizers: Sun Mingwei, Amakoe Gbedamah, Md Sazib Hasan, and James Cornish
Panelists: Kumer Pial Das, Vinodh Chellamuthu and Luciano Medina

Undergraduate research mentoring is an art. Developing and maintaining undergraduate research experiences require some specific and unique skill sets. Above all, in conducting undergraduate research programs, the mentor gives a head start to our students in acquiring and developing the skills that will also help them in the future.

Professional Activities for Teaching Focused Faculty

Organizers: Anila Yadavalli, O'Neill Kingston, Sher Chhetri, and Kathryn Mulholland
Panelists: Su Dorée, Stan Yoshinobu, Sayonita Ghosh Hajra, Gulden Karakok, Jono Herman, Tori Akin, and Wei-Kai Lai

Participants will be introduced to three types of education-focused scholarly activities (SoTL, DBER, or math ed topics). The majority of this time will be dedicated to breakout room activities, such as generative writing, to help develop useful practice for this type of scholarship. Next, we will feature a panel consisting of teaching faculty who have pursued non-research related scholarly activity, such as outreach and/or community building.

Mathematics for Social Justice

Organizers: Blain Patterson, John Miller, Kate Meyer, and Sara Chari
Panelists: Kenan Ince, Gizem Karaali, Lily Khadjavi, Katy Ott

Mathematics for social justice is a broad topic that can include treating mathematical literacy itself as a social justice issue and including content related to social justice within the development of course materials. This session will focus on the latter and feature panelists who will share their experiences, resources, and examples related to incorporating math for social justice content in their courses.

Best Practices in Developing New Courses/Open Educational Resources

Organizers: Erica Rutter, Ariel Setniker, Kirsten Hogenson, and Joanne Lin
Panelists: Csilla Szabo, Nathan Wakefield, Karina Uhing

This interactive session will provide a space for reflecting and sharing of practices in developing new courses and using open educational resources (OER). Presenters will discuss their experience in selecting learning outcomes, engaging students with interactive and hands-on projects, and assessing student work when designing a new course. They will also share effective ways to develop open-source resources, from finding high-quality content to forming a team of collaborators and garnering support from administration

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MAA Programs

Outreach Initiatives (accepting applications this fall)

Dolciani Mathematics Enrichment Grants

Dolciani Mathematics Enrichment Grants (DMEG) support projects designed to develop mathematical enrichment programs for students who show promise or interest in middle or high school. Proposals are sought from college and university mathematical sciences faculty establishing projects that actively engage middle or high school students beyond the standard curriculum, possibly working in partnership with middle or high school math teachers.

National Research Experience for Undergraduates Program

National Research Experience for Undergraduates Program (NREUP) supports the participation of mathematics undergraduates from underrepresented groups in focused and challenging research experiences to increase their interest in advanced degrees and careers in mathematics. NREUP aims to reach students at the transition point between lower division and upper division studies, provide mentoring in a challenging summer program that will support students as they continue their undergraduate studies, and encourage students to pursue graduate studies and careers in mathematics.

Tensor SUMMA Grants

Tensor SUMMA (Strengthening Underrepresented Minority Mathematics Achievement) grants support programs designed to encourage pursuit and enjoyment of mathematics among middle school students, high school students, and/or beginning college students from groups traditionally underrepresented in the field of mathematics.
Tensor Grants for Women & Mathematics

Tensor Women grants support projects designed to encourage college and university women or pre-college girls to study mathematics.

Virtual Programming

Webinars/Workshops

Always offered free-of-charge to our community, MAA webinars and virtual workshops are typically connected with our grant-sponsored programs. The MAA may also host or co-sponsor events with our partners, such as the Electronic Seminar in Mathematics Education from MIT.

*Minicourses

MAA virtual minicourses have a workshop format and focus on aspects of collegiate mathematics, the undergraduate curriculum, and mathematical pedagogy. Active involvement of participants will foster engagement and facilitate connections.

*Panel Discussions

MAA panel discussions will typically feature 3-5 expert panelists along with a moderator, and will include both conversation between panelists and interactions between the panel and the participants.

*Research Seminars

MAA virtual research seminars are designed to provide substantial mathematical content. Speakers for these seminars will be experts in their field committed to giving presentations accessible to a broad, non-expert audience with Q&A time at the end of the presentation.

*In order to maintain the high quality of these new events, these virtual programs will have a fee. Members will receive three coupons per year (on your profile page at maa.org) to attend three virtual events of their choice; after the coupons have been used, each virtual event will cost $15. Non-members will pay $25 per virtual event.

For more info go to: maa.org/programs

WORKSHOP LEADER BIOS

Matt Boelkins is Professor of Mathematics at Grand Valley State University in Allendale, MI, where he has been a member of the faculty for more than 20 years. A passionate teacher and proponent of active learning, Professor Boelkins has been recognized with several teaching-related honors, including the Michigan Association of State Universities' 2016 Distinguished Professor of the Year. Throughout his career, he has worked to promote the scholarship of teaching and learning mathematics through scholarly papers, conference presentations, and the journal *PRIMUS* (*Problems, Resources, and Issues in Mathematics Undergraduate Studies*), which he serves as Editor-in-Chief. Professor Boelkins has co-authored several research papers with undergraduate students and is also the author or co-author of four textbooks, including *Active Prelude to Calculus, Active Calculus Single Variable*, and *Active Calculus Multivariable*. As Director of New Student Advising & Registration at GVSU, he leads a large team of staff, faculty, and undergraduate student assistants that welcomes Grand Valley's incoming class of more than 4000 students annually. He is also an active member of the MAA, which he has previously served as the Association's first vice president.

Robert Bosley is a math faculty member at California State University Los Angeles and a high school Intervention Support Coordinator, math teacher, and certified Mastery Learning and Grading teacher in Los Angeles Unified School District. He is a developer (with Sharona) of a professional development course for faculty on the topic of Mastery Grading in the university classroom. He also serves on the organizing committee for the 2021 Mastery Grading conferences for University and Grades 7–12 STEM classrooms. Outside the classroom, Bosley spends time doing Judo and watching the Oklahoma Sooners win at football.

Matt DeLong (Brown, 1999) is Professor of Mathematics and Department Chair at Marian University in Indianapolis. He has been an Associate Director of MAA Project NExT since 2012. He is also Academic Director of MathPath, an advanced summer program for middle-school students. He was awarded the Alder and Haimo awards for distinguished teaching from the MAA. His hobbies outside of mathematics include singing, watching Pixar movies with his family, and eating a variety of cuisines.

Carrie Diaz Eaton is a mathematician in an interdisciplinary digital and computational studies department at Bates College in Maine. Her area of expertise is inclusive and interdisciplinary STEM Education. She also serves as the Chair for the MAA Committee on Minority Participation in Mathematics.

Zhilan Feng is a professor of oathematics at Purdue University and currently a Program Director in the Mathematical Biology program of the Division of Mathematical Sciences at the National Science Foundation. Her research includes mathematical modeling in ecology and epidemiology. She has co-authored over 120 papers and three books in the area of Mathematical Biology. She has supervised 17 PhD students and served on editorial boards including *Journal of Theoretical Biology, Mathematical Biosciences, SIAM Journal of Applied Mathematics*, and *Journal of Biological Dynamics*. She is a current member of the Board of Directors of the Society for Mathematical Biology.

Maria Mercedes Franco is an associate professor of Mathematics at Queensborough Community College–CUNY. She co-led efforts to institutionalize service-learning and undergraduate research as high impact practices at her college. Dr. Franco is co-PI and co-Director of MSRI-UP and CURM and a member of the Mathematics Advisory Group for TPSE Math. One of her current interests is the use of memoir writing as part of a holistic approach to mentoring students.

Catherine Good is an associate professor of psychology at Baruch College and The Graduate Center of the City University of New York. She received a master's degree in mathematics from the University of Kansas in 1994 and an Ad Hoc Interdisciplinary Ph.D. in mathematics education and social psychology from The University of Texas at Austin in 2001. Dr. Good's research focuses on the social-psychological factors that impact students' academic achievement, learning, and motivation in STEM fields.

Trish Hammer currently serves as Associate Dean for Faculty Affairs and Graduate Studies in the College of Science and as Professor in the Mathematics Department at Virginia Tech. In her role as Associate Dean, Trish provides faculty affairs leadership across the college including recruitment, hiring, evaluation, tenure, promotion, retention, honorifics and resolution of faculty grievances with oversight of faculty policies and procedures. She helps faculty successfully navigate all stages of their career by providing resources, guidance and support. Before joining Virginia Tech, Trish served in a similar administrative/faculty role as Vice President of Academic Affairs and Professor of Mathematics at Hollins University, a small private liberal arts university. Away from work, Trish loves cooking, fishing, paddleboarding, sailing, and walking her two lovable Rhodesian Ridgebacks!

Todd Iverson is a faculty member at Winona State University. Iverson and Chris Malone have developed curriculum and resources for the teaching of data science at Winona State University since the inception of the data science program over five years ago.

Gizem Karaali is professor of mathematics at Pomona College. She is one of the founding editors of *The Journal of Humanistic Mathematics*, a senior editor of *Numeracy*, and an associate editor for *The Mathematical Intelligencer*; she is also one of the editors of the two-volume set from the MAA Press on *Mathematics for Social Justice,* one forthcoming.

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Brian P Katz (BK) is faculty in Mathematics Education at CSULB. BK is passionate about interactions between inquiry, epistemology, identity, authority, and justice as both a scholar and teacher, especially in the context of preparing teachers to lead student-centered and rehumanizing classrooms of their own. BK is Associate and Communications Editor with *PRIMUS*, a former Chair of IBL SIGMAA, a current member of the executive committee of SIGMAA RUME, an MAA textbook author, Editor-in-Chief of the AMS inclusion/exclusion blog, and part of the design and facilitation PRODUCT professional development team. BK supports two of the best cats in the world and loves to sing.

Sharona Krinsky is a math faculty member at California State University Los Angeles. She has been involved in the mastery-grading community for several years, including as an organizer of the first three Mastery Grading conferences as well as a developer (with Robert) of a professional development course for faculty on the topic of Mastery Grading in the university classroom. When not involved in Math or Mastery Grading, she also serves as the Executive Producer of a community and youth theater company. She de-stresses through Israeli Dancing and enjoying the MCU.

Dave Kung (Gold, 2000) serves as the Director of Math Advocacy and Strategy at the Charles A. Dana Center and has directed MAA Project NExT since 2014. After earning his PhD in harmonic analysis from the University of Wisconsin, he taught for 20 years at St. Mary's College of Maryland, working to level the playing field for minoritized students. His honors include the 2021 Deborah and Franklin Tepper Haimo award. He enjoys running, cycling, playing the violin—and cajoling his daughter to join in.

Yvonne Lai is the Milton Mohr Associate Professor of Mathematics at the University of Nebraska-Lincoln. She is the founder of SIGMAA-MKT, a special interest group for mathematics faculty invested in teacher education, and the current chair of the MAA Committee on the Mathematical Education of Teachers. She is the mother of a toddler and almost-toddler, a practitioner of ashtanga yoga, and a consumer of comic-based TV and movies.

Chris Malone is a faculty member at Winona State University. Malone and Todd Iverson have developed curriculum and resources for the teaching of data science at Winona State University since the inception of the data science program over five years ago.

Marco V. Martinez was born and raised in Bogota, Colombia. Marco graduated with a doctorate in mathematics and a masters in statistics from the University of Tennessee-Knoxville. He was a 2013–2014 Project NExT fellow. He became very involved with the actuarial science program since his arrival at North Central College(NCC) in 2013. He was named Coordinator of the Actuarial Science Program in 2016 and is currently working towards his credentials from the Society of Actuaries. In 2016, NCC honored him with its Teaching Award for junior faculty, and in 2021 with the Mentorship Award for senior faculty.

Steve Morics is professor of mathematics at the University of Redlands. He is a proud member of the very first cohort of NExT Fellows. He has worked with students in research projects in combinatorics, fair division, and voting theory, and frequently teaches courses for non-majors involving game theory, social choice, and music. He's also been fortunate to work with Redlands students on theater productions and musical performances.

Valerie Peterson (Green, 2009) is an associate professor of mathematics at the University of Portland. Lately, when she is not conspiring to transform the culture of teaching in STEM departments or plotting to help others enact powerful pedagogical change, she enjoys engaging in full-contact gardening and plotting her next exciting evening of take-out. Her cats (who might make an appearance in the workshop) helped her write this.

Dr. Alicia Prieto-Langarica is a professor at Youngstown State University. She received her undergraduate degree in applied mathematics from the University of Texas at Dallas in 2008 and her PhD from the University of Texas at Arlington in 2012. Prieto-Langarica's research is in the intersection of mathematics and biology, specifically problems related to the medical field. Recently she started conducting research in data science and public policy.

Sandra Richardson is a Program Director in the Directorate for Education and Human Resources (EHR) at the National Science Foundation. She works with the EHR Core Research Program, Hispanic-Serving Institutions Program, the Improving Undergraduate STEM Education Program, the Noyce Teacher Scholarship Program, the ADVANCE Program, and the Scholarships in STEM Program.

Adriana Salerno is originally from Caracas, Venezuela, where she received her undergraduate degree in mathematics from the Universidad Simon Bolivar in 2001. She then went on to earn her PhD at the University of Texas. While completing her doctorate in mathematics, Salerno was also selected as the AMS-AAAS Mass Media Fellow in the summer of 2007; as such, she wrote articles for the *Voice of America.* Salerno's main research area is number theory, in particular the intersections of number theory with geometry, physics, and cryptography. She is also very interested in the communication and teaching of mathematics to create a more inclusive and equitable STEM workforce. She is an alum of the Linton-Poodry SACNAS Summer Leadership Institute, and

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the SACNAS-HHMI Advanced Leadership Institute, and is committed to increasing the representation and success of minorities and women in the mathematical sciences. She is a proud member of AWM, SACNAS, MAA, NAM, and AMS.

Carol Schumacher is professor and chair of mathematics at Kenyon College in Gambier, Oh. She received a BA in mathematics from Hendrix College and a PhD in mathematics from The University of Texas at Austin. Carol is the author of *Chapter Zero—Fundamental Notions of Abstract Mathematics*, 2E and *Closer and Closer—Introducing Real Analysis*. Both books are written for use in courses that emphasize inquiry-based learning, an approach that she uses in many of her upper level courses. Carol is the recipient of the Ohio Section MAA's award for distinguished teaching.

Paul Seeburger earned his MA in mathematics at Central Michigan University. He is a professor of mathematics at Monroe Community College where he has taught since 1998. Between 2008 and 2019, Paul has been the lead-PI on two NSF grants focused on helping students visualize multivariable calculus and differential equations by developing the CalcPlot3D app and a Direction Field app to run on both computers and mobile devices, In addition to his focus on using and developing tools for visualization in the mathematics classroom, Paul has also been active in editing and customizing OER textbooks and OER online homework problems on the LibreText and WeBWorK platforms, respectively.

Shelby Stanhope (Peach, 2018) earned her PhD in mathematics from the University of Pittsburgh. She spent two years as a postdoc at Temple University and is currently an associate professor of mathematics at the U. S. Air Force Academy. She is the Director of Research for the Department of Mathematical Sciences and serves as the Officer in Charge of the Cadet Peer Tutoring Club. Her research is focused on mathematical modeling in biology and educational research in multivariable calculus. She is a proud member of the Peach 2018 Project NExT cohort.

Monica VanDieren earned her PhD in mathematical sciences through the interdisciplinary Pure and Applied Logic Program at Carnegie Mellon University. She held the Szegö Assistant Professorship at Stanford University and the T.H. Hildebrandt Assistant Professorship at the University of Michigan before arriving at Robert Morris University where she currently holds the rank of University Professor of Mathematics and serves as the Director of the University Honors Program. In addition to continuing the research she initiated in graduate school in model theory, VanDieren is also active in pedagogical research in undergraduate mathematics and honors education.

Ursula Whitcher (Peach '11) is an associate editor at *Mathematical Reviews* (AMS) in Ann Arbor, Michigan, focusing on algebraic geometry. Before coming to Ann Arbor, Ursula was an associate professor at the University of Wisconsin-Eau Claire; Ursula's PhD is from the University of Washington.

Nina White (Brown, 2013) has been a teaching-focused faculty member in the University of Michigan Department of Mathematics since 2013, specializing in math courses for future teachers as well as faculty development. Since 2015 she has run workshops on teaching with inquiry-based learning (IBL) both locally and nationally (through AIBL and now the COMMIT Network). She has also been running a Learning Community for Inclusive Teaching since 2018. Collaboration and co-learning with colleagues has had a profound and continual impact on her teaching practice and she is interested in helping to foster co-learning experiences for others.

Shelby Wilson received her BS from Spelman College with majors in mathematics and computer science. Her graduate studies were conducted within the applied mathematics (AMSC) program at the University of Maryland, College. After finishing her PhD, she continued her research as a post-doctoral fellow at INRIA (Institut National de Recherche en Informatique et en Automatique) in Grenoble, France. She has held academic positions within the mathematics department of Morehouse College in Atlanta, Georgia as well as within the biology department at the University of Maryland, College Park. She currently works as a senior data scientist at the Johns Hopkins University Applied Physics Laboratory. Her scientific experience can be broadly described as being in the area of computational biology, wherein she has used techniques of parameter estimation, dynamical systems, network theory, and machine learning to create models of biological phenomenon (e.g., infectious diseases, genomics, cancer growth, sleep dynamics, social organization). Her research interests and expertise facilitate truly interdisciplinary collaborations spanning a number of subject areas including mathematics, computer science, physics, and biology.

Cynthia J. Wyels is a professor at California State University Channel Islands. She holds degrees in mathematics from Pomona College (BA), the University of Michigan (MS), and U.C., Santa Barbara (PhD). Her mathematical research interests lie in combinatorial mathematics and linear algebra. She also uses data analysis skills to study the effectiveness of educational interventions as well environmental science issues. She is an advocate of undergraduate research and believes it is particularly meaningful for students from non-traditional backgrounds.

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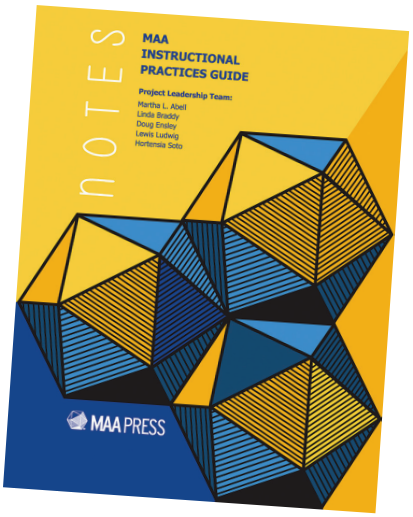

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