



MAA Project NExT

NEW EXPERIENCES IN TEACHING



JULY 27-31, 2020

INCOMING COHORT: BROWN'20
RETURNING COHORT: SILVER'19

Important Information

ALL TIMES ARE EASTERN DAYLIGHT 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 - www.tinyurl.com/projectnext1
- Room 2 - www.tinyurl.com/projectnext2
- Room 3 - www.tinyurl.com/projectnext3
- Room 4 - www.tinyurl.com/projectnext4
- Room 5 - www.tinyurl.com/projectnext5
- Room 6 - www.tinyurl.com/projectnext6
- Room 7 - www.tinyurl.com/projectnext7
- Room 8 - www.tinyurl.com/projectnext8

Social hours and homerooms 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 Brown’20s and their assignments

NEW VITAL Membership

Visitors
Instructors
TAs
Adjuncts
Lecturers

maa.org/join



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

SCHEDULE

MONDAY, JULY 27 (BROWN '20)

11:00-11:15 AM	HOMEROOM	SCHEDULE
11:15 AM-12:15 PM	PLENARY	ROOM 8
Welcome & Icebreaker Dave Kung, <i>St. Mary's College of Maryland</i> (Gold, 2000) Director, MAA Project NExT		
12:15-12:30 PM	BREAK	
12:30-1:30 PM	PLENARY	ROOM 8
Welcome to the Profession Various		
1:30-2:30 PM	BREAK	
2:30-3:30 PM	PANEL	ROOM 8
Interactive Teaching Demos MAA Project NExT Leadership Team: Julie Barnes, <i>Western Carolina University</i> (Blue, 1996) Alissa S. Crans, <i>Loyola Marymount University</i> (Orange, 2004) Matt DeLong, <i>Marian University</i> (Brown, 1999) Alicia Prieto Langarica, <i>Youngstown State University</i> (Brown 2013)		
3:30-3:45 PM	BREAK	
3:45-4:45 PM	PLENARY	ROOM 8
Rising to the Challenge of Diversifying STEM Dave Kung, <i>St. Mary's College of Maryland</i> (Gold, 2000) Director, MAA Project NExT		
4:45-5:00 PM	BREAK	
5:00 PM-5:15 PM	HOMEROOM	SCHEDULE
5:15 PM-6:15 PM	SOCIAL HOUR	SCHEDULE

JULY 27-31, 2020

NOTE: All times are Eastern Daylight Time.

BROWN '20 SCHEDULE

TUESDAY, JULY 28 (BROWN '20)

10:00-11:00 AM	SOCIAL HOUR	SCHEDULE
11:00-11:15 AM	HOMEROOM	SCHEDULE
11:15 AM-12:15 PM	PLENARY	ROOM 8
	Making the Most of Your Precious Time Alissa S. Crans, <i>Loyola Marymount University</i> (Orange, 2004)	
12:15-12:30 PM	BREAK	
12:30-1:30 PM	BREAKOUT SESSIONS	
	Teaching Using Tactile Visualization Techniques - Julie Barnes	ROOM 1
	Collaborative Learning in College Mathematics - Matt DeLong	ROOM 2
	Creating a Vibrant & Inclusive Community - Dave Kung	ROOM 3
	Orienting Your Classroom Around Inquiry - Valerie Peterson	ROOM 4
	Describing the World with DEs - Ami Radunskaya	ROOM 5
	Overcoming Math Anxiety in the Classroom - Adriana Salerno	ROOM 6
1:30-2:30 PM	LUNCH	
2:30-3:30 PM	BREAKOUT SESSIONS	
	Teaching Using Tactile Visualization Techniques - Julie Barnes	ROOM 1
	Collaborative Learning in College Mathematics - Matt DeLong	ROOM 2
	Creating a Vibrant & Inclusive Community - Dave Kung	ROOM 3
	Orienting Your Classroom Around Inquiry - Valerie Peterson	ROOM 4
	Describing the World with DEs - Ami Radunskaya	ROOM 5
	Overcoming Math Anxiety in the Classroom - Adriana Salerno	ROOM 6
3:30-3:45 PM	BREAK	
3:45-4:45 PM	BREAKOUT SESSIONS	
	Teaching Using Tactile Visualization Techniques - Julie Barnes	ROOM 1
	Collaborative Learning in College Mathematics - Matt DeLong	ROOM 2
	Creating a Vibrant & Inclusive Community - Dave Kung	ROOM 3
	Orienting Your Classroom Around Inquiry - Valerie Peterson	ROOM 4
	Describing the World with DEs - Ami Radunskaya	ROOM 5
	Overcoming Math Anxiety in the Classroom - Adriana Salerno	ROOM 6
5:00-5:15 PM	HOMEROOM	SCHEDULE
5:15-6:15 PM	SOCIAL HOUR	SCHEDULE

WEDNESDAY, JULY 29 (BROWN '20)

10:00-11:00 AM	SOCIAL HOUR	SCHEDULE
11:00-11:15 AM	HOMEROOM	SCHEDULE
11:15 AM-12:15 PM	PLENARY	ROOM 8
	Rites of Passage: Welcoming students into the social worlds of the university Erica Winterer (<i>University of Texas</i>) and Uri Treisman (<i>University of Texas</i>)	
12:15-12:30 PM	BREAK	
12:30-1:30 PM	BREAKOUT SESSIONS	
	Active Learning with Active Calculus - Matt Boelkins	ROOM 1
	Experiences in Teaching Introduction to Data Science	ROOM 2
	- Christopher Malone and Todd Iverson	
	How to Teach Abstract Algebra - Dandrielle Lewis	ROOM 3
	Visualizing Multivariable Calculus with CalcPlot3D	ROOM 4
	- Paul Seeburger and Monica VanDieren	
	Leading Math Circles - Cornelia Van Cott	ROOM 5
	Advising Students on Career Options - Suzanne Weekes	ROOM 6
1:30-2:30 PM	LUNCH	
2:30-3:30 PM	BREAKOUT SESSIONS	
	Active Learning with Active Calculus - Matt Boelkins	ROOM 1
	Experiences in Teaching Introduction to Data Science	ROOM 2
	- Christopher Malone and Todd Iverson	
	How to Teach Abstract Algebra - Dandrielle Lewis	ROOM 3
	Visualizing Multivariable Calculus with CalcPlot3D	ROOM 4
	- Paul Seeburger and Monica VanDieren	
	Leading Math Circles - Cornelia Van Cott	ROOM 5
	Advising Students on Career Options - Suzanne Weekes	ROOM 6
3:30-3:45 PM	BREAK	
3:45-4:45 PM	BREAKOUT SESSIONS	
	Active Learning with Active Calculus - Matt Boelkins	ROOM 1
	Experiences in Teaching Introduction to Data Science	ROOM 2
	- Christopher Malone and Todd Iverson	
	How to Teach Abstract Algebra - Dandrielle Lewis	ROOM 3
	Visualizing Multivariable Calculus with CalcPlot3D	ROOM 4
	- Paul Seeburger and Monica VanDieren	
	Leading Math Circles - Cornelia Van Cott	ROOM 5
	Advising Students on Career Options - Suzanne Weekes	ROOM 6
4:45-5:00 PM	BREAK	
5:00-5:30 PM	GOAL SETTING / PLANNING FOR JOINT MATH MEETINGS	ROOM 8
5:30-6:30 PM	SOCIAL HOUR	SCHEDULE

WEDNESDAY, JULY 29 (SILVER '19)

10:00-11:00 AM	SOCIAL HOUR	SCHEDULE
11:15 AM-12:15 PM	PLENARY	
	Rites of Passage: Welcoming students into the social worlds of the university Erica Winterer (<i>University of Texas</i>) and Uri Treisman (<i>University of Texas</i>)	
12:15-12:30 PM	BREAK	
12:30-1:30 PM	SILVER'19 SESSIONS (CHOOSE ONE)	
	Managing Expectations and Developing a Positive Work-Life Balance ROOM 7 Featuring: Juliana Belding, <i>Boston College</i> ; Kathryn Haymaker, <i>Villanova University</i> ; and Rebecca Garcia, <i>Sam Houston State University</i> Organizers: Indu Rasika Churchill, David Freund, Douglas T. Pfeffer, and Emelie Curl	
	How to Create Effective Homework Assignments ROOM 8 Featuring: David Pengelley, <i>New Mexico State University Professor Emeritus and Oregon State University</i> ; Matthew A. Morena, <i>Christopher Newport University</i> ; Milos Savic, <i>University of Oklahoma</i> ; Sarah Greenwald, <i>Appalachian State University</i> Organizers: Tania Hazra, Stephen Deterding, Jake Price, and Tori Akin	
1:30-2:30 PM	LUNCH	
2:30-3:30 PM	SILVER'19 SESSIONS (CHOOSE ONE)	
	Active Learning in Challenging Classrooms ROOM 7 Featuring: Kelly MacArthur, <i>University of Utah</i> ; Martina Bode, <i>University of Illinois Chicago</i> ; Philipp Hieronymi, <i>University of Illinois Urbana-Champaign</i> Organizers: Marie B.Langlois, Matthew Lee, Matt Charnley, and Lauren Sager	
	Mastery-Based Grading - What is it? How can I get started? ROOM 8 Featuring: Jessie Lenarz, <i>St. Catherine University</i> ; Sharon Krinsky, <i>California State University, Los Angeles</i> ; Laura Taalman, <i>James Madison University</i> Organizers: David Duncan, Francesca Gandini, Amy Grady, and Whitney Liske	
3:30-3:45 PM	BREAK	
3:45-4:45 PM	SILVER'19 SESSIONS (CHOOSE ONE)	
	Developing Computational and Applied Mathematics Courses ROOM 7 Featuring: Carrie Diaz Eaton, <i>Bates College</i> ; Tyler Jarvis, <i>Brigham Young University</i> ; Norma Ortiz-Robinson, <i>Grand Valley State University</i> Organizers: Rebecca Terry, Lidia Mrad, Mario Banuelos, and Alexander Hoover	
	Actions and Outcomes: Assessing the Effectiveness of New Teaching Methods ROOM 8 Featuring: Darryl Yong, <i>Harvey Mudd College</i> ; Christine von Renesse, <i>West-field State University</i> Organizers: Lisa Kaylor, Evangelos Dimou, Aqeeb Sabree, and Kayla Murray	
4:45-5:00 PM	BREAK	
5:30-6:30 PM	SOCIAL HOUR	SCHEDULE

THURSDAY, JULY 30 (BROWN '20 AND SILVER '19)

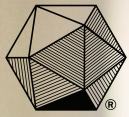
10:30-11:30 AM	SOCIAL HOUR	SCHEDULE
11:30 AM-1:00 PM	PLENARY	
	Best Practices for Remote Teaching in Math Maria Andersen (<i>CEO and Cofounder of Coursetune</i>)	ROOM 8
1:00-2:30 PM	LUNCH	
2:30-4:30 PM	PROJECT NEXT COURSES	ROOM 1
	Getting Started with Mastery Grading - Rachel Weir, <i>Allegheny College</i>	
	Jumpstarting your Scholarship Program - Alissa Crans, <i>Loyola Marymount University</i> - Karen Keene, <i>National Science Foundation, DUE</i> - Michelle Manes, <i>National Science Foundation, DMS</i>	ROOM 2
	Mathematics for Social Justice - Lily Khadjavi, <i>Loyola Marymount University</i> - Maria Mercedes Franco, <i>Queensborough Community College (CUNY)</i>	ROOM 3
	Teaching Introductory Statistics: Focus on Concepts and Data - Allan Rossman, <i>Cal Poly – San Luis Obispo</i> - Beth Chance, <i>Cal Poly – San Luis Obispo</i>	ROOM 4
	Teaching Math Courses for Elementary Education Majors - Judith Covington, <i>Northwestern State University</i>	ROOM 5
	The Who, Why, and How of Undergraduate Research in Math - Alicia Prieto Langarica, <i>Youngstown State University</i> - Cindy Wyels, <i>California State University-Channel Islands</i>	ROOM 6

FRIDAY, JULY 31 (BROWN '20 AND SILVER '19)

10:00-11:00 AM	SOCIAL HOUR	
11:00 AM-12:00 PM	DISCUSSIONS (BROWN '20 ONLY, BREAK FOR SILVER '19)	
	Getting Tenure (Research Intensive) - Trish Hammer	ROOM 1
	Getting Tenure (Public Institution) - Julie Barnes	ROOM 2
	Getting Tenure (Private Institution) - Marco Martinez	ROOM 3
	Getting a Permanent Position - Alicia Prieto Langarica	ROOM 4
	Having a Fulfilling Career - Matt DeLong	ROOM 5
	Advocating for Underrepresented and 1Gen Students - Dave Kung	ROOM 6
	Involvement in Math Community - Alissa Crans	ROOM 7
	Thriving as the Youngest Member of the Department - Alexis Byers	ROOM 8
12:00-12:15 PM	BREAK	
12:15-12:30 PM	BROWN'20 INTRODUCTION TO TEACHING GROUPS	ROOM 8

FRIDAY, JULY 31 (CONT'D)

12:30-1:30 PM	TEACHING GROUPS	
	Tactivities - Julie Barnes	ROOM 1
	IBL/Active Learning - Elizabeth Thoren	ROOM 2
	Writing - Annalisa Crannell	ROOM 3
	Mastery Grading - Rachel Weir	ROOM 4
	Group Work - Dave Kung	ROOM 5
	One Minute Active Teaching Innovations - Trish Hammer	ROOM 6
	Voting/Polling - Matt DeLong	ROOM 7
	Projects - Alicia Prieto Langarica	ROOM 8
1:30-2:30 PM	LUNCH	
2:30-4:30 PM	PROJECT NEXT COURSES	ROOM 1
	Getting Started with Mastery Grading	
	- Rachel Weir, <i>Allegheny College</i>	
	Jumpstarting your Scholarship Program	ROOM 2
	- Alissa Crans, <i>Loyola Marymount University</i>	
	- Karen Keene, <i>National Science Foundation, DUE</i>	
	- Michelle Manes, <i>National Science Foundation, DMS</i>	
	Mathematics for Social Justice	ROOM 3
	- Lily Khadjavi, <i>Loyola Marymount University</i>	
	- Maria Mercedes Franco, <i>Queensborough Community College (CUNY)</i>	
	Teaching Introductory Statistics: Focus on Concepts and Data	ROOM 4
	- Allan Rossman, <i>Cal Poly – San Luis Obispo</i>	
	- Beth Chance, <i>Cal Poly – San Luis Obispo</i>	
	Teaching Math Courses for Elementary Education Majors	ROOM 5
	- Judith Covington, <i>Northwestern State University</i>	
	The Who, Why, and How of Undergraduate Research in Math	ROOM 6
	- Alicia Prieto Langarica, <i>Youngstown State University</i>	
	- Cindy Wyels, <i>California State University-Channel Islands</i>	
4:30-4:45 PM	BREAK	
4:45-5:15 PM	GRADUATION AND CLOSING THOUGHTS (SILVER '19S ONLY)	ROOM 8



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pose questions, and find solutions.

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2020-2021 PROJECT NEXt FELLOWS BROWN'20 COHORT

Anna Aboud
Westmont College

Abiti Adili
Franklin & Marshall College

Lida Ahmadi
California State University - San Bernardino

Enes Akbuga
Drake University

Mahmoud Aldeni
Western Carolina University

Manuchehr Aminian
*California State Polytechnic University,
Pomona*

Younggon Bae
University of Texas Rio Grande Valley

Lora Dianne Bailey
Grand Valley State University

Johnna Barnaby
Shippensburg University

Allison Nicole Beemer
University of Wisconsin - Eau Claire

Jennifer Berg
Bucknell University

Adam Blumenthal
Westminster College

Boris Brimkov
Slippery Rock University

Tova Brown
Wisconsin Lutheran College

Nicholas Bussberg
Elon University

Ryann Rose Cartor
Clemson University

Christopher Caruvana
Indiana University Kokomo

Sara Chari
Drake University

Sher Chhetri
University of South Carolina

Shane Clark
United States Military Academy West Point

James Cornish
Boston College

Rebecca Coulson
United States Military Academy - West Point

Rolando de Santiago
Purdue University

Bradley F. Elliott
University of Kentucky

Kevser Erdem
University of Cincinnati

J. Brooke Ernest
California State University, Channel Islands

Katherine Evans
Chapman University

Ricela Feliciano-Semidei
Northern Illinois University

Emily Fischer
Wheaton College

Zachary B. Gates
Wabash College

Amakoe Gbedemah
*NYU Courant/NYU Tandon School of
Engineering*

Claire Gibbons
Pierce College Puyallup

Nathan Gray
Mount Holyoke College

William Grodzicki
Wellesley College

Sam Gutekunst
Bucknell University

Mitchell Hamidi
Embry-Riddle Aeronautical University

Kevin Hannay
University of Michigan

Md Sazib Hasan
Dixie State University

Kirsten Hogenson
Skidmore College

Tori Hudgins
The University of Dallas

Caitlin Suzanne Hult
Gettysburg College

Alexis Johnson
University of Minnesota

Katrina Johnson
Brigham Young University - Idaho

Opel Jones
Towson University

Julienne Kabre
Baylor university

Vojtech Kejzlar
Skidmore College

O'Neill Kingston
Clarke University

Sarah Klanderma
Marian University

Christina Knox
University of Wyoming

Kristin M Kurianski
California State University, Fullerton

Amanda N Laubmeier
Texas Tech University

Andrew Lee
St. Thomas Aquinas College

Younhee Lee
Southern Connecticut State University

Sara Leshen
Rutgers University, Camden

Caitlin Levenson
Bard College

Junyuan Lin
Loyola Marymount University

Haydee Lindo
Williams College

Michael C Loper
University of Wisconsin River Falls

Will McGuffey
Francis Marion University

E. Clare Merriman
The Ohio State University

Katherine J. Meyer
Carleton College

John Anderson Miller
Rockhurst University

Andrew Miller
Bridgewater State University

Ryan E Miller
Xavier University

MurphyKate Montee
Carleton College

Kathryn Burton Mulholland
University of Notre Dame

Cristina Mullican
Lebanon Valley College

Jeffrey Musyt
Slippery Rock University

Apurva Nakade
University of Western Ontario

John Thomas Nardini
NC State University

Melissa Newell
Iona College

Duong Nguyen
Kalamazoo College

Jordan Nikkel
Christian Brothers University

McCabe James Olsen
Rose-Hulman Institute of Technology

Alvaro Ortiz Lugo
Georgia Gwinnett College

2020-2021 PROJECT NEXT FELLOWS BROWN'20 COHORT

Carlos M. Paniagua
Salve Regina University

Mirjeta Pasha
Arizona State University

Blain Patterson
Virginia Military Institute

Sarah Patterson
Virginia Military Institute

Daniel Perry
Augustana University

Rachel Louise Petrik
Rose-Hulman Institute of Technology

James Phillips
Wellesley College

Tricia Phillips
Birmingham-Southern College

Juanita Pinzon Caicedo
University of Notre Dame

Michelle Rabideau
University of Hartford

Aaron Rapp
University of the Virgin Islands

Abigail Raz
University of Nebraska, Lincoln

Michael Reeks
Bucknell University

Diego Ricciotti
California State University, Sacramento

Brittany Anne Riggs
Elon University

John Robertson
UH Manoa

Elyse Rogers
Taylor University

Erica Rutter
University of California, Merced

Karl Schaefer
Washington University in St. Louis

Nancy C Scherich
Wake Forest University

Sarah Seger
Concordia College

Ariel Setniker
California State University Maritime Academy

Hossein Shahrtash
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Jeff Shriner
Aims Community College

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Jeffrey Slye
SUNY Oswego

Mychael Smith
NMSU-Dona Ana Community College

Thomas Stojsavljevic
Drexel University

Benjamin W Stucky
Beloit College

Mingwei Sun
Samford University

Ashley Suominen
Savannah College of Art and Design

Cameron Sweet
Saint Martin's University

Bella Tobin
Oklahoma State University

Derek Tomlin
Texas Christian University

Jonathan Troup
California State University Bakersfield

Chloe Urbanski Wawrzyniak
University of Kentucky

Lucas Van Meter
Swarthmore College

Julianne Vega
Kennesaw State University

Xiaoqing Wang
University of Florida

Jasper Weinburd
Harvey Mudd College

Hays Whitlatch
Gonzaga University

Alexander Wiedemann
Davidson College

Anila Yadavalli
University of Minnesota

Aaron Yeager
College of Coastal Georgia

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- 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

ABSTRACTS

PLENARY SESSIONS

Rites of Passage: Welcoming students into the social worlds of the university

Erica Winterer and Uri Treisman

spark creative thinking about your teaching in your institution.

In this session, Erica and Uri will invite you into their work as teachers, describe their approaches to critical problems of practice, and share reflections on these practices from their students. We will wrestle with the initiation of students into the social worlds of the university in ways that reflect our commitments to equity. Our hope is that you will find some of the problems we work on worthy of your attention and that our solutions for our students will

Best Practices for Remote Teaching in Math

Maria Andersen

practices and use them regularly. In fact, you might even find that teaching remotely has some great pedagogies that are near impossible to adopt in a face-to-face classroom. Dr. Maria Andersen has been using remote teaching practices and synchronous sessions in online courses for a decade, and will share some tips and best practices for making your classes and assessments run smoothly no matter what format they inhabit.

Suppose (hypothetically, right?) that you suddenly have to teach your math course from home for several weeks. Or rather, several students are suddenly quarantined at home and cannot attend your face-to-face class. Or you need to shift the entire class from face-to-face to online overnight. It's relatively easy to make the shift to remote teaching if you know a few tips and best

BREAKOUTS – Tuesday

Teaching Using Tactile Visualization Techniques

Julie Barnes

variety of example activities throughout the session (yes, even online); most of these examples come from calculus, but we will also touch on some higher-level courses.

We will look at a wide variety of hands-on activities using fun props like toys, food, and craft items that could be used to help students better visualize and understand mathematics. We will discuss how to use these kinds of activities in your classes, how these activities benefit students, and how to modify or develop new activities for your own teaching needs. We will physically do a

Collaborative Learning in College Mathematics

Matt DeLong

getting student buy-in. This session is geared towards novice practitioners of collaborative 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.

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

Creating a Vibrant & Inclusive Community

Dave Kung

creating more cohesive (and successful!) classes, departments, and communities.

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

BREAKOUTS – Tuesday (cont.)

Orienting Your Classroom Around Inquiry

Valerie Peterson

In this session, 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 as deeply as time permits 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!

Describing the World with DEs

Ami Radunskaya

Describing the world with DEs: integrating modeling into a differential equations course. Mathematical models can be used to describe processes that we observe in the world around us, to understand the mechanisms underlying these processes, and to predict outcomes in the future. Students (well, let's face it, many folks!) are often surprised at how useful mathematical models can be in studying a wide array of questions. In this hour-long workshop, I will motivate the integration of mathematical modeling into an introductory course in differential equations. Some specific examples will be presented, with more general thoughts on developing, implementing and assessing your own modeling projects.

Overcoming Math Anxiety in the Classroom

Adriana Salerno

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.

Experiences in Teaching Introduction to Data Science

Christopher Malone & 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.

How to Teach Abstract Algebra

Christopher Malone & Todd Iverson

When preparing to teach undergraduates how to think abstractly in Abstract Algebra, we must communicate clear expectations and goals. We must also make learning the material and its applications approachable and fun. In this session, we will discuss important course topics, effective approaches, and applications/projects for students.

ABSTRACTS

BREAKOUTS – Wednesday (cont.)

Visualizing Multivariable Calculus with CalcPlot3D

Paul Seeburger and
Monica VanDieren

This session explores the use of CalcPlot3D to visualize topics in multivariable calculus and differential equations. CalcPlot3D is a versatile JavaScript web app for use on phones, tablets and computers, developed by the presenter through NSF-IUSE #1524968. Participants will learn how to save particular CalcPlot3D plots to a URL for sharing with students or placing on websites. They will also learn how to use CalcPlot3D 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. The presenters will discuss ways they use CalcPlot3D in their teaching and help participants find some specific examples to use in their own teaching. See sites.monroec.edu/multivariablecalculus/.

Leading Math Circles

Cornelia Van Cott

Math circles are simultaneously fantastic and tricky. The fantastic part is that participants can experience hands-on discovery of mathematics for themselves. In addition, math circle topics have a low threshold and a high ceiling, so all types of people can take part. The tricky side of math circles is developing the flexibility as an instructor to facilitate this atmosphere. In addition, the topics that work well in math circles are not in the standard math curriculum, which can make getting started as a leader time consuming. In this session, we will walk through ideas on how to prepare and deliver math circles, and we will discuss a few math circle topics, to give examples of what can work.

Advising Students on Career Options

Suzy Weekes

In this session, we will discuss career options for mathematical sciences undergraduate and graduate students, share strategies for preparing students for those careers, and explore relevant resources that are helpful to faculty in their role as advisors and mentors. This is a hands-on session so be prepared to be pulled into and out of breakout rooms.

COURSES

Getting Started with Mastery Grading

Rachel Weir

In a mastery grading system, students' grades are based on their ability to demonstrate mastery of a well-defined list of learning objectives. We will describe the key components of a mastery grading system, highlighting how such a system supports the student learning cycle. Participants will have the opportunity to begin to craft mastery grading components for their own courses.

Jumpstarting your Scholarship Program

Alicia Prieto Langarica and
Cindy Wyels

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.

Mathematics for Social Justice

Lily Khadjavi and
Maria Mercedes Franco

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.

COURSES (cont.)

Teaching Introductory Statistics: Focus on Concepts and Data

Allan Rossman and Beth Chance

studies, and including assessments that promote student learning.

This minicourse provides hands-on activities, practical advice, and assessment strategies for teaching introductory statistics based on the American Statistical Association's recommendations. These recommendations call for emphasizing statistical thinking and conceptual understanding, implementing active learning with interactive software, using real data from genuine

Teaching Math Courses for Elementary Education Majors

Judith Covington

teach this course and methods that have been found to be successful in such a course. All are welcome in the minicourse and having access to your current course descriptions will be helpful, if you have them.

Teaching mathematics courses for future elementary teachers is an exciting and challenging experience. Different schools offer a variety of hours and courses. How do you decide what should be in the course at your institution? This session will discuss techniques and topics that should be a part of such a course or courses. We will talk about publications that help guide you as you

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

Alicia Prieto Langarica and Cindy Wyels

This minicourse 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 hand on, active learning workshop and attendants will be expected to work.

SILVER '19 SESSIONS

Managing Expectations and Developing a Positive Work-Life Balance

Organizers: Indu Rasika Churchill, David Freund, Douglas T. Pfeffer, and Emelie Curl

Featuring: Juliana Belding, Kathryn Haymaker, and Rebecca Garcia

In academia, we face an unclear boundary between our professional and personal lives. In this session, we will focus on approaches to building a work-life balance that promotes a higher quality of mental health and life as an academic. We will have panelists from a variety of backgrounds discuss their experiences attaining fulfilling and successful careers while simultaneously preserving time for a social life and/or hobbies outside of their institutions. Additionally, we will encourage active discussion amongst the audience and panelists. We will specifically address life outside of work, stress and overworking, and establishing reasonable boundaries for yourself.

How to Create Effective Homework Assignments

Organizers: Tania Hazra, Stephen Deterding, Jake Price, and Tori Akin

Featuring: David Pengelley, Matthew A. Morena, Milos Savic, Sarah Greenwald

During this session we will discuss techniques for creating homework assignments that enrich student's understanding of the concepts learned in class, help students challenge their own misconceptions, and develop expert-like thinking skills. This session will be a "breakout" session where attendees can select 2-3 presenters to sit with for more in-depth conversations.

Active Learning in Challenging Classrooms

Organizers: Marie B. Langlois, Matthew Lee, Matt Charnley, and Lauren Sager

Featuring: Kelly MacArthur, Martina Bode, Philipp Hieronymi

With active learning getting more popular and educational research demonstrating its benefits, many of us are interested in trying new strategies but our classes and classrooms make implementation much trickier. During this session, a panel will discuss strategies for active learning in challenging classroom situations such as large classes, lecture halls, rooms where students can't move their desks and chairs, etc.

ABSTRACTS

SILVER '19 SESSIONS (cont.)

Mastery-Based Grading—What is it? How can I get started?

Organizers: David Duncan, Francesca Gandini, Amy Grady, and Whitney Liske

Featuring: Jessie Lenarz, Sharon Krinsky, Laura Taalman

You have likely heard of Mastery-Based Grading (MBG), but you may not know exactly what it is or why it is the “talk of the town”. In this Expert Q&A, you will hear from several experienced MBG practitioners about what it is, and how you can get started in a small way (without doing too much extra work). No prior knowledge of MBG will be assumed.

Developing Computational and Applied Mathematics Courses

Organizers: Rebecca Terry, Lidia Mrad, Mario Banuelos, and Alexander Hoover

Featuring: Carrie Diaz Eaton, Tyler Jarvis, Norma Ortiz-Robinson

With an increasing demand for applied math, computing and data science courses, this session will provide attendees with resources to develop or expand upon applied math and data science course offerings. Speakers with expertise in open-source software, modeling, and applied math curricula will introduce effective approaches to develop computational and data science courses. After the introduction, participants will have the opportunity to break-out into smaller groups and focus on particular areas of interest.

Actions and Outcomes: Assessing the Effectiveness of New Teaching Methods

Organizers: Lisa Kaylor, Evangelos Dimou, Aqeeb Sabree, and Kayla Murray

Featuring: Darryl Yong, and Christine von Renesse

What makes a teaching method effective? Often, we learn about new teaching techniques at presentations and conferences. We then consider implementing these techniques in our classes. However, gauging the effectiveness of these new methods and our own implementation can be a challenge. In this interactive session, we will look at specific examples of teaching techniques. We will then discuss how we assess the effectiveness of these techniques, including the measurements for the assessments.

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 - ◆ *CHANCE*
 - ◆ *American Journal of Mathematical and Management Sciences*
 - ◆ *Cryptologia*
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WORKSHOP LEADER BIOS

Maria Andersen has spent most of her career teaching at the college level and developing digital products for learning. For ten years she taught chemistry and mathematics full-time at Muskegon Community College and now she teaches Math and Education courses for Westminster College in Salt Lake City. Dr. Andersen has a BS in Chemistry, a BA in Biology, an MS in Mathematics, an MBA, and PhD in Higher Education Leadership. As a side note, she also took all the undergraduate courses in Physics and Engineering required for a ChemE degree. Maria stepped out of academia full time to embrace online learning and the underlying technology. She has built iPad games to teach algebra, launched the Canvas Network Massive Open Online Course platform, designed adaptive learning platforms for STEM used by McGraw Hill, and worked as the Director of Learning Design for WGU (a fully-online CBE institution). Currently Maria is the CEO and Cofounder of Coursetune, a software platform that helps educational institutions to design and manage their curriculum.

Julie Barnes (Blue, 1996) is a Professor of Mathematics at Western Carolina University and is an Associate Director for MAA Project NExT. She has won awards for teaching, service, and writing. She has also published two MAA Press books: one on tactile teaching ideas and one that is a coloring book of complex function representations. She enjoys hiking, playing racquetball, and hanging out with her two cats.

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 co-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.

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 generally revolve around watching his three kids perform in bands, choirs, and musicals. Last fall he appeared onstage for the first time in several years as Jacob and Potiphar in Marian's production of "Joseph and the Amazing Technicolor Dreamcoat."

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.

Dave Kung (Gold, 2000) is a Professor of Mathematics at St. Mary's College of Maryland and director of MAA Project NExT. He earned his PhD in Harmonic Analysis from the University of Wisconsin. Winner of numerous awards, including his MAA section's teaching and service awards, his department regularly graduates a diverse group of majors making up over 7% of the graduating class.

Dandrielle Lewis (Peach, 2011) is Department Chair of Mathematical Sciences and an Associate Professor at High Point University. She is an Associate Editor for the MAA Focus. She has won the MAA Henry Alder Award for distinguished teaching and other awards for the UW System and as an Alumni of Winston Salem State University. Her research is in Finite Group Theory. She also creates interdisciplinary programs/research projects, and she is passionate about creating opportunities for women and underrepresented groups in Mathematics. She loves to go for walks, to travel, to cook, and spend time with family and friends.

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.

Valerie Peterson (Green'09) 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.

Alicia Prieto Langarica is a Professor in the Department of Mathematics and Statistics at YSU. She got her Doctoral degree from the University of Texas at Arlington in 2012. Her research is in the intersection of mathematics and biology, specifically problems related to the medical field and in mathematical modeling of epidemics. Recently she started conducting research in data science and public policy.

WORKSHOP LEADER BIOS

Ami Radunskaya, a California native, received her PhD in Mathematics from Stanford University. She has been a faculty member in the Math Department at Pomona College since 1994. In her research, she specializes in ergodic theory, dynamical systems, and applications to various “real-world” problems. Some current research projects involve mathematical models of cancer immunotherapy, developing strategies for targeted drug delivery to the brain, and studying stochastic perturbations of dynamical systems. She is a co-director of the EDGE (Enhancing Diversity in Graduate Education) program, which won a “Mathematics Program that Makes a Difference” award from the American Mathematical Society in 2007, and a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM) in 2017. Professor Radunskaya, the recent Past-President of the Association for Women in Mathematics, was recently elected as a Fellow of the American Math Society, and she is the recipient of several awards, including a WIG teaching award in 2012, and the 2017 AAAS Mentor award. She was featured in the documentary, “The Empowerment Project: ordinary women doing extraordinary things”, as well as in the recent book: “Power in Numbers: the Rebel Women of Mathematics”.

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 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.

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. In addition to developing the CalcPlot3D app and a Direction Field app to run on both computers and mobile devices, Paul and his co-PIs developed a series of concept explorations to help students master various concepts in the course including the dot product, the cross product, the relationship between velocity and acceleration vectors in plane motion, and Lagrange multiplier optimization. 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.

Uri Treisman is a University Distinguished Teaching Professor at the University of Texas at Austin, and the founder and executive director of the Dana Center. His groundbreaking work on supporting Black STEM students resulted in over a hundred Emerging Scholars Programs across the country. His numerous awards include a MacArthur Fellowship and the MAA’s Gung and Hu Award for Distinguished Service to Mathematics. He is a founder of Transforming Post-Secondary Education in Math (TPSE-Math) and serves on the boards of numerous groups dedicated to ensuring that all students, regardless of their life circumstances, have access to an excellent education.

Cornelia Van Cott is an Associate Professor at the University of San Francisco. She has periodically led math circles for children and teachers around the Bay Area for about ten years. Cornelia is on the leadership team for the San Francisco Math Teachers’ Circle.

Monica VanDieren earned her PhD in Mathematical Sciences through the interdisciplinary Pure and Applied Logic Program at Carnegie Mellon University. She held the Szegő 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.

Suzanne Weekes is the Associate Dean of Undergraduate Studies at Worcester Polytechnic Institute and a Professor of Mathematical Sciences. She is a co-director of the NSF-funded MAA PIC Math Program (Preparation for Industrial Careers in Mathematical Sciences). She is a recipient of the 2020 MAA Haimo Award for Distinguished College of University Teaching of Mathematics and the 2019 Humphreys Award for Mentoring from the Association for Women in Mathematics.

Erica Winterer is a doctoral student in STEM Education at The University of Texas. She began teaching in New Orleans high schools after graduating from Tulane with a degree in Biomedical Engineering. She has been teaching freshman calculus with Treisman for four years and her research interests focus on design learning environments that promote positive learning mindsets, specially capability, belonging, and purpose.

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