

A NOTE ON THE COVER ART

The cover image for the 2019 Annual Conference Program features original digital artwork created by AMTE graphic designer Tony Nguyen.

The artwork layers hundreds of vector-based polygons to form a vibrant geometric design in the "low-poly" visual style. A vibrant diamond figure highlights the multi-faceted nature of mathematics teacher education, in which many diverse perspectives can converge in support of focused, enduring, and joyful learning.

The symmetric three-dimensional geometric form many people associate with "brilliant cut" diamonds emerged through centuries of efforts to maximize the return of light as it enters, reflects within, and exits gems. Modern diamond cutters draw on deep knowledge and a range of skills to respond to the unique features of a raw stone – achieving near-balanced proportions across dozens of facets. The work may be technical and challenging, but it can lead to durable, unique, and beautiful results.

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WELCOME

Welcome to the Twenty-Third Annual Conference of the Association of Mathematics Teacher Educators (AMTE)! Our opening plenary session will extend AMTE's commitment to equity, with mathematics teacher educators sharing stories of their journeys to enhance their equity commitment. Our goal with the opening session is not for you to walk away thinking about what *others* are doing, but instead for you to use the opening session as an opportunity to reflect on and extend *your* professional journey. At this conference, we are also excited to launch our inaugural AMTE Manuscript Review Groups, and our Conference Ambassadors program. And remember to look for and greet new conference attendees, helping them feel welcome in our mathematics teacher education community!

INVITED SPEAKERS AND AWARD SESSIONS

The opening general session, "Challenges and Opportunities on our Journeys of Embodying our Commitment to Equity," is Thursday morning at 8:30 AM in Ballrooms C and D. Speakers include:

Marielle Myers, Kennesaw State University Rochelle Gutiérrez, University of Illinois, Urbana-Champaign Kelly MacArthur, University of Utah Christa Jackson, Iowa State University Mike Steele, University of Wisconsin, Milwaukee Randolph Philipp, San Diego State University

- **Denise A. Spangler** gives the 2019 Judith Jacobs Lecture, with a talk titled *"Fundamental Commitments of My Work as a Mathematics Teacher Educator"* on Friday afternoon, at 5:00 PM in Ballroom B.
- Samuel Otten, recipient of the Nadine Bezuk Award for Excellence in Leadership and Service in Mathematics Teacher Education, gives a talk titled *"Creating Lesson Plans that Teachers Want to Use: One-Page Formats and Cinematic Structures"* on Thursday afternoon, at 3:30 PM (Session 69) in Ballroom C.
- Sarah B Bush, recipient of the 2018 Early Career Award, will present a talk titled *"Authentic STEAM Instruction to Support and Challenge Each and Every Learner"* on Saturday morning, at 8:00 AM (Session 185) in Ballroom C.
- Kelley Buchheister, recipient of the 2019 AMTE NTLI Award, will present a talk titled *"A Program for Success"* on Friday afternoon, at 2:15 PM (Session 144) in Salon 10.

PROGRAM INFORMATION

There are a record-breaking 217 sessions and 493 speakers on this year's program (compared to 445 speakers in 2018). There were 451 proposals submitted for review. The program committee accepted 273 (60.5%) of these for the program, including: 180 individual presentations, discussion and extended sessions, and symposia; 62 brief reports organized into 23 thematic sessions; and 31 posters for the poster session. The fourth annual AMTE Poster Session is Friday afternoon from 1:00 to 2:00 PM in Ballrooms C and D. The program also includes 8 invited presentations, 2 award-winner sessions, and 2 sessions presented by AMTE sponsors.

LEAD THE WAY

AMTE has grown in scope and influence, and our activities now include co-publishing two journals, publishing books and policy documents, publishing a quarterly newsletter, offering webinars, hosting an active website, administering the STaR program, and working with other professional organizations to provide national leadership. And yet, as much as AMTE offers throughout the year, our conference continues to be a highlight. There really is no substitute for the dynamic quality of sharing and learning with other mathematics teacher educators! Thank you for attending the 2019 AMTE Annual Conference in Orlando and helping to make this a rich experience.

Kandy Philipp

Randolph Philipp, AMTE President

Susan Lay

Susan Gay, AMTE Conference Director

Jana C. Cyc

Dana Cox, 2019 AMTE Conference Program Chair

Simothy M. Hending

Tim Hendrix, AMTE Executive Director

CONFERENCE SCHEDULE

2019 ANNUAL AMTE CONFERENCE FEBRUARY 6-9, 2019, ORLANDO, FLORIDA

WEDNESDAY, FEBRUARY 6, 2019

4:30 PM – 7:30 PM AMTE Registration Desk Open

THURSDAY, FEBRUARY 7, 2019

	ANTE Desistration Deck Open
7:00 AM - 5:00 PM	AMIE Registration Desk Open
10:00 AM – 5:00 PM	Exhibits Open
8:30 AM - 10:30 AM	Opening Session – Ballrooms C and D
10:45 AM - 11:45 AM	Concurrent Sessions
11:45 AM – 1:15 PM	Lunch – Ballrooms A and B
1:15 PM - 2:00 PM	Concurrent Sessions
2:15 PM - 3:00 PM	Concurrent Sessions
3:00 PM - 3:30 PM	Break
3:30 PM - 4:30 PM	Concurrent Sessions
4:45 PM - 5:30 PM	Concurrent Sessions
5:30 PM - 6:30 PM	Reception for Graduate Students & Early Career Faculty – Ballroom B

FRIDAY, FEBRUARY 8, 2019

6:45 AM – 7:45 AM	Breakfast – Ballroom A
6:45 AM – 7:45 AM	Advocacy and Emerging Issues Breakfast – Ballroom B
7:30 AM - 4:30 PM	AMTE Registration Desk Open
8:30 AM - 5:00 PM	Exhibits Open
8:00 AM - 9:00 AM	Concurrent Sessions
9:15 AM - 10:00 AM	Concurrent Sessions
10:15 AM <i>–</i> 11:30 AM	Concurrent Sessions
11:30 AM – 1:00 PM	Lunch – Ballrooms A and B
1:00 PM - 2:00 PM	Poster Session – Ballrooms C and D
2:15 PM - 3:00 PM	Concurrent Sessions
3:00 PM - 3:30 PM	Break
3:30 PM - 4:30 PM	Concurrent Sessions
5:00 PM - 6:30 PM	Judith E. Jacobs Lecture – Ballroom B
6:30 PM – 7:30 PM	Reception for All Conference Attendees – Ballrooms C and D

SATURDAY, FEBRUARY 9, 2019

11:30 AM – 1:30 PM	Lunch and Business Meeting – Ballrooms A and B
10:30 AM – 11:30 AM	Concurrent Sessions
9:15 AM – 10:15 AM	Concurrent Sessions
8:00 AM - 9:00 AM	Concurrent Sessions
7:30 AM - 10:30 AM	AMTE Registration Desk Open
6:45 AM – 7:45 AM	Breakfast and Affiliate Meetings – Ballrooms A and B

CONFERENCE INFORMATION

CONFERENCE REGISTRATION DESK

Please stop by the AMTE Registration Desk, located in the Rosen Plaza Hotel on the First Floor, to obtain your conference materials, including your nametag and the conference program, if you requested a print copy.

AMTE REGISTRATION DESK HOURS

WEDNESDAY	4:30 PM - 7:30 PM
THURSDAY	7:00 AM - 5:00 PM
FRIDAY	7:30 AM - 4:30 PM
SATURDAY	7:30 AM - 10:30 AM

FINDING THE CONFERENCE AREA

Conference session rooms are located on the Mezzanine Level (second floor) and the First Floor in the Grand Ballroom. Meals will be held in Ballroom A/B on the First Floor.

For your convenience, a map of the hotel conference area is printed on the back of the program book. For other questions about hotel facilities, please contact the volunteers at the AMTE Registration Desk or the hotel staff.

WIRELESS INTERNET ACCESS

Complimentary wireless internet access in the conference/meeting area of the hotel for conference attendees is provided by AMTE for usage from Wednesday, February 6 through Saturday, February 9.

Using your laptop or mobile device, look for the network or SSID – AMTE and use the Password – amte2019.

Please note that only 500 people can have access at one time, so please only use one device on the hotel network at a time.

Conference attendees who are staying at the Rosen Plaza Hotel receive complimentary internet access in individual guestrooms for the duration of the conference. Directions on how to access wireless and wired internet service can be found in each guestroom.

CANCELLATIONS AND PROGRAM CHANGES

For updated lists of cancellations and other program changes, visit amte.net/conferences/conf2019/updates.

HOTEL PARKING INFORMATION

Self-parking at the Rosen Plaza Hotel is complimentary for everyone attending the conference. Tell the parking booth attendant that you are attending the AMTE conference in order to receive free parking. Valet parking is also available for \$22 per car per day (price subject to change).

OPTIONS FOR DINNER

For information on nearby restaurants, check the Conference App or inquire at the AMTE Registration Desk. Pointe Orlando is across the street from the hotel; this area has a variety of dining options.

CONFERENCE PHOTOGRAPHS

Photographs are being taken during the conference for use on the AMTE website, newsletters, and brochures. These photographs will not be sold or distributed in any way beyond the promotion of AMTE and its conference. If you do not wish your likeness to be used in these ways, please contact AMTE Executive Director, Tim Hendrix, at the conference or via email at hendrixt@meredith.edu. Thanks to Margaret Mohr-Schroeder (University of Kentucky) for serving as conference photographer.

PERSONAL PROPERTY

Please note that the hotel is not responsible for the safekeeping of equipment such as laptop computers or personal LCD projectors, supplies, written materials, or any other items that are unattended or left in meeting rooms by conference attendees.

LOST AND FOUND

Please drop off any unclaimed found items at the AMTE Registration Desk. Or you can drop off items at the Manager-On-Duty desk located at the hotel front desk next to the bell stand. AMTE and the hotel are not responsible for items being left in the session rooms and in the conference area.

EXHIBITS

THURSDAY 10:00 AM - 5:00 PM FRIDAY 8:30 AM - 5:00 PM

Make sure to visit the exhibits! Exhibitors include CPM, IAP, Math Learning Center, NCSM, NCTM, Pearson, and TODOS. See the Exhibitors Section of this program on pages 16 and 17 for more information.

COMMITTEE MEETINGS

AMTE Committees will meet during the conference according to the schedule provided to committee leaders.

AFFILIATE MEETINGS

AMTE Affiliates will meet during breakfast on Saturday in Ballroom A/B. This is a great time to meet each other face-to-face and discuss a game plan for the upcoming year. See page 8 in your conference program for table locations for each affiliate.

CONFERENCE APP & SOCIAL MEDIA

USE THE FREE AMTE CONFERENCE APP TO:

- View the Conference Program
- Organize your schedule
- Find more information about speakers and attendees
- Share documents, participate in audience surveys, polls, and Q & A sessions
- Engage attendees and colleagues around the world through Social Media

The official app is available through the major app stores. Search "AMTE 2019", or go to:

AMTE2019.QUICKMOBILE.MOBI

Username = (your registration email address before the @ symbol) Password = amte19





Apple App Store



Google Play App Store

FOLLOW AMTE ON TWITTER



LIKE AMTE ON FACEBOOK

facebook.com/AMTE.net



Use **#AMTE2019** to join public discussion around the conference.

AMTE 2018 BOARD OF DIRECTORS

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Paola Sztajn North Carolina State University Raleigh, NC psztajn@ncsu.edu

HISTORICAL LISTING OF AMTE PRESIDENTS

PRESIDENT

Christine Thomas Fran Arbaugh Marilyn Strutchens Barbara Reys Jennifer Bay-Williams Sid Rachlin Karen Karp

ICKIVI
2015 – 2017
2013 - 2015
2011 – 2013
2009 – 2011
2007 – 2009
2005 – 2007
2003 - 2005

TEDA

PRESIDENT Francis (Skip) Fennell Susan Gay

Nadine Bezuk

Judith Jacobs

Mark Spikell

Henry Kepner

1999 – 2001 1997 – 1999 1995 – 1997 1993 – 1995 1991 – 1993

TERM

2001 - 2003

2019 ANNUAL AMTE CONFERENCE COMMITTEE

Conference Director: Susan Gay, University of Kansas, sgay@ku.edu Assistant Conference Director: Carol Lucas, University of Central Oklahoma, clucas@uco.edu

CONFERENCE LEADERSHIP TEAM

Susan Gay (Conference Director), University of Kansas; sgay@ku.edu Carol Lucas (Asst. Conference Director), University of Central Oklahoma, clucas@uco.edu **Dana Cox (Chair, 2019), Miami University, dana.cox@miamioh.edu** Farshid Safi (Chair, 2018), University of Central Florida, farshid.safi@ucf.edu AnnaMarie Conner (Chair, 2020), University of Georgia, aconner@uga.edu

ANNUAL CONFERENCE PROGRAM COMMITTEE

2016 - 2019

Enrique Galindo, Indiana University, egalindo@indiana.edu Rick Hudson, University of Southern Indiana, rhudson@usi.edu Catherine Schwartz, East Carolina University, schwartzca@ecu.edu

2017 - 2020

Julie Amador, University of Idaho, jamador@uidaho.edu Jennifer Eli, University of Arizona, jeli@math.arizona.edu Cathy Liebars, The College of New Jersey, liebars@tcnj.edu Jane Wilburne, Pennsylvania State University, Harrisburg, jmw41@psu.edu

2018 - 2021

Megan Burton, Auburn University, megan.burton@auburn.edu Thomas Hodges, University of South Carolina, hodgeste@mailbox.sc.edu Trena Wilkerson, Baylor University, Trena_Wilkerson@baylor.edu Jeremy Zelkowski, University of Alabama, jzelkowski@ua.edu

CONFERENCE APP DEVELOPMENT TEAM

App Coordinator: Joe Champion, Website Director, joechampion@boisestate.edu App Graphics Assets: Tony Nguyen, Webmaster, ttnguyen@meredith.edu

LOCAL ARRANGEMENTS COMMITTEE

Sarah Bush (Registration Co-chair), University of Central Florida Farshid Safi (Registration Co-chair), University of Central Florida Megan Nickels (Audio-Visual Support Co-chair), University of Central Florida

Aline Abassian, University of Central Florida Tuyin An, Georgia Southern University Janet Andreasen, University of Central Florida Shahab Abbaspour, University of Central Florida Taylor Bousfield, University of Central Florida Angela Broaddus, Benedictine College Lisa Brooks, University of Central Florida Jennifer Caton, University of Central Florida Siddhi Desai, University of Central Florida Daniel Edelen, University of Central Florida Heidi Eisenreich, Georgia Southern University Bethany Fralish, University of Central Florida Gina Gresham, University of Central Florida Erhan Haciomeroglu, University of Central Florida Jeanine Haistings, William Jewell College Adele Hanlon, Jacksonville University Brianna Kurtz , University of Central Florida Carrie La Voy, University of Kansas Carol Lucas, University of Central Oklahoma Cathrine Maiorca, California State Univ., Long Beach Margaret Mohr-Schroeder, University of Kentucky Enrique Ortiz, University of Central Florida Katrina Rothrock, University of Kansas Katie Salamanca, Seminole County Public Schools Eryn Stehr, Georgia Southern University Makini Sutherland, University of Central Florida Mathew Taylor, University of Central Florida Taylar Wenzel, University of Central Florida

AMTE AFFILIATES

AMTE is proud to welcome members of its 25 affiliated organizations:

AFFILIATE

Illinois Mathematics Teacher Educators Utah Association of Mathematics Teacher Educators Florida Association of Mathematics Teacher Educators California Association of Mathematics Teacher Educators Association of Mathematics Teacher Educators of Connecticut Georgia Association of Mathematics Teacher Educators Tennessee Association of Mathematics Teacher Educators Association of Mathematics Teacher Educators - Texas Pennsylvania Association of Mathematics Teacher Educators Massachusetts Mathematics Association of Teacher Educators Missouri Mathematics Association for Advancement of Teacher Training South Carolina Association of Mathematics Teacher Educators New Jersey Association of Mathematics Teacher Educators Teachers of Teachers of Mathematics, Oregon Mississippi Association of Mathematics Teacher Educators Association of Mathematics Teacher Educators of Alabama Iowa Association of Mathematics Teacher Educators Association of Maryland Mathematics Teacher Educators Hoosier Association of Mathematics Teacher Educators Association of Mathematics Teacher Educators of North Carolina Michigan Association of Mathematics Teacher Educators Kentucky Association of Mathematics Teacher Educators Virginia Association of Mathematics Teacher Educators Wisconsin Association of Mathematics Teacher Educators Women and Mathematics Education

ACRONYM IMTE UAMTE FAMTE CAMTE AMTEC GAMTE TAMTE AMTE-TX PAMTE MassMATE (MAT)^2 SCAMTE NIAMTE TOTOM MAMTE AMTEA IAMTE AMMTE HAMTE AMTE-NC MI-AMTF KAMTE **VI-AMTE** WI-AMTE WME

LOCATION Illinois

Utah Florida California Connecticut Georgia Tennessee Texas Pennsylvania Massachusetts Missouri South Carolina New Jersey Oregon Mississippi Alabama lowa Maryland Indiana North Carolina Michigan Kentucky Virginia Wisconsin National



The Association of Mathematics Teacher Educators is a member of the Conference Board of the Mathematical Sciences and is an Affiliated Group of the National Council of Teachers of Mathematics.

Are you connected with an AMTE Affiliate? Does your state or regional area have an AMTE Affiliate? There are several opportunities to learn more about AMTE Affiliates during the annual conference.

SATURDAY BREAKFAST AFFILIATE MEETINGS

Ballrooms A and B, 6:45-7:45 AM

The special Affiliates breakfast is a great opportunity to meet with colleagues in your region.

WESTERN REGION

- 1. CAMTE (California)
- 2. AMTE-TX (Texas)
- 3. UAMTE (Utah)
- 4. TOTOM (Oregon)
- 5. Women & Mathematics Education

MIDWESTERN REGION

6. IMTE (Illinois)

- 7. HAMTE (Indiana)
- 8. MI-AMTE (Michigan)
- 9. (MAT)² (Missouri)
- 10. IAMTE (lowa)
- 11. WI-AMTE (Wisconsin)

NORTHEASTERN REGION

- 12. AMTEC (Connecticut)
- 13. PAMTE (Pennsylvania)
- 14. MassMATE (Massachusetts)
- 15. NJAMTE (New Jersey)

24. AMTEA (Alabama)

25. KAMTE (Kentucky)



HOW DO AMTE AFFILIATES APPLY PROBLEM-SOLVING PROCESSES TO CURRENT ISSUES IN MATHEMATICS EDUCATION? Friday, February 8, 3:30 PM – 4:30 PM, Rosen Plaza, Salon 13

19. GAMTE (Georgia)

20. VA-AMTE (Virginia)

AFFILIATE CONNECTIONS COMMITTEE SESSION

Please join us to hear from ACC members, meet Affiliate Leaders, and share ideas to reach and support your membership.

If your state or regional area does not have an AMTE Affiliate and you are interested in organizing one, please contact (amteaffiliate@gmail.com). For more about AMTE Affiliates, please visit at amte.net/affiliates.

THE NTLI AWARD

Since fall 2000, the Society for Information Technology and Teacher Education (SITE) has been collaborating with four teacher education associations representing the content areas of mathematics, science, English language arts, and social studies education through the National Technology Leadership Initiative (NTLI). The NTLI fellowships were established to recognize exemplary presentations related to integration of technology in core content areas at the annual meetings of each participating association. AMTE identifies the winner of its NTLI fellowship through a competitive process that includes the requirement of submitting a paper in advance of the conference. The winner of the award receives travel funding (\$1200, made possible by a donation by Texas Instruments) for presenting at the annual conference of the SITE, and the paper is forwarded and recommended for publication in the CITE journal by the AMTE Technology Committee after additional review. For more information, visit the following website: site.aace.org/awards/awards-ntli.htm Thanks to Texas Instruments for their ongoing support of this award.

2019 NTLI AWARD WINNER

Kelley Buchheister, University of Nebraska, Lincoln

Title: A Program for Success

Location: Session 144, Rosen Plaza Hotel, Salon 10

Time: Friday, February 8, 2:15 to 3:00 pm



Look in the 2020 Call for Proposals for information on how to submit a paper for the 2020 AMTE NTLI Award.

SCHOLARSHIPS FOR ELEMENTARY MATHEMATICS SPECIALISTS

The purpose of this Elementary Mathematics Specialist Scholarship is to provide the recipient with \$2,000 of funding to enhance their mathematics knowledge, teaching, and leadership by enrolling in university coursework that will result in becoming a certified elementary mathematics specialist. Elementary mathematics specialists work as teachers, teacher leaders, or coaches and support effective mathematics instruction and student learning at the classroom, school, district, or state levels.

CONGRATULATIONS TO THE 2018 EMS SCHOLARSHIP RECIPIENTS!

Dawoun Jyung, New York Enrique Tovar, New York Patty Morrison-Manning, Ohio

Check amte.net/about/ems in the spring for information about the next round of EMS Scholarships.

AMTE would like to thank our founding sponsor of the EMS Scholarships:



ACKNOWLEDGEMENTS

The Twenty-Third Annual AMTE Conference would not be possible without the contributions and support of many individuals. It is not possible to name each one individually!

AMTE WISHES TO EXPRESS ITS SINCERE APPRECIATION TO THE FOLLOWING:

- The Local Arrangements Committee, especially Sarah Bush and Farshid Safi, Co-chairs for Registration support, and Megan Nickels, Co-chair for Audio/Visual support, who are critical to making our conference successful;
- The University of Central Florida College of Community Innovation and Education, especially Dean Dr. Pamela "Sissi" Carroll and School Director Dr. Mike Hynes, for technology and personnel support for the conference;
- All of the speakers who have contributed their time and expertise to make this conference a success;
- The many individuals who make up the AMTE infrastructure the AMTE Board of Directors, the Conference Director and Assistant Conference Director, Executive Director, Program Committee, Conference App Team, and Headquarters staff for providing the time and effort necessary to organize all facets of the conference;
- Joe Champion, AVP for Website Development, and Tony Nguyen, AMTE Graphic Designer & Webmaster, for their dedicated work on the conference program and materials; and
- Student AMTE Assistants at Meredith College, including Sarah Allen, Jessica Irvin, Sydney Lang, Alexis Tennant and Whitney Watkins, for their dedication and organization preparing our conference registration materials.

When you see any of these individuals at our AMTE conference, we hope that you will take the time to express your own gratitude for their dedication to the organization and to the success of the 2019 conference.

Thank you!

SPONSORS

AMTE would like to express our appreciation to this year's Sponsors for providing invaluable support for our conference and for our organization's activities and initiatives.

СРМ

CPM Educational Program is a California nonprofit 501 (c) (3) serving the secondary mathematics education community with curriculum, professional development, and leadership. CPM envisions a world where mathematics is viewed as intriguing and useful, and is appreciated by all; where powerful mathematical thinking is an essential, universal, and desirable trait; and where people are empowered by mathematical problem-solving and reasoning to solve the world's problems.

CPM is pleased to support AMTE and its STaR program for new math education faculty. With matching funds, CPM supports beginning math education faculty in inspiring the next wave of math teachers across the country. CPM also provides complimentary access to our secondary curriculum materials to support pre-service teacher candidates, mathematics teacher educators, and mathematics curriculum reviewers and researchers through its University Support Program. All math education faculty are welcome to sign-up at http://cpm.org/university.

THE MATH LEARNING CENTER

The Math Learning Center (MLC) offers innovative, standards-based programs for elementary classrooms. *Bridges in Mathematics*, Number Corner, and Bridges Intervention develop mathematical confidence and ability not only in students but also in teachers. In support of our nonprofit mission, we offer a range of free resources, including the Bridges University program, which provides university instructors access to the full contents of the *Bridges in Mathematics PK–5* curriculum.

MLC is the founding sponsor of the Elementary Mathematics Specialist (EMS) Awards. The recipients of these awards receive funding to enhance their mathematics knowledge, teaching, and leadership by enrolling in university coursework that will result in becoming a certified elementary mathematics specialist.

INFORMATION AGE PUBLISHING

Information Age Publishing continues to partner with AMTE on multiple projects, including both the republication of the AMTE Monograph Series and the publication of the AMTE Professional Book Series: a three-volume series in the field of mathematics teacher education published over the last two years. AMTE is proud to have IAP as a sponsor – they have provided support for the AMTE Awards, and are donating books as prizes for our Early Career and Graduate Student Reception. Thanks to IAP for their continued support and growing partnership.

Founded in 1999 by George F. Johnson, IAP is a social science publisher of academic and scholarly book series and journals. IAP's goal is to develop a comprehensive list of book series, monographs and journals that break down and define specific niches that lack high-level research material in the fields of Education and Management. Our products will be offered in both print and electronic formats where possible. We at IAP sincerely hope to have you become a part of a new era in publishing as we grow.

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

The National Council of Teachers of Mathematics is the public voice of mathematics education, supporting teachers to ensure equitable mathematics learning of the highest quality for all students. NCTM members belong to the largest community of mathematics educators committed to ensuring each and every student has access to the highest quality mathematics teaching and learning. Membership opens doors to classroom resources, professional development opportunities, advocacy, peer-reviewed journals and publications, and an extensive network of teachers and mentors. Learn more about NCTM and the benefits of membership at NCTM.org.

SILVER SPONSOR

GOLD SPONSOR

GOLD SPONSOR

BRONZE SPONSOR



GOLD SPONSOR – CPM

CPM EDUCATIONAL PROGRAM Empowering mathematics students and teachers through exemplary curriculum, professional development, and leadership for 28 years

CPM's University Support Program

CPM provides complimentary access to our secondary mathematics curriculum to support math teacher educators and their students. Use CPM as a resource for teacher preparation coursework, student teaching, and for use in curriculum review and research.

Visit CPM.org/university

- + To request access for use in academic curriculum review and research
- + To request access for use in math education courses with teacher credentialing programs and student teachers

If you have further questions about university use of CPM's program or would like to request print materials for your curriculum library, please email research@cpm.org.



GOLD SPONSOR – THE MATH LEARNING CENTER

Provide your education students with access to a full PK–5 math curriculum

Bridges University Program

The content of Bridges in Mathematics second edition is now available for free to schools of education. University instructors may request access to the Bridges Educator Site for themselves and for their students. This teacher portal contains a complete set of the teacher and student materials as well as a wealth of resources for implementation support.

To learn more, stop by the Math Learning Center table or join us for a presentation:

Learn How to Incorporate Free PK-5 Math Curriculum into your Courses

Friday, February 8th, 8-9 a.m., Salon 14

Pamela Weber Harris—Texas State University

mathlearningcenter.org/university



2019 Annual AMTE Conference

SILVER SPONSOR – INFORMATION AGE PUBLISHING

Titles of Interest from:



Information Age Publishing

www.infoagepub.com

Featured Books:





BRONZE SPONSOR – NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS



NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

PREMIER MATH EDUCATION EVENT

NCTM ANNUAL MEETING & EXPOSITION 2019 April 3-6 | San Diego

Empowering the Mathematics Community

It's never too early to plan ahead for the leading math education event of the year. Network with thousands of your peers and fellow math education professionals to exchange ideas, engage with innovation in the field, and discover new learning practices that will drive student success.

The latest teaching trends and topics will include:

- Assessment: Eliciting and Using Student Thinking
- Building on Students' Strengths: Practices That Challenge, Engage, and Empower
- Professionalism and Advocacy
- Beyond the Classroom Walls: Empowerment, Access, and Equity
- Creating Inclusive Classrooms: Meeting the Needs of Each and Every Student
- Building Mathematical Knowledge for Teaching
- Enhancing Mathematical Thinking through Reading, Writing, Speaking, and Listening
- For the Love and Joy of Mathematics



nctm.org/annual

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The NCTM Annual Meeting & Exposition is ideal for:

- PRE-K–12 TEACHERS
- MATH TEACHER EDUCATORS
- NEW AND PROSPECTIVE TEACHERS
- MATH COACHES AND SPECIALISTS
- MATH RESEARCHERS
- SCHOOL AND DISTRICT ADMINISTRATORS

Learn more at **nctm.org/annual** and follow us on **f (a)** in **(a) (b) (b) (b) (c) (c)**

EXHIBITORS

AMTE expresses our appreciation to this year's Exhibitors for providing support for our conference. Stop by the Exhibit area to see materials from the following exhibitors:

EXHIBITOR ABOUT THE EXHIBIT

СРМ

CPM Educational Program is a California nonprofit 501 (c) (3) empowering mathematics students and teachers through exemplary curriculum, professional development, and leadership. We recognize and foster teacher expertise and leadership in mathematics education. We engage all students in learning mathematics through problem solving, reasoning, and communication. CPM's University Support Program provides complimentary curriculum materials to support pre-service teacher candidates, mathematics teacher educators, and mathematics curriculum reviewers and researchers.

INFORMATION AGE PUBLISHING

IAP is a social science publisher of academic and scholarly book series, monographs, handbooks and journals. IAP's goal is to develop a comprehensive library of content that breaks down and defines specific niches that lack high-level research material in the fields of Education, Psychology, Management, Mathematics, Educational Technology and Black Studies. We are proud of our partnership with AMTE as we continue to launch new books within The *Association of Mathematics Teacher Educators (AMTE) Professional Book Series*. IAP has also republished the original 7 monographs that were a part of the AMTE monograph series. We have an extensive list of products in the field of mathematics and look forward to adding yours to our program. Please stop by the exhibit area to browse our current mathematics publications as well as the AMTE monographs.

THE MATH LEARNING CENTER

The Math Learning Center (MLC) is a nonprofit organization serving the PK–12 education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative, standards-based resources and professional development. MLC also provides university instructors free access to the full contents of the *Bridges in Mathematics PK–5* curriculum. Stop by our table to learn more about the Bridges University program.

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

The National Council of Teachers of Mathematics is the public voice of mathematics education, supporting teachers to ensure equitable mathematics learning of the highest quality through vision, leadership, professional development, and research. NCTM members belong to the largest community of mathematics educators committed to ensuring each and every student has access to the highest quality mathematics teaching and learning. Membership opens doors to classroom resources, professional development opportunities, advocacy, peer-reviewed journals and publications, and an extensive network of teachers and mentors. Learn more about NCTM and the benefits of membership at NCTM.org.

EXHIBITOR

ABOUT THE EXHIBIT

NCSM-LEADERSHIP IN MATHEMATICS EDUCATION	NCSM is a mathematics education leadership organization that equips and empowers a diverse education community to engage in leadership that supports, sustains, and inspires high quality mathematics teaching and learning every day for each and every learner. Our bold leadership in the mathematics education community develops vision, ensures support, and guarantees that all students engage in equitable, high- quality mathematical experiences that lead to powerful, flexible uses of mathematical understanding to affect their lives and to improve the world. Stop by for more information about NCSM and our publications and resources, including the NCSM <i>Journal for Mathematics Education Leadership</i> , Position Papers and Publications. Also learn about NCSM partnerships to support Formative Assessment and Digital Learning, and about professional learning opportunities scheduled for 2019.
PEARSON	Pearson is the leading publisher in teacher education, with best-selling products for courses in math methods. We are proud to feature the <i>Teaching Student-Centered Math</i> series by John Van de Walle, Jennifer Bay-Williams, Karen Karp, and LouAnn Lovin. Learn more at pearson.com.
TODOS: MATHEMATICS FOR ALL	Mathematics for ALL is an international professional organization that advocates for equity and high quality mathematics education for all students – in particular, Latinx students. One of the goals of the organization is to advance educators' knowledge and abilities that lead to implementing an equitable, rigorous, and coherent mathematics program that incorporates the role language and culture play in teaching and learning mathematics. Stop by to hear about the benefits of membership!

THURSDAY, FEBRUARY 7, 2019

SSS

A/M T E

COFFEE AND TEA

LOBBY NEAR BALLROOM C

Please join us in greeting first-time and returning attendees over coffee and tea in the lobby outside Ballroom C.

(There are several options for breakfast in the hotel and nearby areas.)

THURSDAY, FEBRUARY 7, 2019

8:30 AM - 10:30 AM

A/M T E

OPENING SESSION BALLROOMS C AND D

CHALLENGES AND OPPORTUNITIES ON OUR JOURNEYS OF EMBODYING OUR COMMITMENT TO EQUITY

Randy Philipp, San Diego State University Mike Steele, University of Wisconsin, Milwaukee Marrielle Myers, Kennesaw State University Rochelle Gutiérrez, University of Illinois, Urbana-Champaign Kelly MacArthur, University of Utah Christa Jackson, Iowa State University

AMTE is committed to supporting its members in their process of more deeply addressing equity in their work. For example, the 2017 *Standards for Preparing Teachers of Mathematics* calls for equity to be a part of all facets of teacher preparation. Although we assume that all AMTE members are committed to equity, we acknowledge that our members have varying degrees of related knowledge and experience. This opening plenary session is designed for mathematics teacher educators to reflect upon their own journeys of embodying their commitment to equity by hearing from some mathematics teacher educators who have been grappling with these issues.



OVERVIEW OF THURSDAY MORNING, FEBRUARY 7, 2019

	10:45 AM – 11:45 AM
Salon 1	2. Fostering Representational Fluency: Deepening Prospective Teachers' Understanding of Multiplication- Bajwa, Welder, Feldman, Olanoff, & Tobias
Salon 2	3. A Framework for Analyzing and Redesigning Statistics Tasks to Promote Inferential Reasoning- Mutlu
Salon 3	4. Where Are We Now? Results from the 2018 National Survey of Science and Mathematics Education- Malzahn, Heck, & Plumley
Salon 4	5. Mathematics Teaching in High-Needs Schools as Places: Scholars Collaborating to Inform Prospective Secondary Mathematics Teachers- Zbiek, Foletta, & Heid
Salon 5	6. Competing Perspectives on Preparing Mathematics Teachers for Change- Munter, Otten, Empson, Tarr, & Webel
Salon 6	7. Using Letter Writing to Deepen K-8 Preservice Teachers' Mathematical Understandings and Mathematical Feedback- Willingham & Hawthorne
Salon 7	8. Brief Report Session: Eliciting and Noticing Student Thinking- Skultety; Bannister, Bowen, & Crespo; Klein & Matranga
Salon 8	9. Transforming Modeling Education: Mathematics Modeling Initiative- Roscoe & Luebeck
Salon 9	10. Rich Mathematics Curricula Brought to You by CPM, an Educational Nonprofit!- Rendon
Salon 10	11. A Teacher-Centered Perspective on Choosing and Using Proof-related Terminology- Lesseig
Salon 11	12. Unpacking Productive Struggle: Resources for Reflection and Instructional Planning- Keels & Han
Salon 12	13. Supporting PSTs in Teaching Mathematics for Social Justice: Connecting the Methods Classroom to the Internship- Myers
Salon 13	14. Learning About Ambitious Teaching: An On-campus Early Field Experience Model for Secondary Mathematics PSTs- Arbaugh, Bieda, & Cirillo
Salon 14	15. Reforming a Mathematics Course for Elementary Teachers via the APEX Cycle- Nazelli
Salon 17	16. Brief Report Session: Studying Teacher Effectiveness- Griffin & Brantlinger; Cady & Rearden; Swars Auslander
Salon 18	17. Brief Report Session: Supporting Teacher Learning- Marshall, Buenrostro, Chen, Garner, & Ehrenfeld; Mangram; Parrish & Vestal

THURSDAY, FEBRUARY 7, 2019

Session 2

Mathematics Content, Processes, and Practices Individual Session

FOSTERING REPRESENTATIONAL FLUENCY: DEEPENING PROSPECTIVE TEACHERS' UNDERSTANDING OF MULTIPLICATION

Neet Priya Bajwa, Illinois State University Rachael M Welder, Western Washington University Ziv Feldman, Boston University Dana Olanoff, Widener University Jennifer M Tobias, Illinois State University

We will present a series of tasks designed to foster PSTs' representational fluency for connecting models of multiplication to each other and to sense-making computational procedures. Participants will analyze PSTs' written work and discuss elements of task design.

Session 3

Session 4

Mathematics Pedagogy and Instructional Practice Discussion Session

A FRAMEWORK FOR ANALYZING AND REDESIGNING STATISTICS TASKS TO PROMOTE INFERENTIAL REASONING

Asli Mutlu, North Carolina State University

We present a framework developed for analyzing statistical tasks to promote inferential reasoning. This framework embodies key aspects of inferential reasoning and recommendations from GAISE committee by providing opportunities to calibrate cognitive demand and design or redesign modular statistical tasks.

Salon 3

Salon 1

Salon 2

Mathematics Education Policy and Program Issues Symposium

WHERE ARE WE NOW? RESULTS FROM THE 2018 NATIONAL SURVEY OF SCIENCE AND MATHEMATICS EDUCATION

Kristen Malzahn, Horizon Research, Inc. Daniel Heck, Horizon Research, Inc. Courtney Plumley, Horizon Research, Inc.

We share findings from a nationally representative study of mathematics education that examined the state of the mathematics teaching workforce, teachers' preparation and ongoing learning opportunities, and the nature of mathematics instruction. Participants will consider implications for mathematics teacher educators.

E

Salon 4

Salon 5

Salon 6

10:45 AM - 11:45 AM

Session 5 Mathematics Education Policy and Program Issues Individual Session

MATHEMATICS TEACHING IN HIGH-NEEDS SCHOOLS AS PLACES: SCHOLARS COLLABORATING TO INFORM PROSPECTIVE SECONDARY MATHEMATICS TEACHERS

Rose Mary Zbiek, The Pennsylvania State University Gina M. Foletta, The Pennsylvania State University Mary Kathleen Heid, The Pennsylvania State University

Scholar-colleagues outside mathematics education and we created seminars that encourage prospective teachers to teach in high-needs rural and urban schools. We share how we draw on place-based education and other areas to explore lived communities and engage in mathematical modeling.

Session 6

Mathematics Education Policy and Program Issues Discussion Session

COMPETING PERSPECTIVES ON PREPARING MATHEMATICS TEACHERS FOR CHANGE

Charles Munter, University of Missouri Samuel Otten, University of Missouri Susan B Empson, University of Missouri James Tarr, University of Missouri Corey Webel, University of Missouri

This discussion will consider two competing approaches to mathematics teacher education for broader instructional change—the "incrementalist" approach and the "agent-of-change" approach—which are the product of our internal debates in redesigning teacher education course sequences at our institution.

Session 7

Mathematics Content, Processes, and Practices Individual Session

USING LETTER WRITING TO DEEPEN K-8 PRESERVICE TEACHERS' MATHEMATICAL UNDERSTANDINGS AND MATHEMATICAL FEEDBACK

James Willingham, James Madison University Casey Hawthorne, Furman University

This study explored the affordances of letter-writing exchanges in the development of preservice K-8 teachers' (PST) mathematical understandings and mathematical feedback processes. PSTs demonstrated new mathematical thinking inspired by other solution paths and improvement in providing and implementing received feedback.

Salon 7

Salon 11

NG Mathematics Content, Processes, and Practices Discussion Session

Session 11

A TEACHER-CENTERED PERSPECTIVE ON CHOOSING AND USING PROOF-RELATED TERMINOLOGY

Kristin Lesseig, Washington State University, Vancouver

I will share a set of criteria to support teachers' selection and use of proof-related terms. We will discuss challenges these criteria are designed to mitigate and prompt conversation around language that might support teachers in their work with students.

Session 12

Mathematics Pedagogy and Instructional Practice Discussion Session

UNPACKING PRODUCTIVE STRUGGLE: RESOURCES FOR REFLECTION AND INSTRUCTIONAL PLANNING

Kirsten Keels, University of Georgia Jaepil Han, University of Missouri

Participants will engage with resources we developed to help teachers identify productive and unproductive responses to struggle, reflect on their responses, and set goals for responses. They also help teacher educators provide feedback about teachers' responses to students' struggles.

Session 13

Salon 12

Salon 13

Equity, Social Justice, and Mathematics Teacher Education Individual Session

SUPPORTING PSTS IN TEACHING MATHEMATICS FOR SOCIAL JUSTICE: CONNECTING THE METHODS CLASSROOM TO THE INTERNSHIP

Marrielle Myers, Kennesaw State University

I share results from a project aimed at preparing elementary PSTs to teach mathematics for social justice. After a yearlong mathematics methods class, I followed students into their field placements to observe how they planned, taught, and reflected on TMfSJ.

Session 14

Preservice Teacher Field Experiences Individual Session

LEARNING ABOUT AMBITIOUS TEACHING: AN ON-CAMPUS EARLY FIELD EXPERIENCE MODEL FOR SECONDARY MATHEMATICS PSTS

Fran Arbaugh, The Pennsylvania State University Kristen N Bieda, Michigan State University Michelle Cirillo, University of Delaware

Participants learn about and discuss an on-campus model of early field experience. The model involves secondary PSTs observing and teaching in a developmental undergraduate mathematics course, under close mentorship of mathematics teacher educator(s), while simultaneously enrolled in a methods course.

BRIEF REPORT SESSION: ELICITING AND NOTICING STUDENT THINKING

EXAMINING CASES OF PRESERVICE TEACHERS' NOTICING IN RELATION TO KNOWLEDGE, BELIEFS, AND EXPERIENCES

Lisa Skultety, University of Illinois, Urbana-Champaign

This report examines four preservice teachers' changes in noticing of students' thinking in relation to changes in their knowledge, beliefs about the roles of students' thinking in math instruction, and experiences with teaching and observing math instruction.

SUPPORTING PRESERVICE TEACHERS LEARNING TO DRAW ON STUDENTS' MATHEMATICAL STRENGTHS

Nicole Bannister, Clemson University Diana Bowen, University of Maryland Sandra Crespo, Michigan State University

Analysis of preservice teachers' noticing statements within a digital methods course assignment before and after a strengths-based sentence frame intervention showed statistically significant gains in use of strengths-based language and amount of mathematical evidence used to describe students' thinking.

USING THE MATH FORUM'S NOTICE & WONDER STRATEGY TO SUPPORT TEACHERS TO SEE STUDENTS AS SENSE-MAKERS

Valerie Klein, Drexel University

Anthony Matranga, California State University, San Marcos

To support productive disruption and dispositional changes, we employed a strategy, based on the Math Forum's work with noticing and wondering (NW), to support teachers to engage in instructional activities that support the surfacing of students' ideas and understandings.

Session 9

Mathematics Content, Processes, and Practices Discussion Session

TRANSFORMING MODELING EDUCATION: MATHEMATICS MODELING INITIATIVE

Matt B. Roscoe, University of Montana Jennifer Luebeck, Montana State University

Research documents barriers that prevent teachers from enacting modeling education in K-12 classrooms. Montana's Modeling Initiative (MMI) initiates teachers into a mathematical modeling community through an online professional development program that targets the elimination of these pedagogical obstacles.

Session 10 AMTE Gold Sponsor Individual Session Salon 9

Salon 8

RICH MATHEMATICS CURRICULA BROUGHT TO YOU BY CPM, AN EDUCATIONAL NONPROFIT!

Sharon Rendon, CPM Educational Program

Looking for ideas to incorporate NCTM's eight teaching practices in your courses? Experience CPM's student-centered, problem based curricula, which encourages thinking, persevering, and sense-making. You can have CPM's 6-12 curriculum for your library or to use in your methods courses.

Consider 45	Consider 47
Session 15 Salon 14 Mathematics Content, Processes, and Practices Salon 14	Session 17 Salon 18 Mathematics Pedagogy and Instructional Practice Salon 18
Individual Session	BRIEF REPORT SESSION: SUPPORTING TEACHER LEARNING
REFORMING A MATHEMATICS COURSE FOR ELEMENTARY TEACHERS VIA THE APEX CYCLE Christopher Dennis Nazelli, Wayne State University	ADDING VALUE IN COACHING BY CENTERING THE MATHEMATICS
We share efforts reforming Mathematics for Elementary Teachers courses at partnering institutions. After paring down the course content, activities were created that allowed students to experience and learn mathematics through authentic mathematical practices such as analysis, presentation, explanation and exchange.	Samantha A Marshall, Vanderbilt University Patricia Maria Buenrostro, Vanderbilt University Grace Chen, Vanderbilt University Brette Ashley Garner, University of Denver Nadav Ehrenfeld, Vanderbilt University
Session 16Salon 17Mathematics Education Policy and Program Issues	We share findings from video-based mathematics teacher coaching to support ambitious instruction. Participants will learn about the affordances and constraints of coaching with a mathematics-centric
BRIEF REPORT SESSION: STUDYING TEACHER EFFECTIVENESS	focus versus an activity-centric focus, impacts on teachers' learning opportunities, and implications for future work.
	EXAMINING TEACHER CANDIDATES' FACILITATION OF
URBAN MATHEMATICS TEACHER EFFECTIVENESS	NUMBER IALKS IN A HYBRID COURSE
Matt Griffin, University of Maryland Andrew Brantlinger, University of Maryland	MTEs are increasingly being called to support teacher candidates in virtual spaces. This report describes some of the successes and
This session presents the results of a critical analysis of a Mathematica study of mathematics teacher effectiveness. We provide a critique of the study's methodology, results, and recommendations. We provide	challenges of a hybrid (combination of online/face-to-face) elementary mathematics methods course intervention designed to support teacher candidates' Number Talks facilitation.
implications for teacher preparation and for pathways towards teacher certification.	ONLINE LEARNING COMMUNITIES: A SUPPORT FOR
OVERCOMING CHALLENGES TO GUIDING CANDIDATES	BEYOND TEACHER PREPARATION
IHROUGH IHE EDIPA	Christopher Parrish, University of South Alabama
Kristin Rearden, University of Tennessee	In this session, we discuss how online communities may support
Preparing preservice teachers for the completion of the edTPA is challenging. We share our assessment of candidates' submissions that led to curricula changes that better align our program with the goals of the edTPA.	beginning teachers within and beyond teacher preparation. We also discuss students' perceptions and use of social media to support teaching following a semester of engagement with the online community.
PREPARING ELEMENTARY TEACHER CANDIDATES FOR THE HIGH STAKES EDTPA MATH TASK 4	
Susan Swars Auslander, Georgia State University	
requirement. A case study design explored the preparation of elementary teacher candidates (N=51) for edTPA during mathematics methods courses emphasizing CGI that included a simulated edTPA Math Task 4.	
THURSDAY, FEBRUARY 7, 2019	11:45 AM - 1:15 PM
AMTE	
AMTE provides a buffet lunch in Ballroom your colleagues for lunch and good conve Thursday afternoon sessions.	A and B. Please join ersation before the

2019 Annual AMTE Conference

OVERVIEW OF THURSDAY AFTERNOON, FEBRUARY 7, 2019

	1:15 PM – 2:00 PM	2:15 PM – 3:00 PM
Salon 1	19. The Impacts and Perceived Effects of Scholarship Programs to Recruit STEM Teachers- Whitfield & Capraro	37. Learning Mathematics Through Teaching: Building Preservice Teachers' Content Knowledge Through Early Mediated Field Experiences- Billings & Swartz
Salon 2	20. Mathematics Teachers' Implicit Biases Toward Female Students and Students of Color- Copur-Gencturk	38. Mathematical Writing to Promote Reasoning in Teacher Preparation Programs- Colonnese, Casa, & Firmender
Salon 3	21. Paradigm Shifts in Mathematics Methods Courses- Rakes, Ronau, Mohr-Schroeder, & Stites	39. Strategies, Examples, and Models of Online Professional Development for Mathematics Teachers- Pape & Chauvot
Salon 4	22. Exploring Mindfulness Practices in Mathematics Teacher Education- Welder & Champion	40. An Examination of the Effectiveness of Number Talks for Improving Fluency in Upper Elementary Students- Doyle, Bush, & Nickels
Salon 5	23. How Do We Help Teachers Choose? Researching the Quality of Mathematics Activities Found Online Sawyer	41. Examining which Student Thinking is Considered in Responsive Teaching- Stockero, Leatham, & Peterson
Salon 6	24. Storytelling And Summarizing: Mathematical Narratives As Formative Assessment- Levin, Roller, & Wessman- Enzinger	42. Brief Report Session: Preservice Teachers, Equity and Culturally Responsive Pedagogy- Ramsay-Jordan; Moldavan
Salon 7	25. Dream Big, Start Small, Move Slow: A Model for Scaling Up Effective Professional Development Initiatives- Bahr	43. <i>Brief Report Session: Teacher Beliefs</i> - Lamb; Utley & Reeder
Salon 8	26. How School and University Partnerships Can Foster Mathematics Teacher Leadership: Applying an Ecological Framework- Smith	44. Preservice Teachers' Participation in a Virtual Classroom Simulator Involving Mathematics Diagnostic Tasks- Ortiz
Salon 9	27. High School Geometry Textbooks, the Common Core, and Proof: Implications for Secondary Methods Courses- Nirode & Boyd	45. Incorporating Mathematical Empathy and Fluidity in the Teaching of Definition- Harper, Keiser, & Cox
Salon 10	28. Capturing Diversity: Designing Online Video-Based Modules to Support Prospective Secondary Mathematics Teacher Learning- Totorica & Hagenah	46. Teaching with Open Problem Activities: Dilemmas and Successes Over 25 Years- Phillips & Slanger-Grant
Salon 11	29. Content Courses for Secondary Teachers: Teachers' Attributions for Influencing Teaching Practice- Wasserman	47. Engaging Teachers in Online Teaching Labs to Shift Instructional Practices in the Mathematics Classroom- Martin, Carson, & Gillespie
Salon 12	30. <i>Middle School Teachers' Statistical Inventions and</i> <i>Inferences About Variability-</i> Jones, Google, & Duncan	48. Facilitation Practices in Mathematics Teacher Education that Promote Productive Identities in Preservice Elementary Teachers- Gibbons & Batista
Salon 13	31. Implementing Growth Mindset More Equitably: Shifting Responsibility from Student to Teacher- Sun	49. Preservice Teachers Communicating Children's Mathematical Strengths in the Form of Family Newsletters- Bonner, Kelley, & Kalinec-Craig
Salon 14	32. Connecting Preservice Middle and High School Teachers' College Math Classes to Middle and Secondary Mathematics- Wall	50. Co-Constructing Statewide Curriculum Frameworks: Purpose and Processes- Stephan, Schwartz, & Duggan
Salon 17	33. Criteria for Selecting Artifacts: Features of Students' Strategies that Challenge and/or Intrigue Teachers- LaRochelle	51. Supporting Mathematics Teacher Development through Online Learning: The Role of Structure and the Teacher Educator- Silverman & Dean
Salon 18	34. Enactment of Digital Curricula in Elementary Classrooms and Its Impact on Mathematical Practices- Rhine, Driskell, Wheeler, Harrington, & Smith	52. Brief Report Session: School Culture and Change- Adams; Read Jasnoff & Elliott
Ballroom C	35. Catalyzing Change in High School Mathematics: Initiating Critical Conversations- Berry	53. Professional Development that Sticks: Research Validation of PD for Sustainable Equity- Clements
Ballroom D	36. Designing and Implementing Micro-credentials to Support Teachers' Learning- Mojica, Lee, Mutlu, Barker, & Azmy	54. Using Practical Measures of the Quality of Instruction in Mathematics Coaching- Kochmanski & Nieman

	3:30 PM – 4:30 PM	4:45 PM – 5:30 PM
Salon 1	55. Mathematics Teacher Education in the Age of Twitter: A Critical Tool in Elementary Math Methods- Vakil, Lin, & Ozturk	73. Cultivating a Growth Mindset Among Preservice Teachers- Driskell & Brown
Salon 2	56. Analyzing How the 5 Practices are Learned- LaCroix, & Ulrich	74. Using STEM-Related Modeling Tasks to Support Preservice Teachers' Understanding of Mathematical Modeling- Corum
Salon 3	57. Using Classroom Vignettes that Integrate Technology in Mathematics Teacher Education- Thomas & Edson	75. The Power of Adjusting PD Facilitation Based on Your Teacher Participants' Needs- Taylor & Lee
Salon 4	70. Simulations as Approximations of Practice in Mathematics Teacher Education- Farmer, Howell, & Pynes	
Salon 5	71. <i>Moving Toward Emancipatory Pedagogies in the Research, Teaching and Learning of P-20 Mathematic</i> s- Chen, Joseph, Dunleavy, Wager, Ehrenfeld, & Marshall	
Salon 6	58. Brief Report Session: Self-examination of Teaching Practice- Eddy; Wilkerson & Bowen; Ives	76. Brief Report Session: Comparing Preservice Teacher Field Experiences- Linder; Hallman-Thrasher
Salon 7	59. Brief Report Session: Learning to Teach with Technology- Sawyer & Dick; Lee & Kautz; Yu & Golden	77. Brief Report Session: Learning From Mistakes- Duncan; Groth & Bergner
Salon 8	60. Elementary Teachers' Receptiveness to Mathematical Modeling: Identifying and Exploring Beliefs, Practices, and Classroom Structures Wickstrom	78. Action Research and Family Engagement: Implications for Math Teacher Preparation- Mistretta
Salon 9	61. Stepping into Statistical Practices with the Footprint Problem- Carlson & Arnold	79. Acknowledgement, Action, & Accountability: Looking Back and Looking Forward on Progress Toward Social Justice- de Araujo
Salon 10	62. Does Task Context Matter? Supporting PSTs' Professional Noticing Skills of Student Generalizations and Justifications- Zambak & Magiera	80. The Role of Curricular Reasoning in Middle Grades Mathematics Teachers' Instructional Practice- Dingman, Teuscher, & Olson
Salon 11	63. Advancing Knowledge with and about Black Mathematics Teachers- Frank, View, & Powell	81. Situating Methods Courses in Schools: Affordances and Challenges of Learning from One-on-one Work with Students- Webel, Yeo, & Sheffel
Salon 12	64. Supporting Middle School Teachers' Development of Statistical Content and Pedagogy through a Blended Professional Development- Lovett, Jones, Google, & Matuszewski	82. An Eye Tracking Analysis of Preservice Teachers' Attention to Curriculum Materials and Implications for Teacher Education- Setniker, Males, & Quigley
Salon 13	65. Teacher Questioning in Elementary Preservice Teachers' Mathematics Field Experiences- Lee	83. Planted Errors in Coached Rehearsals: Attending to the Authenticity of an Approximation of Practice- Campbell & Baldinger
Salon 14	66. <i>Learn About the AMTE STaR Program</i> - Shih & Leatham	84. New Choice: Facilitated Improvisation in Mathematics Teacher Professional Development Aimed Toward Equity- Oriented Mathematics Education- Scroggins
Salon 17	67. Convince Me: A Review of Prospective PreK-8 Teachers' Common Proving Strategies- Stevens	85. Evaluation and Integration of Digital Resources in Middle School Math- Kautz, & Lee
Salon 18	68. Brief Report Session: Curriculum Studies- Clark; Kara; Son	86. Rethinking Teaching and Learning: Unpacking Mathematics Education Online- Friel, Browning, & Fede
Ballroom C	69. Creating Lesson Plans that Teachers Want to Use: One- Page Formats and Cinematic Structures- Otten	
Ballroom D	72. Using Online Materials to Promote Teacher Noticing of Stu	dents' Prior Knowledge- Gonzalez, Skultety, & Vargas

THURSDAY, FEBRUARY 7, 2019

1:15 PM - 2:00 PM

d Learning with Technology ession WE HELP TEACHERS CHOOSE? RESEARCHING THE OF MATHEMATICS ACTIVITIES FOUND ONLINE Intt Sawyer, James Madison University e using unsanctioned online resources to create their es curriculums. Come learn about the quality of educational Pinterest and Teachers Pay Teachers and how, as MTEs, we critical consumption of internet resources with teachers. Salon 6 a Content, Processes, and Practices ession LING AND SUMMARIZING: MATHEMATICAL VES AS FORMATIVE ASSESSMENT Vin, Western Michigan University ller, University of Alabama, Huntsville 'essman-Enzinger, George Fox University ring of class experiences through shared class notes ling/summarizing) offers a unique window into what they from class activities. We frame this activity in terms of
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ssessment, compare three classroom instantiations, and
Salon 7
ressional Development posion
UP EFFECTIVE PROFESSIONAL DEVELOPINIENT
ES ahr Brigham Young University
rs contribute to whether an effective professional
ht program can be delivered to a wider audience with ale, capacity, and sustainability. A model attending to these be shared, along with data that evidences its viability.
Salon 8
Iniversity Partnerships and Projects
OOL AND UNIVERSITY PARTNERSHIPS CAN
IATHEMATICS TEACHER LEADERSHIP: APPLYING
JGICAL FRAMEWORK
JGICAL FRAMEWORK :h, University of Nebraska, Lincoln
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Session 27Salon 9Mathematics Education Policy and Program IssuesIndividual Session	Session 31Salon 13Mathematics Pedagogy and Instructional PracticeIndividual Session
HIGH SCHOOL GEOMETRY TEXTBOOKS, THE COMMON CORE, AND PROOF: IMPLICATIONS FOR SECONDARY METHODS COURSES	IMPLEMENTING GROWTH MINDSET MORE EQUITABLY: SHIFTING RESPONSIBILITY FROM STUDENT TO TEACHER Kathy Sun, Santa Clara University
Wayne Nirode, Miami University Brian Boyd, Wright State University This session shares the analysis of the opportunities that geometry textbooks provide students to engage with and prove the theorems in the Common Core standards. Participants will discuss implications for the preparation of preservice teachers.	Teachers may unintentionally implement growth mindset strategies that perpetuate deficit views of students and send contradictory fixed mindset messages. This session supports mathematics educators to avoid these pitfalls by identifying "fixed mindset triggers" and strategies for reframing instructional responses.
Session 28 Salon 10 Mathematics Pedagogy and Instructional Practice	Session 32 Salon 14 Mathematics Content, Processes, and Practices Individual Session
Individual Session CAPTURING DIVERSITY: DESIGNING ONLINE VIDEO-BASED MODULES TO SUPPORT PROSPECTIVE SECONDARY MATHEMATICS TEACHER LEARNING Tatia Totorica, Boise State University Sara Hagenah, Boise State University Navigate the tensions inherent to selecting student video cases for	CONNECTING PRESERVICE MIDDLE AND HIGH SCHOOL TEACHERS' COLLEGE MATH CLASSES TO MIDDLE AND SECONDARY MATHEMATICS Jennifer Wall, Northwest Missouri State University Middle and secondary preservice teachers wonder why they need to take upper level mathematics courses so they can teach middle and high school math. We designed a 1-hour course with the goal of making iaw-dropping connections, and it is working!
inclusion in online modules intended for use with prospective secondary mathematics teachers. Engage in conversation focused on balancing two goals: feature both student diversity and a range of mathematical reasoning.	Session 33 Salon 17 Teacher Professional Development Individual Session
Session 29 Salon 11 Mathematics Content, Processes, and Practices Individual Session	CRITERIA FOR SELECTING ARTIFACTS: FEATURES OF STUDENTS' STRATEGIES THAT CHALLENGE AND/OR
CONTENT COURSES FOR SECONDARY TEACHERS: TEACHERS' ATTRIBUTIONS FOR INFLUENCING TEACHING PRACTICE Nick Wasserman, Teachers College, Columbia University Six secondary mathematics teachers were observed in their classrooms following the completion of an experimental real analysis course. We focus our report on the attributions teachers made about their	INTRIGUE TEACHERS Raymond LaRochelle, University of Delaware Some artifacts of student thinking have greater potential for supporting teacher learning than others. I investigated features of student strategies that challenged/intrigued teachers, and aim to use these results to support a discussion about artifact selection with AMTE members.
implementation of teaching practices related to course objectives. Session 30 Salon 12 Teacher Professional Development Individual Session	Session 34Salon 18Teaching and Learning with TechnologyIndividual Session
MIDDLE SCHOOL TEACHERS' STATISTICAL INVENTIONS AND INTERENCES ABOUT VARIABILITY Ryan Seth Jones, Middle Tennessee State University Angela N Google, Middle Tennessee State University Matthew Duncan, Middle Tennessee State University Tasks designed to engage teachers with making statistical inferences and inventing measures of variability will be shared. Participants will engage with artifacts of the teachers' work and a discussion of the statistical practices teachers evoked through these tasks.	ENALIMENT OF DIGITAL CURRICULA IN ELEMENTARY CLASSROOMS AND ITS IMPACT ON MATHEMATICAL PRACTICES Steve Rhine, Pacific University Shannon Driskell, University of Dayton Ann Wheeler, Texas Woman's University Rachel Harrington, Western Oregon University Ryan C Smith, Radford University We will share evidence of the use of mathematical practices in elementary school classrooms implementing digital curricula and engage participants in conversation about the dynamic between digital curricula, teachers' use of mathematical practices, and students' development of mathematical practices.

Session 37

Session 38

in reasoning.

Individual Session

Session 39

Individual Session

Individual Session

NCTM Presidential Exchange Session Individual Session

CATALYZING CHANGE IN HIGH SCHOOL MATHEMATICS: INITIATING CRITICAL CONVERSATIONS

Robert Quinlyn Berry, University of Virginia & NCTM

This session will engage all participants in critical conversations using *Catalyzing Change in High School Mathematics*. Participants will examine resources that can be used to support critical conversation with all individuals who have a stake in high school mathematics.

Session 36 Teacher Professional Development Individual Session

Ballroom C

Salon 1

Salon 2

Salon 3

DESIGNING AND IMPLEMENTING MICRO-CREDENTIALS TO SUPPORT TEACHERS' LEARNING

Gemma Foust Mojica, North Carolina State University Hollylynne S. Lee, North Carolina State University Asli Mutlu, North Carolina State University Heather Barker, North Carolina State University Christina Azmy, North Carolina State University

A new approach to assessing and credentialing teachers' learning is through micro-credentials (MCs), a performance-based assessment. Discussion will include: design, implementation, scoring, and affordances and challenges. Three statistics MCs will be shared, along with rubrics and a scoring guide

2:15 PM - 3:00 PM

THURSDAY, FEBRUARY 7, 2019

Mathematics Content, Processes, and Practices

Session 40 Mathematics Pedagogy and Instructional Practice Individual Session

LEARNING MATHEMATICS THROUGH TEACHING: BUILDING PRESERVICE TEACHERS' CONTENT KNOWLEDGE THROUGH EARLY MEDIATED FIELD EXPERIENCES AND AN EXAMINATION OF THE EFFECTIVENESS OF NUMBER STUDENTS

Esther MH Billings, Grand Valley State University Barbara Ann Swartz, McDaniel College

Mathematics Content, Processes, and Practices

TEACHER PREPARATION PROGRAMS

Janine M Firmender, Saint Joseph's University

Tutita M. Casa, University of Connecticut

We describe how mediated field experiences in elementary mathematics content or integrated content-methods courses, organized around core practices and embedded in elementary schools at two different institutions, motivate, develop, and deepen preservice teachers' knowledge of both practices and mathematical content.

MATHEMATICAL WRITING TO PROMOTE REASONING IN

Preservice teachers are increasingly pressed to demonstrate their ability

to elicit evidence of students' mathematical reasoning. In this session,

coursework to expand preservice teachers' skills for engaging students

we will describe our integration of mathematical writing within our

STRATEGIES, EXAMPLES, AND MODELS OF ONLINE

Madelyn Colonnese, University of North Carolina, Charlotte

STUDENTS Heather D Doyle, University of Central Florida Sarah B Bush, University of Central Florida

Megan Nickels, University of Central Florida

In this session, we report on a qualitative analysis of 50 upper elementary Number Talks sessions. Three themes emerged from the data: traditional algorithm vs. student-created strategies, students identifying errors, and students finding their own mathematical voice.

Session 41 Mathematics Pedagogy and Instructional Practice Individual Session

EXAMINING WHICH STUDENT THINKING IS CONSIDERED IN RESPONSIVE TEACHING

Shari L Stockero, Michigan Technological University Keith Rigby Leatham, Brigham Young University Blake E Peterson, Brigham Young University

We explore issues related to responsive teaching by presenting excerpts of whole-class discussion and considering the degree of responsiveness within each excerpt as it relates to the collection of instances of student thinking that had been shared thus far.

Session 42 Salon 6 BRIEF REPORT SESSION: PRESERVICE TEACHERS, EQUITY AND CULTURALLY RESPONSIVE PEDAGOGY

BEYOND CLASSROOM WALLS: PREPARING CULTURALLY RESPONSIVE MATHEMATICS PEDAGOGUES FOR DIVERSE LEARNERS

Natasha Ramsay-Jordan, University of West Georgia

Prospective teachers of diverse students need opportunities in their professional study to develop culturally responsive practices. This research report offers insight into how preparing culturally responsive mathematics pedagogues, could interrupt and dismantle systemic barriers that impede mathematics success for all.

(continued on next page)

Stephen Pape, Johns Hopkins University Jennifer Chauvot, University of Houston

Teacher Professional Development

This session is for teacher educators who want to learn more about productive online instruction with K-12 mathematics teachers. We will share specific strategies and models used to facilitate meaningful professional development in online environments. Salon 4

Salon 5

PROMOTING PRESERVICE TEACHERS' CRITICAL CONSCIOUSNESS OF EQUITY IN MATHEMATICS TEACHER EDUCATION

Alesia Mickle Moldavan, Fordham University

This report examines how mathematics teacher educators make intentional efforts to address conversations of equity in mathematics teacher education. Suggestions follow for ways to promote preservice teachers' critical consciousness of equity pertaining to issues of access, achievement, identity, and power.

Session 43

Salon 7

Mathematics Pedagogy and Instructional Practice BRIEF REPORT SESSION: TEACHER BELIEFS

DRAW A MATHEMATICS TEACHER AT WORK

John H Lamb, The University of Texas, Tyler

College freshmen and sophomores were asked to draw mathematics teachers at work. Cluster analysis indicated the most commonly drawn mathematics teacher was a dress-wearing female elementary teacher. Elementary teachers have lasting impressions on how people view mathematics teachers at work.

EXPLORING THE DRAW A MATH TEACHER TEST AS A REFLECTION TOOL

Juliana Utley, Oklahoma State University Stacy Reeder, University of Oklahoma

This session will examine how the Draw a Mathematics Teacher Test, scoring rubric and teaching styles continuum can be used in conjunction with class discussion as a reflection tool for preservice teachers to reflect upon their beliefs about teaching mathematics.

Session 44

Salon 8

Preservice Teacher Field Experiences Individual Session

PRESERVICE TEACHERS' PARTICIPATION IN A VIRTUAL CLASSROOM SIMULATOR INVOLVING MATHEMATICS DIAGNOSTIC TASKS

Enrique Ortiz, University of Central Florida

Preservice teachers developed their mathematics diagnostic competence using TeachLive, which is a mixed-reality teaching environment used to support pedagogical practices. Participants' assessment of their TeachLive video recordings will be discussed, including results from a self-efficacy scale and a diagnostic protocol.

Session 45 Mathematics Content, Processes, and Practices

Salon 9

Individual Session
INCORPORATING MATHEMATICAL EMPATHY AND

FLUIDITY IN THE TEACHING OF DEFINITION

Suzanne R. Harper, Miami University Jane Keiser, Miami University Dana Cox, Miami University

We will discuss two frameworks helpful in structuring conversations about definition. We will share and generate ideas about how to create opportunities for preservice teachers to develop a fluid concept of definition and to practice mathematical empathy in instruction.

Session 46

Mathematics Content, Processes, and Practices Individual Session

TEACHING WITH OPEN PROBLEM ACTIVITIES: DILEMMAS AND SUCCESSES OVER 25 YEARS

Elizabeth Phillips, Michigan State University Yvonne Slanger-Grant, Michigan State University

This session explores equity-based teaching practices in mathematics by focusing on teaching through open problems. We will highlight dilemmas and successes teachers face when helping students solve problems, unpack the embedded mathematics, and connect learning to prior and future knowledge.

Session 47

Teacher Professional Development Individual Session

ENGAGING TEACHERS IN ONLINE TEACHING LABS TO SHIFT INSTRUCTIONAL PRACTICES IN THE MATHEMATICS CLASSROOM

Stephanie Martin, University of Rochester Cynthia Carson, University of Rochester Ryan Gillespie, University of Idaho

How can we leverage technology to provide opportunities for teachers to access high quality professional learning? Participants will consider the what, why, and how of transitioning teaching lab experiences to an online space with a focus on shifting instructional practices.

Session 48

Mathematics Pedagogy and Instructional Practice Individual Session

FACILITATION PRACTICES IN MATHEMATICS TEACHER EDUCATION THAT PROMOTE PRODUCTIVE IDENTITIES IN PRESERVICE ELEMENTARY TEACHERS

Lynsey Gibbons, Boston University Lisa Nguyen Batista, Boston University

We report on an analysis that examined an experienced mathematics teacher educator and identified four key facilitation practices that appeared to productively impact preservice teachers' identity: emphasizing reasoning, promoting broader engagement, shifting responsibility for learning, and developing supportive classroom community.

Session 49

Preservice Teacher Field Experiences Individual Session

PRESERVICE TEACHERS COMMUNICATING CHILDREN'S MATHEMATICAL STRENGTHS IN THE FORM OF FAMILY NEWSLETTERS

Emily Bonner, University of Texas, San Antonio Traci Kelley, University of Texas, San Antonio Crystal Kalinec-Craig, University of Texas, San Antonio

An analysis of 67 family newsletters created by the preservice teachers, as a part of the Support and Enrichment Experience in Mathematics (SEE Math) program, found evidence of strength-based language that highlights what children know about mathematics. The newsletters also showed connections to children's home and community knowledge.

Salon 11

Salon 12

Salon 13

Session 50

Equity, Social Justice, and Mathematics Teacher Education Individual Session

CO-CONSTRUCTING STATEWIDE CURRICULUM FRAMEWORKS: PURPOSE AND PROCESSES

Michelle Stephan, University of North Carolina, Charlotte Catherine Schwartz, East Carolina University

Arren Duggan, University of North Carolina, Greensboro

We report on the results of a Design Based Implementation Research project in which teachers, researchers, and district administrators cocreated a statewide pacing guide. We discuss our means of creating an infrastructure and social network for teachers.

Session 51

Teaching and Learning with Technology Individual Session

SUPPORTING MATHEMATICS TEACHER DEVELOPMENT THROUGH ONLINE LEARNING: THE ROLE OF STRUCTURE AND THE TEACHER EDUCATOR

Jason Silverman, Drexel University

Chrystal Dean, Appalachian State University

We will discuss aspects of our framework for supporting mathematics teacher development through online learning. The session will include examples of instructional design and pedagogical decisions that have been shown effective and examples of the impact of this work.

Session 52

29

Teacher Professional Development

BRIEF REPORT SESSION: SCHOOL CULTURE AND CHANGE

CREATING AND SUPPORTING MATHEMATICS TEACHER LEADERS: INVITING ADMINISTRATORS INTO THE CONVERSATION

Anne E. Adams, University of Idaho

We describe our work with administrators to foster understanding and support of district teacher leaders' efforts in developing student mathematical reasoning. We discuss challenges we faced in involving administrators in preparing for and supporting sustainable change in district mathematics teaching.

EVIDENCE OF ADVOCACY: TECHNOLOGY INTEGRATION PREPARATION FOR PRESERVICE TEACHERS OF MATHEMATICS

Gabrielle Read Jasnoff, University of Louisville Lucas Elliott, University of Louisville

Many policies, standards, recommendations, and endorsements exist advocating for technology integration in teacher education preparation, especially in mathematics. These documents are highlighted as well as research studies that provide evidence for such advocacy across elementary, middle, and secondary mathematics programs. Session 53 Teacher Professional Development Individual Session

PROFESSIONAL DEVELOPMENT THAT STICKS: RESEARCH VALIDATION OF PD FOR SUSTAINABLE EQUITY

Douglas H. Clements, University of Denver

Professional development faces challenges in preschool, including the diverse workforce and their limited knowledge. We evaluated the effects of a research-based model on teachers' practices and beliefs six years after the project's end—to see if the PD's benefits were sustained.

Session 54

Salon 14

Salon 17

Salon 18

Teacher Professional Development Individual Session

USING PRACTICAL MEASURES OF THE QUALITY OF INSTRUCTION IN MATHEMATICS COACHING

Nicholas Kochmanski, Vanderbilt University Hannah Nieman, University of Washington

Practical measures of the quality of instruction provide instructional leaders (e.g., coaches, district leaders) with formative, ongoing feedback on teachers' instructional practice. This session investigates how coaches can use practical measures in one-on-one and collaborative coaching contexts.

Ballroom C

Ballroom D

THURSDAY, FEBRUARY 7, 2019

A/MTE

THURSDAY AFTERNOON BREAK ROSEN PLAZA HOTEL

FIRST FLOOR,

This is a great time to stretch, network with colleagues, and visit the exhibitors.



3:30 PM - 4:30 PM

THURSDAY, FEBRUARY 7, 2019

Session 58 Session 55 Salon 1 Salon 6 Teaching and Learning with Technology BRIEF REPORT SESSION: SELF-EXAMINATION OF TEACHING Individual Session PRACTICE MATHEMATICS TEACHER EDUCATION IN THE AGE OF FACING THE TRUTH: TRANSFORMING PRACTICE AS A TWITTER: A CRITICAL TOOL IN ELEMENTARY MATH MATHEMATICS EDUCATOR FOR ACCESS AND EQUITY METHODS Colleen M Eddy, University of North Texas Joanne Baltazar Vakil, The Ohio State University Hochieh Lin, The Ohio State University This is a candid case study of my teaching practices as a mathematics Ayse Nur Ozturk, The Ohio State University educator over three years in the access and equity course for secondary STEM candidates. The analysis includes course design and candidates' We present successes and issues utilizing Twitter in elementary anonymous evaluation of the course. mathematics methods courses over two years. Participants will critically analyze the tool through a live Twitter chat, connecting issues of SUPPORTING MATHEMATICS TEACHERS TO TAKE ACTION identity, community, and power and privilege to technology in teacher Trena Wilkerson, Baylor University education. Molly Bowen, Baylor University Session 56 Salon 2 Description of results related to teacher developed action plans Mathematics Pedagogy and Instructional Practice regarding teaching practices as an outcome of a yearlong professional development institute targeting 125 grade 5-12 mathematics teachers Individual Session will be shared. Focus of plans, barriers/support and enactment will be ANALYZING HOW THE 5 PRACTICES ARE LEARNED discussed. Tiffany LaCroix, Virginia Tech TRANSFORMING PRACTICE THROUGH ACTION RESEARCH: Catherine Ulrich, Virginia Tech MASTER TEACHING FELLOWS' PROJECTS We will share activities from our methods courses to increase our students' knowledge of and confidence using the 5 Practices. These Sarah E Ives, California State University, Sacramento activities were informed by results from mixed-methods research into Secondary mathematics and science teachers participating in action our students' knowledge of and comfort level with these practices. research as a form of professional development can undergo a transformative experience. Come hear a report of about 20 teachers' -Session 57 Salon 3 grade levels ranging from 7th to 12th – action research projects. Teaching and Learning with Technology Individual Session USING CLASSROOM VIGNETTES THAT INTEGRATE TECHNOLOGY IN MATHEMATICS TEACHER EDUCATION Amanda Thomas, University of Nebraska, Lincoln Alden J Edson, Michigan State University The purpose of this session is to explore classroom vignettes that integrate technology to discuss equity-based teaching practices and connections among different policy documents by different organizations.

2019 Annual AMTE Conference

Salon 9

Teaching and Learning with Technology

Session 59

BRIEF REPORT SESSION: LEARNING TO TEACH WITH TECHNOLOGY

IDENTIFYING WHERE AND HOW U.S. ELEMENTARY TEACHERS SELECT ONLINE MATHEMATICS TASKS

Amanda Gantt Sawyer, James Madison University Lara Dick, Bucknell University

Come learn about the results of a survey on identifying where and how elementary teachers select mathematics educational tasks from online sources taken by elementary mathematics teachers.

IMPROVING KNOWLEDGE, BELIEFS, AND SKILLS OF TEACHING ALGEBRA USING DIGITAL RESOURCES

Hea-Jin Lee, The Ohio State University, Lima Jaime N Kautz, The Ohio State University

This study is based on a year-long professional development program aimed at improving teachers' knowledge, beliefs, and skills of using digital content in teaching algebra. Findings include teachers' TPACK, SE, use of digital resources, and their alignment with standards and students.

TPACK AND SAMR: AN INTEGRATED FRAMEWORK FOR PRESERVICE MATHEMATICS EDUCATION

Paul Yu, Grand Valley State University John Golden, Grand Valley State University

We will present an integrated TPACK and SAMR (Substitution, Augmentation, Modification, Redefinition) framework that was used in a preservice elementary education course. Specific learning tasks used in this course, and results from post course surveys and interviews will be shared.

Session 60

Salon 8

Mathematics Content, Processes, and Practices Individual Session

ELEMENTARY TEACHERS' RECEPTIVENESS TO MATHEMATICAL MODELING: IDENTIFYING AND EXPLORING BELIEFS, PRACTICES, AND CLASSROOM STRUCTURES.

Megan H. Wickstrom, Montana State University

Teaching rich, conceptual mathematics, like modeling tasks, is an ambitious endeavor. In this session, building from Zbiek's (2016) productive and unproductive beliefs, we will examine teacher case studies to highlight teaching practices and beliefs that support ambitious instruction.

Session 61

Mathematics Content, Processes, and Practices Individual Session

STEPPING INTO STATISTICAL PRACTICES WITH THE FOOTPRINT PROBLEM

Mary Alice Carlson, Montana State University Elizabeth G Arnold, James Madison University

This session explores the SET Report's "Mathematical Practices through a Statistics Lens" as a tool for understanding how students enact statistical practices and differentiating mathematical from statistical reasoning. We consider implications for teachers learning to respond to students' statistical ideas. Session 62 Mathematics Content, Processes, and Practices Discussion Session

DOES TASK CONTEXT MATTER? SUPPORTING PSTS' PROFESSIONAL NOTICING SKILLS OF STUDENT GENERALIZATIONS AND JUSTIFICATIONS

Vecihi Serbay Zambak, Marquette University Marta Magiera, Marquette University

We will examine PSTs' practices of attending-and-interpreting and responding in the context of tasks that require analyzing video records or written artifacts of student work. Participants will analyze and discuss the potential of different tasks to promote PSTs' professional noticing skills.

Session 63

Salon 11

Equity, Social Justice, and Mathematics Teacher Education Individual Session

ADVANCING KNOWLEDGE WITH AND ABOUT BLACK MATHEMATICS TEACHERS

Toya Jones Frank, George Mason University Jenice Leilani View, George Mason University Marvin Powell, George Mason University

Presenters will share an overview, data, and analyses related to Examining the Trajectories of Black Mathematics Teachers, an NSFfunded, mixed-methods study about the state of Black mathematics teachers, past and present. The findings have implications for diversifying the mathematics teaching force.

Session 64

Teacher Professional Development Individual Session Salon 12

Salon 13

SUPPORTING MIDDLE SCHOOL TEACHERS' DEVELOPMENT OF STATISTICAL CONTENT AND PEDAGOGY THROUGH A BLENDED PROFESSIONAL DEVELOPMENT

Jennifer Lovett, Middle Tennessee State University Ryan Seth Jones, Middle Tennessee State University Angela N Google, Middle Tennessee State University Amber Matuszewski, Middle Tennessee State University

A model for our blended professional development will be shared. Participants will engage with resources and materials. We will share how the resources and experiences have influenced changes in teachers' perspectives and practices.

Session 65

Preservice Teacher Field Experiences Individual Session

TEACHER QUESTIONING IN ELEMENTARY PRESERVICE TEACHERS' MATHEMATICS FIELD EXPERIENCES

Yi-Jung Lee, University of Georgia

This empirical study investigated the nature of 13 preservice teachers' questioning performance in their early field experiences. Based on the outcome and impact of this research, the presenter will lead an interactive discussion focusing on questioning in mathematics problem solving.

Salon 7

Session 66Salon 14Development of Mathematics Teacher EducatorsIndividual Session	Session 69Ballroom C2019 Nadine Bezuk Excellence in Leadership and Service AwardIndividual Session
LEARN ABOUT THE AMTE STAR PROGRAM Jeff Shih, University of Nevada, Las Vegas Keith Rigby Leatham, Brigham Young University	CREATING LESSON PLANS THAT TEACHERS WANT TO USE: ONE-PAGE FORMATS AND CINEMATIC STRUCTURES
The purpose of this session is for AMTE members to become both aware and better informed about the Service, Teaching and Research (STaR) Program, an induction program for early career mathematics educators working at institutions of higher education.	Teachers rarely write full lesson plans and do not often have time to process lengthy plans supplied to them. This session explores new formats of lesson plans that are designed to fit with the day-to-day demands of teaching. Formats include those inspired by cinematic
Session 67 Salon 17 Mathematics Content, Processes, and Practices Individual Session	storytelling structure and concise YouTube videos.
CONVINCE ME: A REVIEW OF PROSPECTIVE PREK-8 TEACHERS' COMMON PROVING STRATEGIES Alexis L. Stevens, James Madison University This session will examine prospective PreK-8 teachers' mathematical content knowledge related to proof. We will share and summarize prospective PreK-8 teachers' proving strategies as well as explore the role of proof in upper-level mathematics courses for prospective PreK-8 teachers.	
Session 68 Salon 18	
Mathematics Pedagogy and Instructional Practice	
BRIEF REPORT SESSION: CURRICULUM STUDIES	
EDUCATIONAL STAKEHOLDERS' INTERACTIONS WITH THE POLITICAL NATURE OF CCSSM IMPLEMENTATION Dan Clark, Western Kentucky University This session will discuss and situate how three different groups of mathematics education stakeholders (elementary teachers, professional development providers, and state department of education officials) responded to the political controversy regarding CCSSM implementation.	
RE-ENGINEERING TASK SEQUENCES OF HYPOTHETICAL LEARNING TRAJECTORIES IN A METHODS COURSE Melike Kara, Towson University	
This session explores the use of hypothetical learning trajectories (HLTs) in a methods course offered to preservice teachers. Participants will be asked to engage in a demonstration of the instructional process and discuss the use of HLTs in teacher education.	
TEACHER CONCERN AND ENACTED CURRICULUM	
Ji-Won Son, University at Buffalo-State University of New York	
This session presents findings of a study investigating the relationships among teacher concerns regarding the CCSSM, teachers' intended curriculum and teachers' enacted curriculum.	
	I

THURSDAY, FEBRUARY 7, 2019

3:30 PM - 5:30 PM

Session 70

Mathematics Pedagogy and Instructional Practice Extended Session

SIMULATIONS AS APPROXIMATIONS OF PRACTICE IN MATHEMATICS TEACHER EDUCATION

Susanna Owens Farmer, University of Michigan Heather Howell, Educational Testing Service Kristen D'Anna Pynes, University of Michigan, Ann Arbor

In this extended workshop session, we share two projects using simulations (digital and face to face) in mathematics teacher education. We invite participants to try each out, and to discuss the purposes and implications of how teaching practice is approximated.

Session 71

Salon 5

Salon 1

Salon 4

Equity, Social Justice, and Mathematics Teacher Education Extended Session

MOVING TOWARD EMANCIPATORY PEDAGOGIES IN THE RESEARCH, TEACHING AND LEARNING OF P-20 MATHEMATICS

Grace Chen, Vanderbilt University Nicole Michelle Joseph, Vanderbilt University Teresa K Dunleavy, Vanderbilt University Anita Wager, Vanderbilt University Nadav Ehrenfeld, Vanderbilt University Samantha A Marshall, Vanderbilt University

Calls for emancipatory education (e.g., Freire, 1970) attract and inspire mathematics educators and researchers, but interpretations vary widely. We use five cases across various P-20 contexts to engage participants in collective interrogating, theorizing, and imagining toward emancipatory pedagogies.

THURSDAY, FEBRUARY 7, 2019

Session 73

Mathematics Content, Processes, and Practices Individual Session

CULTIVATING A GROWTH MINDSET AMONG PRESERVICE TEACHERS

Shannon Driskell, University of Dayton Jonathan Brown, University of Dayton

We will share results from a study in required mathematics content courses for elementary and intervention specialist PSTs who read Boaler's (2015) "Mathematical Mindsets", completed tasks from the book, responded to instructor-provided guided questions, and participated in weekly classroom discussions.

Session 74

Mathematics Content, Processes, and Practices Individual Session

USING STEM-RELATED MODELING TASKS TO SUPPORT PRESERVICE TEACHERS' UNDERSTANDING OF MATHEMATICAL MODELING

4:45 PM - 5:30 PM

Salon 2

Kimberly Corum, Towson University

Preservice teachers were asked to develop a model relating a single dependent variable to three independent variables. I will share how participating in this activity revealed preservice teachers' ideas and thoughts about modeling activities and their usefulness in the classroom.

Ballroom D

Session 72 Teacher Professional Development Extended Session

USING ONLINE MATERIALS TO PROMOTE TEACHER NOTICING OF STUDENTS' PRIOR KNOWLEDGE

Gloriana Gonzalez, University of Illinois, Urbana-Champaign Lisa Skultety, University of Illinois, Urbana-Champaign Gabriela Elizabeth Vargas, University of Illinois, Urbana-Champaign

This workshop will engage mathematics teacher educators in exploring online materials to promote teacher noticing of students' prior knowledge. Workshop participants will explore the online resources and discuss how they can be used with inservice and preservice teachers.
Session 75Salon 3Teacher Professional DevelopmentIndividual Session	Session 78Salon 8Preservice Teacher Field ExperiencesIndividual Session
THE POWER OF ADJUSTING PD FACILITATION BASED ON YOUR TEACHER PARTICIPANTS' NEEDS Christine Taylor, Indiana State University Jean Lee, University of Indianapolis	ACTION RESEARCH AND FAMILY ENGAGEMENT: IMPLICATIONS FOR MATH TEACHER PREPARATION Regina Marie Mistretta, St. John's University A presentation that focuses participants' attention on how teacher
In this session, we examine how teachers in our three-year long PD responded to the goals of the PD. We examine teacher profiles of various PD participants in order to reflect on our facilitation decisions throughout the PD.	candidates can engage in action research about families and math, what teacher candidates can research, and why the need to research exists in the first place.
Session 76Salon 6Preservice Teacher Field ExperiencesBRIEF REPORT SESSION: COMPARING PRESERVICE TEACHERFIELD EXPERIENCES	Session 79 Salon 9 TODOS Session Individual Session ACKNOWLEDGEMENT, ACTION, & ACCOUNTABILITY: LOOKING BACK AND LOOKING EODWARD ON PROGRESS
CREATING SUBSTANTIVE EARLY FIELD EXPERIENCES TO SUPPORT INSTRUCTIONAL PRACTICE IN EARLY CHILDHOOD MATHEMATICS Sandra Linder, Clemson University Examination of two practicum experiences for early childhood preservice teachers. Structure A (n=41): coursework three days/classroom two days weekly. Structure B (n=38): six weeks	TOWARD SOCIAL JUSTICE Zandra de Araujo, University of Missouri We will discuss how the TODOS and NCSM position statement for social justice in mathematics education has been taken up by others and the need for continuing calls to attention and action for social justice among organizations in mathematics education. Session 80 Salon 10
coursework and six weeks classroom. Findings show increased mathematical interactions and progressive beliefs within Structure B.	Mathematics Content, Processes, and Practices Individual Session
INNOVATIVE ELEMENTARY MATHEMATICS FIELD EXPERIENCES FOCUSED ON STUDENT THINKING Allyson Hallman-Thrasher, Ohio University This session describes two models for innovative elementary mathematics field experiences focused on eliciting and responding to student thinking. We share tasks and reflection frameworks from each model and participants discuss how to modify these models for existing field experiences.	THE ROLE OF CURRICULAR REASONING IN MIDDLE GRADES MATHEMATICS TEACHERS' INSTRUCTIONAL PRACTICE Shannon Dingman, University of Arkansas Dawn Teuscher, Brigham Young University Travis Austin Olson, University of Nevada, Las Vegas We present six aspects of curricular reasoning and illustrate the interactions among teachers, students, mathematics, and curriculum materials using data from Grade 8 teachers as they planned and enacted geometric transformation lessons.
	Session 81 Salon 11
CHANGES IN PRESERVICE TEACHERS' BELIEFS SYSTEMS CONCERNING MATHEMATICAL MISTAKES Matthew Duncan, Middle Tennessee State University This session will describe the changes in beliefs concerning mathematical mistakes of two preservice teachers while enrolled in a teacher preparation course designed to use mathematical mistakes in ways aligned with current standards documents. PRODUCTIVE MISTAKES DURING DESIGN-BASED RESEARCH AS LEARNING SITES FOR PROSPECTIVE TEACHERS Randall E Groth, Salisbury University Jennifer Bergner, Salisbury University We describe experiences collaborating with prospective teachers to design instruction. During collaboration, we allowed enough autonomy for the prospective teachers to make and learn from productive mistakes. We explain how unpacking and addressing such mistakes can support mathematics teachers' learning.	Preservice Teacher Field Experiences Individual Session SITUATING METHODS COURSES IN SCHOOLS: AFFORDANCES AND CHALLENGES OF LEARNING FROM ONE-ON-ONE WORK WITH STUDENTS Corey Webel, University of Missouri Sheunghyun Yeo, University of Missouri Christina Sheffel, University of Missouri We will share findings from a field experience model in which all methods classes were held in a local elementary school and preservice teachers were supported in working with a single student on mathematics for 30 minutes each day.

Session 82 Mathematics Pedagogy and Instructional Practice Individual Session

AN EYE TRACKING ANALYSIS OF PRESERVICE TEACHERS' ATTENTION TO CURRICULUM MATERIALS AND IMPLICATIONS FOR TEACHER EDUCATION

Ariel Setniker, University of Nebraska, Lincoln Lorraine Marie Males, University of Nebraska, Lincoln Kelsey Quigley, University of Nebraska, Lincoln

In this session, we share findings around PSTs' attention to varying curricula while planning a lesson in order to examine how the format of materials influences attention and to inform the need for curriculum use practices in teacher education.

Session 83

Mathematics Pedagogy and Instructional Practice Individual Session

PLANTED ERRORS IN COACHED REHEARSALS: ATTENDING TO THE AUTHENTICITY OF AN APPROXIMATION OF PRACTICE

Matthew P. Campbell, West Virginia University Erin E. Baldinger, University of Minnesota

In this session, we will engage participants with our efforts to support teacher candidates to skillfully respond to errors during whole-class discussions. We highlight our use of "planted errors" during coached rehearsals to attend to the authenticity of these experiences.

Session 84

Salon 14

Equity, Social Justice, and Mathematics Teacher Education Individual Session

NEW CHOICE: FACILITATED IMPROVISATION IN MATHEMATICS TEACHER PROFESSIONAL DEVELOPMENT AIMED TOWARD EQUITY-ORIENTED MATHEMATICS EDUCATION

Ashley Danielle Scroggins, University of Colorado, Boulder

The improvisational work of mathematics teacher educators within equity-oriented mathematics teacher professional development has important implications for mathematics teacher learning. This session will critically reflect on the facilitation of one improvisational exercise in equitable mathematics professional development.

THURSDAY, FEBRUARY 7, 2019

Session 85

Salon 12

Salon 13

Teaching and Learning with Technology Individual Session

EVALUATION AND INTEGRATION OF DIGITAL RESOURCES IN MIDDLE SCHOOL MATH

Jaime N Kautz, The Ohio State University Hea-Jin Lee, The Ohio State University, Lima

This session will explore findings from Algebra Ready, a professional development focused on enhancing participants' understanding of digital content evaluation and improving technology integration.

Session 86

Mathematics Education Policy and Program Issues Individual Session

RETHINKING TEACHING AND LEARNING: UNPACKING MATHEMATICS EDUCATION ONLINE

Susan N Friel, University of North Carolina, Chapel Hill Christine Browning, Western Michigan University Bryan Fede, University of North Carolina, Chapel Hill

Overview of AMTE's Online Mathematics Education Task Force created to develop recommendations and guidelines to assist mathematics teacher educators in the design and implementation of creative and successful instruction via online distance education for both preservice and inservice teachers of mathematics.

5:30 PM - 6:30 PM



FRIDAY, FEBRUARY 8, 2019

6:45 AM - 7:45 AM

A<u>MTE</u>

Conference participants have two options for breakfast.

ADVOCACY AND EMERGING ISSUES BREAKFAST

Denise A Spangler, University of Georgia Luis Antonio Leyva, Vanderbilt University

Robert Quinlyn Berry, University of Virginia & NCTM

This year's annual AMTE Advocacy and Emerging Issues Breakfast features three panelists who have engaged in advocacy at different levels—advocacy for a teacher preparation program, advocacy for their own work, and advocacy on behalf of an education organization. Panelists will share their ideas about why advocacy is important in their work, what it means to be an advocate, and how one 'does advocacy' in mathematics education. Everyone is welcome, including those who are experienced with advocacy, those just starting out, and those who are wondering why they would even want to consider engaging in this work.

FRIDAY BREAKFAST

Join colleagues for breakfast and informal conversation.



OVERVIEW OF FRIDAY MORNING, FEBRUARY 8, 2019

	8:00 AM – 9:00 AM	9:15 AM – 10:00 AM
Salon 1	89. Inquiring Into Mathematics Teacher Educators' Views of Teacher Stories- Suazo-Flores, Kastberg, & Richardson	105. Elementary Preservice Teacher Perceptions of Parent and Family Engagement- Kelley
Salon 2	90. Advancing Middle and Secondary Prospective Mathematics Teachers' Understanding of Teaching Mathematics for Social Justice- Id-Deen, Baldinger, Sun, & Waller	106. K-8 Preservice Teachers as Independent Learners: Use of Metacognitive Learning Strategies in Mathematics Content Courses- Eisenreich & Stehr
Salon 3	91. Validating Measures of Specialized Content Knowledge for Secondary Math Teachers- Brasel, Dahlgren, Garcia, & Ball	107. Technology Integration in Secondary Curricula- Cayton
Salon 4	103. Better Than Bridging: How Mediated Field Experiences Tr Lynch, Billings, Knapp, Virmani, & Pinter	ansform Teacher Preparation to Meet the AMTE Standards-
Salon 5	104. "Math is racist now? You don't believe that, do you?" : Su Lawler	pporting Courageous Conversations- Marshall, McCloskey, &
Salon 6	92. Brief Report Session: Mathematics for Preservice Teachers K-8- Asempapa; Lorenzen; Hensberry & Teehan	108. Brief Report Session: Rehearsing Teaching Practice- Graysay; Grosser-Clarkson
Salon 7	93. Brief Report Session: Preservice Teacher Field Experiences K-6- Tackie; Kinser-Traut & Wood; Sun	109. Tracking Prospective Teachers' Experiences As They Consider and Reconcile Conflicting Strategies- Grant & Levin
Salon 8	94. <i>Advocacy: It's not Just for Breakfast Any More-</i> de Araujo, Bennett, Heid, Jett, Lesseig, McLeod, & Stockero	110. Secondary Student Teachers' Ability to Respond to Student Mathematical Thinking- Teuscher & Switzer
Salon 9	95. Extending AMTE Standards to Implementation: Review of Proposed NCTM CAEP Program Standards for Mathematics Teachers- Rasch, Barnes, & Cruz-White	111. Where Probability and Statistics Concepts and Social Justice Intersect- Ham
Salon 10	96. Developing Prospective Secondary Teachers' MKT through Approximations of Practice- Lischka & Lai	112. Mathematics at the Intersection of Gender and Race- Reid & Reid
Salon 11	97. Designing and Implementing a Synchronous Online Professional Development Model- Amador, Carson, & Gillespie	113. Teaching: Learn by Doing in a Low Risk and Reflective Environment- Jensen
Salon 12	98. Oh, Say Can You See? A Vision of Equitable Instruction- Taylor, Jackson, & Buchheister	114. Rehearsals of Teaching: Attending to Mathematical Knowledge for Teaching- Ghousseini
Salon 13	99. Complicated Relationships Between Time Spent Studying Mathematics Topics in Teacher Preparation and Graduates' Useable Knowledge- Corven, DiNapoli, & Hiebert	115. Engaging Conversations about Social Justice in Limited Time- Johnson
Salon 14	100. Learn How to Incorporate Free PK-5 Math Curriculum into your Courses- Harris	116. LGBTQ Secondary Mathematics Teachers: Their Identities and Their Classrooms- Whipple
Salon 17	101. Building Community in an 100% Online Synchronous Geometry Course for K-8 Mathematics Specialist Candidates- Bitto	117. Who's Afraid of the Big Bad Wolf?: Understanding and Combating Math Anxiety- Schroerlucke
Salon 18	102. Leveraging Dynamic Geometry Software for High School Geometry: Implications for Mathematics Teacher Educators- Nirode	118. Creative Insubordination Through Mathematics Teacher Activism- Kokka

	10:15 AM - 11:30 AM
Salon 1	119. Graduate Mathematics Courses and Master of Arts in Teaching Mathematics Programs- Eubanks-Turner, Bargagliotti, Burroughs, Lai, Franklin, & Haskell
Salon 2	120. <i>Challenges to Teaching with Technology</i> - Wheeler, Somers, Thomas, Wieman, & Smith
Salon 3	121. Developing Robust Concept Images Across Middle School Mathematics: The Role of Dynamic Math Technology- Dick, Burrill, & Hollebrands
Salon 4	122. I Am New to Mathematics Teacher Education: Realities of Teaching, Scholarship, and Service- Waller, Lynch, Eskelson, Wilkerson, & Hughes
Salon 5	123. Publishing Your Scholarly Work in an AMTE Publication: Opportunities Explored and Questions Answered- Benken, Telese, Bieda, Bos, & Crespo
Salon 6	124. Preparing Teachers for Secondary Geometry: Understanding the Tensions in Teaching Undergraduate Geometry- Milewski & Herbst
Salon 7	125. Rehearsals as Tools for Mathematics Teacher Leader Professional Learning- Knapp, Baker, Rigelman, Larsen, Flessner, & Gibbons
Salon 8	126. A Process of "Becoming": Transitioning into Equity, Social Justice-Oriented Mathematics Teacher Educator Roles- Raygoza, Guzman, Harper, & Leyva
Salon 9	127. Designing Learning Experiences for Secondary Preservice Teachers: A New Working Group- Miller & Frazee
Salon 10	128. Using Middle and High School Mathematics Curriculum Materials in Teacher Education- Edson, Browning, Kasten, & Males
Salon 11	129. Advocacy and Action for Equitable Mathematics Teaching Practices in Teacher Education- Goffney
Salon 12	130. Observation Instruments as Professional Development Tools: Three Approaches to Engage Teachers in Instructional Improvement Efforts- Litke, Shah, & Thanheiser
Salon 13	131. Supporting Mathematics Teachers for Excellence and Equity: The Case of Canada- Silver, Glanfield, & Suurtamm
Salon 14	132. Political Knowledge for Advocacy in Mathematics: Context Matters- Gutiérrez, Vargas, Brown-Tess, Ruef, Chavez, & Anderson
Salon 17	133. Preparing K-12 Teachers of Mathematical Modeling- Fulton, Arnold, Carlson, & Wickstrom

FRIDAY, FEBRUARY 8, 2019

Session 89

Development of Mathematics Teacher Educators Discussion Session

INQUIRING INTO MATHEMATICS TEACHER EDUCATORS' **VIEWS OF TEACHER STORIES**

Elizabeth Suazo-Flores, Purdue University Signe Kastberg, Purdue University Sue Ellen Richardson, Purdue University

Teacher stories are often used as assignments in methods courses. MTEs collect, read, and provide spaces to share stories. In this session, we aim to explore MTEs' views of teacher stories as a mechanism to build insight into their practices.

Session 90

Salon 2

Salon 3

Equity, Social Justice, and Mathematics Teacher Education **Discussion Session**

ADVANCING MIDDLE AND SECONDARY PROSPECTIVE MATHEMATICS TEACHERS' UNDERSTANDING OF TEACHING MATHEMATICS FOR SOCIAL JUSTICE

Lateefah Id-Deen, Kennesaw State University Erin E. Baldinger, University of Minnesota Kathy Sun, Santa Clara University Patrice Waller, California State University, Fullerton

This session identifies approaches as mathematics teacher educators across four institutions work towards integrating social justice issues in secondary math methods courses while also authentically and rigorously representing the mathematics of the secondary curriculum.

Session 91

Mathematics Content, Processes, and Practices Individual Session

VALIDATING MEASURES OF SPECIALIZED CONTENT KNOWLEDGE FOR SECONDARY MATH TEACHERS

Jason Brasel, University of Michigan Matthew Dahlgren, University of Michigan Nicole Marie Garcia, University of Michigan Deborah Ball, University of Michigan

We focus on the validation of measures of secondary mathematics teachers' specialized content knowledge. The presentation examines newly-developed multiple-choice items and shares the results of a pilot study to validate items through cognitive interviews.

Salon 6 Session 92 BRIEF REPORT SESSION: MATHEMATICS FOR PRESERVICE **TEACHERS K-8**

IMPROVING PRESERVICE ELEMENTARY MATHEMATICS **TEACHERS' UNDERSTANDING OF MATHEMATICAL** MODELING

Reuben Asempapa, Pennsylvania State University, Harrisburg

This session discusses the challenges in engaging young students in mathematical modeling and how elementary preservice teachers make sense of modeling practices. The goal is to support mathematics educators and enhance PSTs' knowledge and pedagogical practices in mathematical modeling

PRESERVICE ELEMENTARY TEACHERS' OPINIONS OF INOUIRY AND TRADITIONAL MATHEMATICS CONTENT **CLASSES**

Janelle Lorenzen, Southeastern Louisiana University

Results from a study of preservice elementary teachers enrolled in a mathematics content course will be discussed. Findings show that students in inquiry-based learning classes had higher opinions regarding the course and their mathematics ability than those in traditional courses.

REALISTIC, RELEVANT, AND RIGOROUS MATHEMATICS: AN **OUTDOOR EDUCATION APPROACH TO TEACHER EDUCATION**

Karina K. R. Hensberry, University of South Florida, St. Petersburg Samantha Teehan, University of South Florida, St. Petersburg

In this study, we engaged teachers in a mathematics unit in an outdoor setting. We examine the impact of this experience on teachers' willingness to involve students in similar field-based activities as a way to teach mathematics content.

Session 93

Preservice Teacher Field Experiences

Salon 7

BRIEF REPORT SESSION: PRESERVICE TEACHER FIELD **EXPERIENCES K-6**

EXAMINING PRESERVICE TEACHERS' CREATIVE INSUBORDINATION AND APPROPRIATION OF PEDAGOGICAL TOOLS FOR TEACHING MATH

Nii Ansah Tackie, University of Louisiana, Lafayette

This study examined how preservice teachers (PSTs) utilized creative insubordination and appropriation of pedagogical tools to support students' mathematics learning. Participants will learn possible strategies for empowering PSTs to use creative insubordination for teaching elementary mathematics.

RECONTEXTUALIZING TEACHING PRACTICES: THE ROLE OF CONTENT COACHES IN SUPPORTING PROSPECTIVE **ELEMENTARY TEACHERS**

Jennifer Kinser-Traut, New York University Marcy B. Wood, University of Arizona

One perennial challenge of teacher preparation is making robust connections between methods coursework and field placement classrooms. This study uses a lens of recontextualization to better understand how content coaches can support prospective teachers in enacting methods-based practices in the classroom.

THE ROLE OF EARLY FIELD EXPERIENCE AND REFLECTIONS IN PSTS' UNDERSTANDING OF EQUITABLE TEACHING

Li Sun, Augustana University

This study finds that deliberately and strategically combining the coursework in mathematics methods course and elementary preservice teachers' early field experience impacted their understanding of teaching mathematics equitably to all students.

8:00 AM - 9:00 AM

Session 94 Salon 8	Session 98 Salon 12
Mathematics Education Policy and Program Issues Symposium	Equity, Social Justice, and Mathematics Teacher Education Individual Session
Symposium ADVOCACY: IT'S NOT JUST FOR BREAKFAST ANY MORE Zandra de Araujo, University of Missouri Cory A Bennett, Idaho State University Mary Kathleen Heid, The Pennsylvania State University Christopher Jett, University of West Georgia Kristin Lesseig, Washington State University, Vancouver Kevin McLeod, University of Wisconsin, Milwaukee Shari L Stockero, Michigan Technological University Engage with Advocacy Breakfast panelists to learn more about issues raised at the breakfast, including how to keep abreast of emerging issues that might require advocacy, resources for advocacy, and how to take action around particular issues. Session 95 Salon 9 Mathematics Education Policy and Program Issues Discussion Session	Individual Session OH, SAY CAN YOU SEE? A VISION OF EQUITABLE INSTRUCTION Cynthia E. Taylor, Millersville University of Pennsylvania Christa Jackson, Iowa State University Kelley Buchheister, University of Nebraska, Lincoln In this session, we will report the results of a study that examined how PTs described an equitable classroom environment and what they noticed after observing two video clips of teachers' mathematics instruction. Session 99 Salon 13 Mathematics Content, Processes, and Practices Individual Session COMPLICATED RELATIONSHIPS BETWEEN TIME SPENT STUDYING MATHEMATICS TOPICS IN TEACHER DEPENDENTION
EXTENDING AMTE STANDARDS TO IMPLEMENTATION: REVIEW OF PROPOSED NCTM CAEP PROGRAM STANDARDS FOR MATHEMATICS TEACHERS Kathe D. Rasch, Maryville University David Barnes, National Council of Teachers of Mathematics Irma I Cruz-White, Chipola College & NCTM Participants will learn how AMTE standards and other resources contributed to the development of the proposed NCTM/CAEP standards. Participants will work collaboratively to review, and critique proposed	PREPARATION AND GRADUATES' USEABLE KNOWLEDGE Julien Corven, University of Delaware Joseph DiNapoli, Montclair State University James Hiebert, University of Delaware We describe outcomes of a longitudinal study of elementary teacher preparation program graduates. For topics on which more time was spent during coursework, teachers' conceptual knowledge showed more growth years later, suggesting a criterion by which to plan such coursework.
draft standards for national program recognition for mathematics for CAEP. Session 96 Salon 10 Mathematics Content, Processes, and Practices Discussion Sarsion	Session 100 Salon 14 AMTE Gold Sponsor Individual Session LEARN HOW TO INCORPORATE FREE PK-5 MATH Salon 14
DEVELOPING PROSPECTIVE SECONDARY TEACHERS' MKT THROUGH APPROXIMATIONS OF PRACTICE Alyson E. Lischka, Middle Tennessee State University Yvonne Lai, University of Nebraska, Lincoln	CURRICULUM INTO YOUR COURSES Pamela Weber Harris, Texas State University The content of <i>Bridges in Mathematics PK-5</i> from The Math Learning Center is now available for free to schools of education. Join Bridges author and university instructor Pam Harris to learn how this program can enhance your math methods courses.
This session presents theoretical frameworks for analyzing development of mathematical knowledge for teaching (MKT) in secondary teacher preparation through approximations of practice in upper-level content courses. Participants will gain understanding for designing simulations of practices as tools to develop MKT.	Session 101 Salon 17 Teaching and Learning with Technology Individual Session BUILDING COMMUNITY IN AN 100% ONLINF
Session 97Salon 11Teaching and Learning with TechnologyIndividual Session	SYNCHRONOUS GEOMETRY COURSE FOR K-8 MATHEMATICS SPECIALIST CANDIDATES
DESIGNING AND IMPLEMENTING A SYNCHRONOUS ONLINE PROFESSIONAL DEVELOPMENT MODEL Julie Amador, University of Idaho Cynthia Carson, University of Rochester Ryan Gillespie, University of Idaho We will share an online (mostly synchronous) professional development model for rural teachers that incorporates online coursework, coaching, and lab lessons. We will discuss emerging technologies for professional development and the process for reconceptualizing face-to-face experiences in an online space.	Instructional practices were examined using self-study research to facilitate community in a synchronous online geometry course for inservice teachers preparing to become K-8 mathematics specialists. Purposeful design choices to build community will be shared. Participants will reflect on potential application.

Session 102

Teaching and Learning with Technology Individual Session

LEVERAGING DYNAMIC GEOMETRY SOFTWARE FOR HIGH SCHOOL GEOMETRY: IMPLICATIONS FOR MATHEMATICS TEACHER EDUCATORS

Wayne Nirode, Miami University

This session shares the curriculum development of three clusters of dynamic geometry software tasks. Participants will use their own devices to gain hands-on experience with field-tested tasks that are grounded in research on teaching with technology.

FRIDAY, FEBRUARY 8, 2019

Session 103

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Preservice Teacher Field Experiences Extended Session

Salon 4

Salon 18

8:00 AM - 10:00 AM

Session 104 Equity, Social Justice, and Mathematics Teacher Education Extended Session

Andrea McCloskey, The Pennsylvania State University

Anne Marie Marshall, Lehman College

mathematics methods courses.

Brian R Lawler, Kennesaw State University

"MATH IS RACIST NOW? YOU DON'T BELIEVE THAT, DO

YOU?" : SUPPORTING COURAGEOUS CONVERSATIONS

In this workshop, participants will learn about the importance of

education. Participants will also engage in sample rehearsals using

Courageous Conversation Cards, a tool recently designed for use in

rehearsing for conversations related to equity in mathematics

BETTER THAN BRIDGING: HOW MEDIATED FIELD EXPERIENCES TRANSFORM TEACHER PREPARATION TO MEET THE AMTE STANDARDS

Sararose Lynch, Westminster College Esther MH Billings, Grand Valley State University Melinda Knapp, Oregon State University, Cascades Rajeev K Virmani, Sonoma State University Holly Henderson Pinter, Western Carolina University

This session will address the need to transform field-related courses into practice-based opportunities grounding in AMTE's SPTM by sharing models-in-progress of mediated field experiences (MFEs) and guidance for others who are interested in developing MFEs in their respective programs.

FRIDAY, FEBRUARY 8, 2019

Session 107 Session 105 Salon 1 Salon 3 Equity, Social Justice, and Mathematics Teacher Education Teaching and Learning with Technology Individual Session Individual Session ELEMENTARY PRESERVICE TEACHER PERCEPTIONS OF TECHNOLOGY INTEGRATION IN SECONDARY CURRICULA PARENT AND FAMILY ENGAGEMENT Charity Cayton, East Carolina University Traci Kelley, University of Texas, San Antonio Twenty secondary mathematics curricula were analyzed for how technology is integrated into textbook tasks. Results indicate the How can a one-semester elementary math approaches course predominant use of calculators as a computational aid in this sample. transform PSTs' understandings of the importance of communicating Implications for teacher education in light of AMTE Standards will be and building relationships with families in order to connect instruction discussed. to children's out of school funds of knowledge? Session 108 Salon 6 Session 106 Salon 2 Mathematics Pedagogy and Instructional Practice Mathematics Content, Processes, and Practices Individual Session BRIEF REPORT SESSION: REHEARSING TEACHING PRACTICE **K-8 PRESERVICE TEACHERS AS INDEPENDENT LEARNERS:** PRESERVICE TEACHER RESPONSES TO STUDENT USE OF METACOGNITIVE LEARNING STRATEGIES IN MATHEMATICAL THINKING DURING REHEARSALS MATHEMATICS CONTENT COURSES Duane Graysay, Syracuse University Heidi Eisenreich, Georgia Southern University We will share findings of an examination of preservice teachers' Eryn Michelle Stehr, Georgia Southern University responses to student thinking within rehearsals of core practices. We presented metacognitive learning strategies with future K-8 teachers Discussion of these findings will generate ideas about how to help PTs in mathematics content courses. We intended the practical strategies to improve in attending to and responding to student thinking. support them in becoming independent learners of mathematics. We (continued on next page) share results based on changes in exam scores and their reported selfefficacy.

9:15 AM - 10:00 AM

ROLE-PLAYING AS A FORMATIVE ASSESSMENT TOOL FOR POSING PURPOSEFUL QUESTIONS

Dana L Grosser-Clarkson, University of Maryland

This case study research explored how four teacher candidates initially enacted and reflected on posing purposeful questions. The teacher candidates engaged in a role-playing approximation of practice followed by an investigation of practice.

Session 109

Salon 7

Salon 8

Mathematics Content, Processes, and Practices Discussion Session

TRACKING PROSPECTIVE TEACHERS' EXPERIENCES AS THEY CONSIDER AND RECONCILE CONFLICTING STRATEGIES

Theresa Jean Grant, Western Michigan University Mariana Levin, Western Michigan University

We present data on prospective elementary teachers' thinking at key stages during an activity designed to promote both cognitive dissonance and resolution. Participants will consider both the design of the instrument, and the implications of the data collected.

Session 110

Preservice Teacher Field Experiences Individual Session

SECONDARY STUDENT TEACHERS' ABILITY TO RESPOND TO STUDENT MATHEMATICAL THINKING

Dawn Teuscher, Brigham Young University John Matt Switzer, Texas Christian University

We share findings from an analysis of eight preservice secondary mathematics teachers' noticing of student mathematical thinking while student teaching. We focus on how they responded to student mathematical thinking and discuss differences among student teachers.

Session 111

Salon 9

Salon 10

AMATYC Presidential Exchange Session Individual Session

WHERE PROBABILITY AND STATISTICS CONCEPTS AND SOCIAL JUSTICE INTERSECT

Jim Ham, American Mathematical Assoc. of Two-Year Colleges

Several national reports and standards documents recommend a greater attention to the use of real data, mathematical modeling, and appropriate use of technology in the mathematics classroom. Several social justice topics linked to statistics and probability concepts will be shared.

Session 112

Individual Session

Equity, Social Justice, and Mathematics Teacher Education

MATHEMATICS AT THE INTERSECTION OF GENDER AND RACE

Mary Reid, Ontario Institute for Studies in Education (OISE) Steven Mark Reid, Ontario Institute for Studies in Education (OISE)

This study critically examines the math schooling experiences of 15 teacher candidates who identify as women of color. These narratives illuminate the significance of how gender and race intersect in math classrooms. Implications for math teaching are explored.

Session 113

Salon 11

Mathematics Pedagogy and Instructional Practice Individual Session

TEACHING: LEARN BY DOING IN A LOW RISK AND REFLECTIVE ENVIRONMENT

Jessica Jensen, California Polytechnic State Univ., San Luis Obispo

This session focuses on effective ways teacher educators can engage PSTs in practicing teaching during methods courses to improve skills before entering K-12 classrooms. Video examples are shown and participants discuss ways to increase PSTs' time spent practicing teaching.

Session 114

Mathematics Content, Processes, and Practices Individual Session

REHEARSALS OF TEACHING: ATTENDING TO MATHEMATICAL KNOWLEDGE FOR TEACHING

Hala Ghousseini, University of Wisconsin, Madison

This session's focus is on how rehearsals of teaching afford practicebased work on mathematical knowledge for teaching (MKT). We will consider how teacher educators could infuse attention to MKT during rehearsal, in the midst of interactions with teachers around content.

Session 115

Salon 13

Salon 12

Equity, Social Justice, and Mathematics Teacher Education Individual Session

ENGAGING CONVERSATIONS ABOUT SOCIAL JUSTICE IN LIMITED TIME

Kate R Johnson, Brigham Young University

This session introduces two pedagogical tools I have used to engage prospective mathematics teachers in discussions about equity, access, and advocacy. I have focused on developing tools that allow for conversation in one to two hour time blocks.

Session 116

Salon 14

Equity, Social Justice, and Mathematics Teacher Education Individual Session

LGBTQ SECONDARY MATHEMATICS TEACHERS: THEIR IDENTITIES AND THEIR CLASSROOMS

Kyle Stephen Whipple, University of Wisconsin, Eau Claire

I will present a case study about curriculum development and pedagogy of a gay and a lesbian high school mathematics teacher. The teachers create inclusive mathematics classrooms through their pedagogy, and serve as role models for all their students.

Session 117

Salon 17

Mathematics Pedagogy and Instructional Practice Individual Session

WHO'S AFRAID OF THE BIG BAD WOLF?: UNDERSTANDING AND COMBATING MATH ANXIETY

David Schroerlucke, Bellarmine University

Math anxiety is a pervasive cultural phenomenon that undermines student engagement in math and reduces teaching self-efficacy. This presentation summarizes recent research on math anxiety, revealing important insights into its causes and providing evidence-based strategies for mitigating its negative effects.

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Session 118

Equity, Social Justice, and Mathematics Teacher Education Individual Session

CREATIVE INSUBORDINATION THROUGH MATHEMATICS TEACHER ACTIVISM

Kari Kokka, University of Pittsburgh

This study builds on Gutiérrez's (2016) six practices of creative insubordination (which take place within teachers' schools) by studying mathematics teacher activists involved in larger organizing efforts to offer a framework for creative insubordination outside schools.

FRIDAY, FEBRUARY 8, 2019

Session 119 Salon 1 Session 122 Salon 4 Development of Mathematics Teacher Educators Mathematics Pedagogy and Instructional Practice Symposium Svmposium GRADUATE MATHEMATICS COURSES AND MASTER OF ARTS I AM NEW TO MATHEMATICS TEACHER EDUCATION: REALITIES OF TEACHING, SCHOLARSHIP, AND SERVICE IN TEACHING MATHEMATICS PROGRAMS Patrice Waller, California State University, Fullerton Christina Eubanks-Turner, Loyola Marymount University Anna Bargagliotti, Loyola Marymount University Sararose Lynch, Westminster College Elizabeth Burroughs, Montana State University Samuel Eskelson, University of Northern Iowa Yvonne Lai, University of Nebraska, Lincoln Trena Wilkerson, Baylor University Christine Annette Franklin, Univ. of Georgia & American Statistical Assoc. Elizabeth Hughes, University of Northern Iowa Cymra Haskell, University of Southern California This session is designed to provide opportunity for novice mathematics teacher educators to interact with experienced mathematics teacher Participants will discuss the range of structures, mathematical content educators. The roundtable structure of the session allows small groups and evaluation standards that these programs and courses include. Participants will then participate in graduate-level interactive lessons to discuss topics of interest around research, teaching and service. centered around the following topics: Statistics, Algebra, Geometry, Session 123 Discrete Math, and Calculus. Salon 5 AMTE Publications Session Session 120 Salon 2 Symposium Teaching and Learning with Technology PUBLISHING YOUR SCHOLARLY WORK IN AN AMTE Symposium PUBLICATION: OPPORTUNITIES EXPLORED AND CHALLENGES TO TEACHING WITH TECHNOLOGY QUESTIONS ANSWERED Ann Wheeler, Texas Woman's University Babette M Benken, California State University, Long Beach John W Somers, University of Indianapolis James A. Telese, University of Texas Rio Grande Valley Amanda Thomas, University of Nebraska, Lincoln Kristen N Bieda, Michigan State University Rob Wieman, Rowan University Beth Bos, Texas State University Ryan C Smith, Radford University Sandra Crespo, Michigan State University New developments in technology-based classrooms have the potential This session includes editors from each of AMTE's publications: to facilitate ambitious and equitable mathematics instruction but Mathematics Teacher Educator, Contemporary Issues in Technology and require new skills for educators. Participants will explore effective Teacher Education–Math, and Connections. Focus will be on clarification of instructional strategies in these environments through three breakout expectations, differences among venues, and breakout time for sessions focused on discourse and collaboration. individual questions and feedback. Session 121 Salon 3 Session 124 Salon 6 Teaching and Learning with Technology Development of Mathematics Teacher Educators Symposium Symposium DEVELOPING ROBUST CONCEPT IMAGES ACROSS MIDDLE PREPARING TEACHERS FOR SECONDARY GEOMETRY: SCHOOL MATHEMATICS: THE ROLE OF DYNAMIC MATH UNDERSTANDING THE TENSIONS IN TEACHING TECHNOLOGY UNDERGRADUATE GEOMETRY Thomas Dick, Oregon State University Amanda Milewski, University of Michigan Gail Burrill, Michigan State University Patricio Herbst, University of Michigan Karen Hollebrands, North Carolina State University We describe tensions faculty face as they consider improvements to The concept image framework of Vinner, Tall, and others provides a their undergraduate geometry course for teachers in light of the language for considering the impact of visual images in conceptual multiple demands embedded in their role. development. This symposium considers the special affordances of technology for creating dynamic visuals for middle school mathematics instruction.



10:15 AM - 11:30 AM

Session 125Salon 7Development of Mathematics Teacher EducatorsSymposium	Session 129Salon 11Equity, Social Justice, and Mathematics Teacher EducationSymposium
REHEARSALS AS TOOLS FOR MATHEMATICS TEACHER LEADER PROFESSIONAL LEARNING Melinda Knapp, Oregon State University, Cascades	ADVOCACY AND ACTION FOR EQUITABLE MATHEMATICS TEACHING PRACTICES IN TEACHER EDUCATION
Courtney K. Baker, George Mason University Nicole Rigelman, Portland State University Shannon Larsen, University of Maine, Farmington	Our discussion proposal focuses on advocacy and activism in the broader context of mathematics education, mathematics teacher education, and research in these fields.
Lynsey Gibbons, Boston University Multiple presenters will share their perspectives, resources, and suggestions for using rehearsals as an activity for supporting teacher	Session 130Salon 12Teacher Professional DevelopmentSymposium
leader practice, describing results from the implementation of a Rehearsal Planning Protocol. Attendees will participate in refining research and determining next steps.	OBSERVATION INSTRUMENTS AS PROFESSIONAL DEVELOPMENT TOOLS: THREE APPROACHES TO ENGAGE
Session 126Salon 8Development of Mathematics Teacher EducatorsSymposium	Itachers in instructional iniprovement errors Erica Litke, University of Delaware Niral Shah, Michigan State University Eva Thanheiser, Portland State University
A PROCESS OF "BECOMING": TRANSITIONING INTO EQUITY, SOCIAL JUSTICE-ORIENTED MATHEMATICS TEACHER EDUCATOR ROLES	In this session, we share three projects aimed at improving mathematics instruction using structured observation tools as a foundation for professional development. We discuss the creation and use of each tool and address the affordances and limitations of each approach.
Mary Candace Raygoza, Saint Mary's College of California Lynette Guzman, University of Arizona Frances K Harper, University of Tennessee Luis Antonio Leyva, Vanderbilt University	Session 131Salon 13Mathematics Education Policy and Program IssuesSymposium
This panel discussion will strive to build community as we demystify the transition from being a doctoral candidate to a mathematics teacher educator and faculty member committed to equity and social justice.	SUPPORTING MATHEMATICS TEACHERS FOR EXCELLENCE AND EQUITY: THE CASE OF CANADA Edward Silver, University of Michigan
Session 127Salon 9Mathematics Pedagogy and Instructional PracticeSymposium	Florence Glanfield, University of Alberta Christine Suurtamm, University of Ottawa This symposium focuses on the teacher preparation, teacher
DESIGNING LEARNING EXPERIENCES FOR SECONDARY PRESERVICE TEACHERS: A NEW WORKING GROUP Katherine Miller, University of Dayton	professional development, and teacher evaluation policies and practices that undergird Canada's success in promoting high levels of student achievement in mathematics along with strong indicators of equitable distribution of attainment.
This new working group is for early-career teacher educators. Members will share learning experiences they have designed for secondary preservice teachers. We will form research groups to study learning	Session 132Salon 14Equity, Social Justice, and Mathematics Teacher EducationSymposium
Teaching Practices.	POLITICAL KNOWLEDGE FOR ADVOCACY IN MATHEMATICS: CONTEXT MATTERS
Session 128Salon 10Mathematics Education Policy and Program IssuesSymposium	Rochelle Gutiérrez, University of Illinois, Urbana-Champaign Gabriela Elizabeth Vargas, University of Illinois, Urbana-Champaign Karie C Brown-Tess, University of Illinois, Urbana Champaign
USING MIDDLE AND HIGH SCHOOL MATHEMATICS CURRICULUM MATERIALS IN TEACHER EDUCATION	Jennifer L. Ruef, University of Oregon Rosa Chavez, Stanford University Robin Keturah Anderson, Stanford University
Christine Browning, Western Michigan University Sarah Kasten, Northern Kentucky University Lorraine Marie Males, University of Nebraska, Lincoln	Preservice teachers need opportunities to critique initiatives and leverage resources to make significant changes in their schools. Four universities used one method of rehearsing for the politics of teaching. Participants will explore findings and how they might do similar
This session focuses on the role of secondary school mathematics curriculum materials for promoting teacher learning. Panelists will report on the innovative ways in which curriculum materials are used as contexts for teacher learning in undergraduate and graduate courses.	rehearsals.

Session 133

Salon 17

Mathematics Content, Processes, and Practices Symposium

PREPARING K-12 TEACHERS OF MATHEMATICAL MODELING

Elizabeth Fulton, Montana State University Elizabeth G Arnold, James Madison University Mary Alice Carlson, Montana State University Megan H. Wickstrom, Montana State University

The purpose of this symposium is to share findings from our work supporting K-12 pre- and inservice teachers as they learn to design and enact modeling tasks. We will discuss next steps for research and professional development in mathematical modeling.

FRIDAY, FEBRUARY 8, 2019

11:30 AM - 1:00 PM

AMTE

LUNCH

BALLROOMS A AND B

AMTE provides a buffet lunch in Ballroom A and B. Please join your colleagues for lunch and good conversation in advance of the Poster Session and other afternoon sessions.

FRIDAY, FEBRUARY 8, 2019

1:00 PM - 2:00 PM

Session 135

Ballrooms C and D

2019 POSTER SESSION

A1. ALTERNATIVELY CERTIFIED HIGH SCHOOL MATHEMATICS TEACHERS' PERCEPTIONS ABOUT THEIR PREPAREDNESS FOR TEACHING

Gail Patricia Stewart, University of South Florida Sarah van Ingen, University of South Florida

In this multiple case study, we report on the perceptions of two alternatively certified high school mathematics teachers. We use the high school elaborations of the *AMTE Standards for Preparing Teachers of Mathematics* as a lens for analysis.

A2. AN ELEMENTARY FIELD EXPERIENCE FOR PRESERVICE SECONDARY STEM TEACHERS

Kristen Apraiz, University of Florida

Gayle Nelson Evans, University of Florida

The presenters will share information about the redesign of an introductory teacher preparation course for secondary mathematics and science teachers focused on an elementary field experience and its impact on students' decisions to pursue secondary teacher preparation.

A3. CLASSROOM INQUIRY AS PROFESSIONAL DEVELOPMENT: NOTICING, WONDERING, AND ACTING

Derek Joseph Sturgill, University of Wisconsin, Stout

What teachers notice, wonder, and act upon are vital to their development as practitioners. These actions are characteristics of classroom inquiry: a teacher-centered and student-focused form of professional development. Results are reported from three teachers engaged in such inquiry.

A4. COMMUNITY COLLABORATIONS: FORMING PARTNERSHIPS BETWEEN UNIVERSITY, SCHOOLS, AND LOCAL DISTRICTS TO ENRICH MATH EDUCATION

Lynn Hodge, University of Tennessee Karen Cheng, University of Tennessee

This poster will highlight the framework for a regional STEM education hub that serves as a network of partnerships between a public university, state counties/school districts, local K-12 schools and educators, community and industry partners, and students and families.

A5. FORMING POSITIVE MATHEMATICAL PERSPECTIVES AND BELIEFS IN PRESERVICE TEACHERS THROUGH A MODELING COURSE

Karen Cheng, University of Tennessee

This poster highlights the curriculum for an introductory mathematics education course for preservice mathematics teachers, focusing on a hands-on approach. These future teachers engage in modeling and problem-based learning to foster positive perspectives towards teaching mathematics in their future classrooms.

A6. ELICITING PROSPECTIVE SECONDARY TEACHERS' MKT THROUGH MODELING ACTIVITIES

Aline Abassian, University of Central Florida

This poster discusses how model-eliciting activities are designed to enrich teachers' mathematical knowledge for teaching, how they can be used to learn and teach mathematics coherently, and how the mathematical modeling process can help develop teachers' conceptual understanding of mathematics.

A7. EMPOWERING STUDENT VOICE IN MATHEMATICAL ARGUMENT DEVELOPMENT: A HARKNESS APPROACH

Nicholas King, University of Tennessee, Knoxville Tye Campbell, University of Alabama

The recent priority of student creation and development of mathematical arguments emphasizes communicative discourse among students. Give students a voice to creatively approach, develop, justify, and critique arguments using the Harkness method, a whole-group discussion format that emphasizes mathematical understanding.

A8. FRESH THINKING IN MATHEMATICS TEACHING AND LEARNING THROUGH STEAM

Richard Cox, Bullitt County Public Schools

In this poster session, elementary student experiences in integrated Science, Technology, Engineering, Arts and Math (STEAM) will be highlighted as models for educators working to develop, implement and refine richer, more authentic learning in mathematics.

A9. HIGH SCHOOL MATHEMATICS TEACHERS' POSITIONING WITHIN THE CULTURE OF BLAME: A CASE STUDY

Ashley Marie Garner, Georgia State University

Overemphasis on high-stakes testing in mathematics has created a culture of blame and inconsistent instructional practices, particularly in schools with economically disadvantaged students. This study explores how high school mathematics teachers position themselves within this culture of blame.

A10. IDENTIFYING AND VALUING VARIATIONS IN SKILLED PERFORMANCE IN A PROBLEM SOLVING TASK

Steven Khan, University of Alberta

Prospective teachers of diverse students need opportunities in their professional study to develop culturally responsive practices. This research report offers insight into how preparing culturally responsive mathematics pedagogues could interrupt and dismantle systemic barriers that impede mathematics success for all.

B11. IMPACT OF FAMILY MATH NIGHT ASSIGNMENT ON PRESERVICE ELEMENTARY TEACHERS' PERCEPTIONS OF REQUIRED MATHEMATICS COURSES

Cheryl Malm, Northwest Missouri State University Jennifer Wall, Northwest Missouri State University

Preservice teachers (PSTs), mathematics teacher educators, and school districts all benefit from Family Math Night (FMN). PSTs host FMN stations using topics from their mathematics content courses and realize how their mathematics content courses prepare them to be effective teachers.

B12. INTERTWINING THE CONTENT AND PEDAGOGY IN INSTRUCTION: EXPERIENCES AND LESSONS LEARNED

Nermin Bayazit, Fitchburg State University

In this presentation, we will reflect on our co-teaching practices, what we learned over three years of experiences, and share our vision of effective co-teaching in mathematics teacher education.

B13. LESSON STUDY IN PRESERVICE SECONDARY MATHEMATICS METHODS COURSES: CONNECTING PRACTICE AND STRANDS OF MATHEMATICAL PROFICIENCY

Monica Merritt, Mount Saint Mary College

This poster highlights the positive impact that lesson study has on preservice secondary mathematics teachers' practice and understanding of the strands of mathematical proficiency. Implementation of lesson study in methods courses, survey results, and collaborations with cooperating teachers are shared.

B14. LESSONS LEARNED FROM ENGAGING SECONDARY MATHEMATICS PRESERVICE TEACHERS IN SPECIAL EDUCATION CONSULTATIONS

Samuel Eskelson, University of Northern Iowa Elizabeth Hughes, University of Northern Iowa

We present lessons learned from our endeavors to create an authentic experience in which secondary mathematics and special education preservice teachers (PSTs) engaged in mathematics-specific consultations. We also include examples of the PSTs' efforts in this work.

B15. LICENSURE TEST PREPARATION SUCCESSES AND FAILURES: GOING BEYOND "TEST PREP"

Luke Reinke, University of North Carolina, Charlotte

Licensure tests that assess mathematics content knowledge are a significant obstacle for many teacher candidates. Participants will hear about the failures and successes as one program worked to support candidates through in-person preparation sessions and an innovative online module.

B16. MATHEMATICS WITHIN TRANSDISCIPLINARY STEM EDUCATION

Daniel Edelen, University of Central Florida

This poster session reports on elementary students' experiences learning mathematics content and practices through transdisciplinary STEM. This session showcases meaningful mathematics in STEM for MTEs to be able to prepare teachers to teach in future integrative classroom environments.

B17. PERSONALIZED LEARNING ENVIRONMENT IN STEM EDUCATION IMPLEMENTATION EVALUATION

Rebecca D Layton, University of Tennessee

Jo Ann Cady, University of Tennessee

The study examined the benefits and challenges of implementing a personalized learning environment (PLE) program in STEM classrooms. This examination led to adjustments during the implementation phase.

B18. PRESERVICE TEACHERS' EXPERIENCES WITH MATH ACTIVITIES USING CODING AND ROBOTICS

Young Rae Kim, Texas A&M University, San Antonio

The purpose of this study is to investigate preservice teachers' experiences in using coding and robotics. We are interested in examining the extent to which math activities using coding and robotics might facilitate preservice teachers' knowledge transfer into teaching mathematics.

B19. PROSPECTIVE MATHEMATICS TEACHERS' PERCEPTIONS OF PRODUCTIVE STRUGGLE

Natasha Gerstenschlager, Western Kentucky University Kanita Kimmons DuCloux, Western Kentucky University Hope Marchionda, Western Kentucky University Janet Tassell, Western Kentucky University

The goal of this study was to identify and characterize the nature of prospective teachers' struggles as they engaged in a non-routine mathematical task in a content course. This poster presents the results

from this qualitative, exploratory study.

B20. RELATIVE SIZE OF LARGE NUMBERS RESEARCH: THE NEED FOR PLACEMENTS AND EXPLANATIONS

Shelly Sheats Harkness, University of Cincinnati Amy Brass, University of Northern Iowa

The motivation for this poster was an AMTE presentation in 2012: Examining Preservice Teachers' Understanding of the Magnitude of Large Numbers. We share the research links between our findings and cognitive scientists.

C21. SCAFFOLDING FOCUS ON THE SUBSTANCE OF STUDENT MATHEMATICAL THINKING WITH A VIRTUAL ASSESSMENT ENVIRONMENT

Anthony Matranga, California State University, San Marcos Valerie Klein, Drexel University

Jason Silverman, Drexel University

We present findings from examination of practicing teachers' collective analysis of student work mediated by a virtual assessment environment. Findings indicate that categorizing student work and access to records of colleagues' noticings supports shifts in teachers' noticing of student thinking.

C22. SECONDARY TEACHERS' CONCEPTIONS OF MATHEMATICAL MODELING AND TEACHING MATHEMATICAL MODELING

Jenifer Hummer, University of Delaware

Mathematical modeling, an important mathematical practice, is challenging for secondary teachers to teach. This study investigates secondary teachers' conceptions of mathematical modeling and teaching mathematical modeling. The results can inform mathematics teacher educators on supporting teachers in teaching mathematical modeling.

C23. TEACHER TRAINING AND INTEREST IN MATHEMATICS IN SUB-SAHARAN AFRICA: THE CASE OF SENEGAL

Brianna Ashley Kurtz, University of Central Florida

Senegal has seen interest in the advancement of mathematics while simultaneously enduring struggles in student achievement. We explore challenges in teacher training in multilingual classrooms as well as discuss triumphs in advanced content through the African Institute of Mathematical Sciences.

C24. TEACHERS' CURRICULUM ENACTMENT AS A MEANS TO DETERMINE THE SUCCESSES AND CHALLENGES OF AMBITIOUS MATHEMATICS TEACHING

Jessica Shumway, Utah State University Heather Gardner, Utah State University

This study examined how teachers enacted a number sense curriculum in second-grade classrooms. We will share our analysis of the important teacher characteristics and curriculum features and what their successes and challenges tell us about the implications for professional development.

C25. THE ROLE OF KNOWLEDGE AND NOTICING IN TEACHER DECISION MAKING

Kelsey Clarkson, Illinois State University Darl Rassi, Illinois State University Amy E Roehrig, Illinois State University David Barker, Illinois State University

In this study, we examined the role that teacher knowledge and noticing played in the decision-making process of two teachers. Differences between the two teachers and implications for the field will be presented.

C26. THE ROLE OF VIDEO-BASED REHEARSAL TEACHING PRACTICES IN PRESERVICE TEACHERS' METACOGNITIVE THINKING

Ayse Nur Ozturk, The Ohio State University Joanne Baltazar Vakil, The Ohio State University

This study provides evidence for how video-based teacher practices impact the development of PSTs' abilities to think metacognitively in ways that increase awareness of teaching moves as they monitor their teaching plan during rehearsals of teaching in kindergarten classrooms.

C27. USING CHILDREN'S LITERATURE TO PROBE PRESERVICE TEACHER UNDERSTANDING OF SHAPE

Joshua Hertel, University of Wisconsin, La Crosse

We discuss a project designed to engage preservice elementary teachers in thinking critically about geometric shape. Students analyzed children's literature to identify mathematical errors and drafted recommendations for improvement. We will present the project, share results, and discuss next steps.

C28. USING FACEBOOK TO PROVIDE OPPORTUNITIES FOR REFLECTION AND DISCUSSION OF FIELD EXPERIENCES OUTSIDE OF CLASS TIME

Jessica De la Cruz, Assumption College

This poster describes how a Facebook discussion was utilized in an Elementary Mathematics Methods course for PSTs to share regarding their associated fieldwork. Analysis indicates this forum was beneficial for sharing common experiences, connecting theory to practice, and generating reflection.

C29. USING INTERACTIVE POLLING TECHNOLOGY TO BUILD PEDAGOGICAL EXPERTISE

Linda Forbringer, Southern Illinois University, Edwardsville

See how using interactive polling technology increased preservice and inservice teachers' understanding of three evidence-based instructional practices: (1) active participation, especially with at risk populations, (2) frequent review and feedback, and (3) using formative assessment to guide instructional decisions.

C30. USING SIMULATIONS TO DEVELOP HIGH SCHOOL TEACHERS' UNDERSTANDING OF HYPOTHESIS TESTING

Amber Matuszewski, Middle Tennessee State University

My poster will describe the changes in content knowledge for hypothesis testing of one teacher who was engaged in simulation tasks. The poster will describe the lesson plan design and describe how the participant interacted with the tasks.

OVERVIEW OF FRIDAY AFTERNOON, FEBRUARY 8, 2019

	2:15 PM – 3:00 PM	3:30 PM – 4:30 PM
Salon 1	136. Exploring STEM Integration Within an Elementary Mathematics Content Course- Glover & Monson	152. Characterizing MTEs' Questioning Practice: Improving Practice Through Inquiry- Hillman, Kastberg, & Lischka
Salon 2	137. Racial/Cultural Identity Consciousness and Mathematics Education: Community Autoethnography- Nickels & Safi	153. Using Shifts in Classroom Practice to Support Preservice Teachers' Effective Teaching- McGatha & Bay-Williams
Salon 3	138. The Role of Technology in Understanding 3D Geometry- Cochran	154. University and School Based Partners Supporting Future Teachers' Learning to Design Technology-based Mathematics Tasks- McCulloch & Fye
Salon 4	139. Self-Efficacy for Teaching English Learners: Using Visual Representations and Language Strategies in Mathematics Teaching- Neumayer DePiper & Nikula	155. Engaging in Collective Lesson Analysis: Observing and Debriefing Classroom Lessons Together- Cirillo, Hummer, & LaRochelle
Salon 5	151. <i>Mathematics Teacher Educators Walking to Equity Throu</i> Fernandes, Joseph, Stoehr, & LopezLeiva	gh Critical Reflection and Analysis of Structural Systems- Civil,
Salon 6	140. The Power of Perspectives: Preservice Teachers' Multiple Perspectives of a STEM Classroom- Burton	156. Brief Report Session: Lesson Study- Whitney; Appelgate, Dick, Gupta, & Soto; Kasten & Noblitt
Salon 7	141. Actualizing Agency, Authority, Identity, and Access to Content in Two Contrasting Cases of Mathematical Groupwork- Villa & Boles	157. Brief Report Session: Supporting Preservice Teachers' Mathematical Understanding- Callis; Abu-Ghalyoun; Tasova & Lee
Salon 8	142. Using an Online Environment to Coach Teachers in their Development of Core Instructional Practices- Kirkland & Trinter	158. edTPA and the Standards for Preparing Teachers of Mathematics: Synergies and Opportunities- Rigelman & Steele
Salon 9	143. SMET, STEM, STEAM, STREAM What Do Mathematics Educators Need to Know?- Schrock	159. <i>Distinctive Aspects of Reasoning in Statistics and Mathematics</i> - Conner, Peters, & Gomez
Salon 10	144. A Program for Success- Buchheister	160. <i>Designing a Video Clip Playlist for Mathematics Methods</i> <i>Courses</i> - Kalinec-Craig, Diamond, & Shih
Salon 11	145. Exploring Alignment of Preservice Secondary Mathematics Teachers' Experiences Using Research-based Course Materials to Teacher Preparation Standards- Beach, Alvarez, & Jorgensen	161. Using Vignettes to Prepare Mathematics Teachers to Advocate for LGBTQQ+ Students, Families, and Colleagues- Koestler, Whipple, & Dubbs
Salon 12	146. Addressing the Computer Science and Mathematics Debate in High School: A Project & Policy Report- Zelkowski, Dickens, & Davis	162. Teachers as Mathematicians: Immersive Mathematics, Community, and Connecting to Practice in the MIST Project- Gordon, Sprague, Kerins, & McLeod
Salon 13	147. A Cross-Site Examination of Preservice Teachers' Views on Culture in Mathematics Education- White & Anderson	163. How Do AMTE Affiliates Apply Problem Solving Processes to Current Issues in Mathematics Education?- Evitts, Sjostrom, Tjoe, Newton, & Franz
Salon 14	148. Discussing the Role of Context in the Teaching of Statistics in Written K-12 Mathematics Curriculum- Weiland	164. Practicing What We Teach: Culturally Responsive Pedagogy in a Math Content Course- Seashore & Cunningham
Salon 17	149. Transforming Professional Development for Isolated Teachers through Blended Face-to-Face and Online Learning- Luebeck & Roscoe	165. Integrating Digital Fabrication for Mathematics Teacher Educators- Ivy & Wan
Salon 18	150. Modules for Examining Students' Mathematical Practices on Technological Tasks- Lovett, McCulloch, & Cayton	166. STEM Lesson Observations in High Needs Schools: Strengths, Challenges, and Stability- Madden, Ericson, Gonzales, & Vasu

FRIDAY, FEBRUARY 8, 2019

Session	136
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Mathematics Content, Processes, and Practices Individual Session

EXPLORING STEM INTEGRATION WITHIN AN ELEMENTARY MATHEMATICS CONTENT COURSE

Rebecca Glover, University of St. Thomas Debbie Monson, University of St. Thomas

This session focuses on the integration of STEM and other subjects in a mathematics content course for elementary teachers and its impact on preservice teachers. A course overview, modules that students engaged in, and reflections will be shared.

Session 137 Equity, Social Justice, and Mathematics Teacher Education Individual Session

RACIAL/CULTURAL IDENTITY CONSCIOUSNESS AND MATHEMATICS EDUCATION: COMMUNITY AUTOETHNOGRAPHY

Megan Nickels, University of Central Florida Farshid Safi, University of Central Florida

We report on the Racial/Cultural Identity Development Model to suggest equitable mathematics education must understand perspectives of marginalized students by recognizing individual members of any group may hold unique values, beliefs, and behaviors while advancing through stages of identity development.

Session 138 Mathematics Content, Processes, and Practices Individual Session

THE ROLE OF TECHNOLOGY IN UNDERSTANDING 3D GEOMETRY

Jill Cochran, Berry College

With a growing interest in STEM education, skills related to 3D design and printing are becoming more necessary for both K-12 students and their teachers. We will explore research related to preparing K-12 students and preservice teachers with these skills.

Session 139

Teacher Professional Development Individual Session

SELF-EFFICACY FOR TEACHING ENGLISH LEARNERS: USING VISUAL REPRESENTATIONS AND LANGUAGE STRATEGIES IN MATHEMATICS TEACHING

Jill Neumayer DePiper, Education Development Center Johannah Nikula, Education Development Center

This session presents data from participants in a middle grade mathematics teacher professional development focused on visual representations and supports for English learners. We will discuss shifts in teacher self-efficacy and findings related to critical components of the professional development.

THE POWER OF PERSPECTIVES: PRESERVICE TEACHERS' MULTIPLE PERSPECTIVES OF A STEM CLASSROOM

Megan Burton, Auburn University

Preservice Teacher Field Experiences

This session examines insights and noticings from elementary preservice teachers that experienced multiple roles during a STEM Camp and mathematics methods course. Each perspective provided unique insight into professional identity development.

Session 141

Session 140

Individual Session

Salon 1

Salon 2

Salon 3

Salon 4

Mathematics Pedagogy and Instructional Practice Individual Session

ACTUALIZING AGENCY, AUTHORITY, IDENTITY, AND ACCESS TO CONTENT IN TWO CONTRASTING CASES OF MATHEMATICAL GROUPWORK

Anthony Muro Villa, Stanford University Kelly L Boles, Stanford University

This presentation is focused on patterns between and within groupwork video cases from a larger research-practice partnership study. Participants will juxtapose two contrasting cases – scrutinizing how small groups are actualizing Authority, Agency, and Identity; and Access to Content indicators.

Session 142 Teacher Professional Development Individual Session

USING AN ONLINE ENVIRONMENT TO COACH TEACHERS IN

THEIR DEVELOPMENT OF CORE INSTRUCTIONAL PRACTICES

Patrick K Kirkland, University of Notre Dame Christine Trinter, University of Notre Dame

Presenters will describe lessons learned during a longitudinal professional development program that supported teachers' facilitation of classroom discourse and assessment practices and employed online coaching. Findings from this qualitative study will focus on the coach's experience in this online environment.

Session 143

NCSM Presidential Exchange Session Individual Session

SMET, STEM, STEAM, STREAM WHAT DO MATHEMATICS EDUCATORS NEED TO KNOW?

Connie S. Schrock, Emporia State University & NCSM

How do we meet the needs of all students? Appropriate integration is part of the solution. Mathematics tasks that integrate other subjects must do so using grade level mathematics. Come discuss how STEM activities can increase student engagement.

2:15 PM - 3:00 PM

Salon 6

Salon 7

Salon 8

Session 144SaTeaching and Learning with TechnologyIndividual Session	lon 10	Session 148Salon 14Mathematics Education Policy and Program IssuesDiscussion Session
A PROGRAM FOR SUCCESS Kelley Buchheister, University of Nebraska, Lincoln This project was designed to enrich prospective preschool teac Technological Pedagogical Content Knowledge by: (a) developin prospective teachers' technological proficiency with coding tech (b) modeling high-quality pedagogical practices in early mather and (c) fostering mathematical content through purposeful que	chers' ng hnologies, matics, estions.	DISCUSSING THE ROLE OF CONTEXT IN THE TEACHING OF STATISTICS IN WRITTEN K-12 MATHEMATICS CURRICULUM Travis Weiland, Appalachian State University This session is focused on discussing the role of context in major policy documents related to the teaching of statistics in K-12 settings and to connect that to research on textbook curriculums with implications for transforming, curriculum, and teacher education.
Session 145SaMathematics Content, Processes, and PracticesIndividual Session	lon 11	Session 149 Salon 17 Teacher Professional Development
EXPLORING ALIGNMENT OF PRESERVICE SECONDAR MATHEMATICS TEACHERS' EXPERIENCES USING RES BASED COURSE MATERIALS TO TEACHER PREPARATE STANDARDS Janessa Beach, The University of Texas, Arlington James Anthony Mendoza Alvarez, The University of Texas, Arlin Theresa Jorgensen, University of Texas, Arlington Using examples from research-based lessons on functions, ass classroom data, and student interview data, we illustrate expect unexpected ways that AMTE SPTM and MET II recommendation a secondary mathematics teacher preparation course focused functions	RY EARCH- ION agton sociated cted and ns arise in on	TRANSFORMING PROFESSIONAL DEVELOPMENT FOR ISOLATED TEACHERS THROUGH BLENDED FACE-TO-FACE AND ONLINE LEARNING Jennifer Luebeck, Montana State University Matt B. Roscoe, University of Montana Effective professional learning is content-focused, standards-based, and classroom-relevant. However, rural mathematics teachers lack equitable access to learning due to barriers of distance, time, and expense. We propose effective practices based on six years of research and implementation in online/blended learning.
Session 146 Sa Mathematics Education Policy and Program Issues Individual Session	lon 12	Teaching and Learning with Technology Individual Session MODULES FOR EXAMINING STUDENTS' MATHEMATICAL PRACTICES ON TECHNOLOGICAL TASKS
ADDRESSING THE COMPUTER SCIENCE AND MATHER DEBATE IN HIGH SCHOOL: A PROJECT & POLICY REP Jeremy S Zelkowski, University of Alabama Taylor Dickens, New Century Technology High School Hannah Davis, McAdory High School We build on NCTM's "Catalyzing Change" addressing the state a national debate on how computer science fits within redefining school. We share our teacher preparation NSF grant project an outcomes integrating CS into math teacher preparation.	ort and g high id	Jennifer Lovett, Middle Tennessee State University Allison McCulloch, University of North Carolina, Charlotte Charity Cayton, East Carolina University This session will present two modules (rate of change and concept of function) designed for preservice secondary teachers to examine authentic students' mathematical and technological practices. Participants will engage with tasks from the modules and examine artifacts of PSTs' work.
Session 147 Sa Equity, Social Justice, and Mathematics Teacher Education Individual Session	lon 13	
A CROSS-SITE EXAMINATION OF PRESERVICE TEACH VIEWS ON CULTURE IN MATHEMATICS EDUCATION Dorothy Y. White, University of Georgia Christian J. Anderson, Morgan State University This session describes a cross-site study of PSTs' views on equir mathematics. PSTs were culturally diverse across racial, ethnic, language, and geographical backgrounds. Participants will learn similarities and differences in the PSTs' perspectives and implic methods courses.	ty in , n the cations for	

FRIDAY, FEBRUARY 8, 2019

Session 151

Equity, Social Justice, and Mathematics Teacher Education Extended Session

MATHEMATICS TEACHER EDUCATORS WALKING TO EQUITY THROUGH CRITICAL REFLECTION AND ANALYSIS OF STRUCTURAL SYSTEMS

Marta Civil, University of Arizona Anthony Fernandes, University of North Carolina, Charlotte Nicole Michelle Joseph, Vanderbilt University Kathleen Jablon Stoehr, Santa Clara University Carlos Alfonso LopezLeiva, University of New Mexico

This session focuses on two major concerns from the 2017 AMTE Equity Committee survey: understanding issues of power, privilege, race and racism, and building relationships with families. Participants will engage with two modules that directly address these themes.

FRIDAY, FEBRUARY 8, 2019

3:00 PM - 3:30 PM

AMTE

FRIDAY AFTERNOON BREAK FIRST FLOOR, ROSEN PLAZA HOTEL

Salon 5

This is a great time to stretch, network with colleagues, and visit the exhibitors.



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Session 156 Salon 6
BRIEF REPORT SESSION: LESSON STUDY
JUGYOU KENKYUU: HOW IS JAPANESE LESSON STUDY BEING TRANSLATED IN THE UNITED STATES? Stephanie Whitney, DePaul University
With rising use and interest in lesson study, cases of lesson study in th United States are analyzed using the Collaborative Lesson Research
is being translated in U.S. schools.
LESSON STUDY AS A VEHICLE FOR ESTABLISHING EARLY
Mollie Appelgate, Iowa State University Lara Dick, Bucknell University Dittika Gupta, Midwestern State University
We share a way for early career MTEs to develop a community of practice from completing a lesson study. We used Wenger's (1998) soc theory of learning to study how our learning changed throughout the different phases of lesson study.
PROSPECTIVE TEACHERS LEARNING TO USE REAL-WORLD CONTEXTS IN A LESSON STUDY Sarah Kasten, Northern Kentucky University
 Bethany Noblitt, Northern Kentucky University Often prospective teachers in our methods courses struggle to find or create contexts that accurately support and illuminate the mathematic at hand. We have found overcontextualization and the choice of non- supportive contexts are areas of difficulty for our prospective teachers
Session 157 Salon 7
BRIEF REPORT SESSION: SUPPORTING PRESERVICE TEACHERS' MATHEMATICAL UNDERSTANDING
CURRICULAR ELEMENTS THAT HELP INSTRUCTORS CREATE MATHEMATICALLY POWERFUL EXPERIENCES FOR FUTURE ELEMENTARY TEACHERS
 Laura Kyser Callis, Curry College This session describes how a curriculum for mathematics content courses for prospective elementary teachers helped college instructors
assess and make use of PTs' thinking, and support PTs' use of mathematics mathematical language.
PRESERVICE TEACHERS' USE OF DYNAMIC SOFTWARE TO EXPLORE SAMPLING VARIABILITY
This paper reports on results of a study aiming to investigate the effect
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SUPPORTING QUANTITATIVE REASONING THROUGH ESTABLISHING FRAMES OF REFERENCE

Halil Ibrahim Tasova, University of Georgia Hwa Young Lee, Texas State University

In this presentation, by stressing the importance of establishing quantitative frames of reference, we illustrate ways to support PSTs' quantitative reasoning with attention to the tasks and associated strategies that engage them in and improve their quantitative reasoning.

Session 158

Salon 8

Salon 9

Salon 10

Mathematics Education Policy and Program Issues Discussion Session

EDTPA AND THE STANDARDS FOR PREPARING TEACHERS OF MATHEMATICS: SYNERGIES AND OPPORTUNITIES

Nicole Rigelman, Portland State University Mike Steele, University of Wisconsin, Milwaukee

We will examine connections between the AMTE Standards and edTPA rubrics for elementary and secondary mathematics. We will explore opportunities and challenges with respect to pedagogies advocated via edTPA and use the Standards to identify ways to strengthen school-university partnerships.

Session 159

Mathematics Content, Processes, and Practices Discussion Session

DISTINCTIVE ASPECTS OF REASONING IN STATISTICS AND MATHEMATICS

AnnaMarie Conner, University of Georgia Susan A Peters, University of Louisville Carlos Nicolas Gomez, Clemson University

Reasoning in statistics differs from reasoning in mathematics. Mathematics teachers need to recognize these differences and be prepared to engage students productively in reasoning of each kind. Participants will discuss mathematical and statistical reasoning and their relevance to teacher education.

Session 160

Mathematics Pedagogy and Instructional Practice Discussion Session

DESIGNING A VIDEO CLIP PLAYLIST FOR MATHEMATICS METHODS COURSES

Crystal Kalinec-Craig, University of Texas, San Antonio Jaime Marie Diamond, University of Georgia Jeff Shih, University of Nevada, Las Vegas

Participants will engage in a discussion about the decision-making processes three MTEs engage in as they select and use video clips for the expressed purpose of supporting PSTs' noticing of children's mathematical thinking.

Session 161

Salon 11

Salon 12

Equity, Social Justice, and Mathematics Teacher Education Discussion Session

USING VIGNETTES TO PREPARE MATHEMATICS TEACHERS TO ADVOCATE FOR LGBTQQ+ STUDENTS, FAMILIES, AND COLLEAGUES

Courtney Koestler, Ohio University, OCEMS Kyle Stephen Whipple, University of Wisconsin, Eau Claire Christopher Dubbs, Michigan State University

In this session we will share brief vignettes we use to prepare mathematics teachers to support and advocate for LGBTQQ+ students, families, and colleagues. We will share initial findings from our research, and provide space for discussion and feedback.

Session 162

Mathematics Content, Processes, and Practices Individual Session

TEACHERS AS MATHEMATICIANS: IMMERSIVE MATHEMATICS, COMMUNITY, AND CONNECTING TO PRACTICE IN THE MIST PROJECT

Evelyn M. Gordon, Horizon Research, Inc. Jennifer Sprague, Horizon Research, Inc. Bowen Kerins, Education Development Center Matthew McLeod, Education Development Center

The MIST project creates and investigates immersive mathematics professional development for an online and in-person community of secondary teachers. Session participants will experience sample activities, discuss the program, and explore findings from an expert panel investigation for operationalizing research constructs.

Session 163

Salon 13

Equity, Social Justice, and Mathematics Teacher Education Symposium

HOW DO AMTE AFFILIATES APPLY PROBLEM SOLVING PROCESSES TO CURRENT ISSUES IN MATHEMATICS EDUCATION?

Thomas Evitts, Shippensburg University Mary Pat Sjostrom, Winthrop University Hartono Tjoe, Pennsylvania State University, Berks Jill Newton, Purdue University Dana Pomykal Franz, Mississippi State University

The purpose of this session is to engage AMTE affiliate members in a discussion about how the work of affiliates can effect change in teacher preparation programs and address other problems of practice within their own state.

Session 164

Salon 14

Equity, Social Justice, and Mathematics Teacher Education Individual Session

PRACTICING WHAT WE TEACH: CULTURALLY RESPONSIVE PEDAGOGY IN A MATH CONTENT COURSE

Kimberly Seashore, San Francisco State University Elizabeth Petit Cunningham, University of Michigan, Flint

How do MTEs learn to practice of culturally relevant pedagogy? Graphs About Us are activities for MTEs to practice integrated students' life experiences with math teaching. Participants will engage in experiencing GAU and discuss the finding from research in classes.

Session 165

Teaching and Learning with Technology Individual Session

INTEGRATING DIGITAL FABRICATION FOR MATHEMATICS **TEACHER EDUCATORS**

Jessica T Ivy, Mississippi State University Anna Wan, University of Southern Mississippi

We will share and discuss our method of integrating digital fabrication for secondary mathematics education methods courses and findings from the TPACK Development Model Self-Report Survey. A computer and internet connection is all the technology that is needed.

Mathematics Pedagogy and Instructional Practice Discussion Session

STEM LESSON OBSERVATIONS IN HIGH NEEDS SCHOOLS: STRENGTHS, CHALLENGES, AND STABILITY

Sandra R. Madden, University of Massachusetts, Amherst Jennifer Ericson, University of Massachusetts, Amherst Alicia Gonzales, University of Massachusetts, Amherst Ileana Vasu, Univ. of Massachusetts & Holyoke Community College

We explore STEM classroom practice in high needs schools through the study of lesson characteristics as a window into students' opportunities to learn. Strengths, challenges, methodological issues, and implications for teacher learning will be discussed.

FRIDAY, FEBRUARY 8, 2019

MTE

Judith Jacobs Lecture

Ballroom B

FUNDAMENTAL COMMITMENTS OF MY WORK AS A MATHEMATICS TEACHER EDUCATOR

Denise A Spangler, University of Georgia

I will describe the fundamental commitments that undergird my teaching, research, and service in mathematics teacher education and explain how these commitments have influenced my work and how they might influence the field more broadly, including the work of AMTE.

FRIDAY, FEBRUARY 8, 2019

BALLROOMS C AND D

RECEPTION FOR ALL CONFERENCE ATTENDEES

Please join your colleagues for informal conversation and light refreshments.



6:30 PM - 7:30 PM

5:00 PM - 6:30 PM



Salon 17

Session 166





SATURDAY, FEBRUARY 9, 2019

6:45 AM - 7:45 AM

AMTE

BALLROOMS A AND B

AMTE BREAKFAST AND AFFILIATE MEETINGS

Tables will be designated for AMTE Affiliate groups to meet during Saturday morning's breakfast. For a listing of the AMTE Affiliates and table locations, please see pages 7 and 8 of this program.



OVERVIEW OF SATURDAY MORNING, FEBRUARY 9, 2019

	8:00 AM – 9:00 AM	9:15 AM – 10:15 AM
Salon 1	169. Rethinking Professional Development and the Professional Development School- Swartz	187. A Professional Development Model to Support Teaching WITH (not near) Technology- Reiten
Salon 2	170. Developing Leaders Through Self-Study Research: An Analysis of Field Experiences in a Mathematics Specialist Program- Baker, Bitto, Wills, Galanti, & Eatmon	188. Putting the M in STEM: Helping Mathematics Teachers Collaborate Meaningfully- Ulrich & LaCroix
Salon 3	171. "It just got real!": Integrating Social and Political Issues in Preservice Elementary Mathematics Content Courses- Thanheiser, Rosencrans, Osa, Felton-Koestler, & Koestler	189. Prospective Teachers: What Are They Noticing?- Poling & Moss
Salon 4	172. Mathematical Modeling in Cultural and Community Contexts with Elementary Teachers and Students Grades 3-5- Roth McDuffie & Foote	190. Trends in Mathematics Education Dissertation Research Focus Areas (Who, Where and When): A Longitudinal Perspective- Safi & Desai
Salon 5	173. Using a Professional Development Framework to Promote Teachers' Implementation of Tasks- Wilburne & Franz	191. Fix the System, Not the Teacher: Theorizing Transformation of High School Mathematics in One District- Lawler & Leaf
Salon 6	174. Brief Report Session: Understanding Fractions and Decimals- Liu & Galindo; Spitzer & Phelps-Gregory; Jung	192. Brief Report Session: Teacher Collaborations- Saclarides; Cannon; Boyle & Dai
Salon 7	175. Brief Report Session: School Parternships- Graybeal; Duggan, Schwartz, Stephan, & Belford; Ward	193. Brief Report Session: Mathematics for Preservice Teachers- Bofferding & Wessman-Enzinger; Strachota; Hardison & Lee
Salon 8	176. Assessing What It Means to be Good at Math- Ruef, Sweeny, & Willingham	194. Attending to Equity in Clinical Experiences via Coplanning and Coteaching Strategies- Sears, Oloff-Lewis, Riggs, Brosnan, Grady, & Stone
Salon 9	177. NCTM's Catalyzing Change: Implications for Preparing Teachers to Teach Statistics- Burrill & Franklin	195. Fostering and Improving Small Group, Student-to-Student Discourse: A Professional Development Program- Quebec Fuentes
Salon 10	178. Let's Get Rational! Shifting PSTs' Mathematical Dispositions Through Fraction Division Tasks- Broaddus, Haistings, La Voy, & Rothrock	196. A Protocol for Identifying Factors That Influence the Enactment of Teachers' Content Knowledge- Tallman, Simmons, Uscanga, & Oehrtman
Salon 11	179. Professional Development Toward Sustainable Changes in Practice: Leading with Teachers- Barlow & Watson	197. Teacher Moves to Facilitate the Believing Game in the Mathematics Classroom- Noblitt & Harkness
Salon 12	180. Learning to Launch: Growing as New Teacher Educators through Collaborative Unit Design in Secondary Methods- Creager, Parrish, & Snider	198. Preservice Teachers' Decision Making: What Happens When the Answer is Wrong?- Estapa, Weston, & Amador
Salon 13	181. Examining Early Ambitious Teaching to Support Novice Mathematics Teachers- Casa, Cavanna, & Pinter	199. Strategies that Promote Knowledge Integration in Content and Methods Courses for Preservice Teachers- Kirwan, Winsor, & Barker
Salon 14	182. Graduate Students' Developing Identities as Mathematics Education Researchers- Gomez, Jones, Latimer, Tanck, & Brittain	200. Content Alignment of Teacher Knowledge Assessments with the Common Core Standards in Mathematics- Copur-Gencturk, Rasiej, & Jacobson
Salon 17	183. Making Connections: PSTs' Reactions to Readings and their Peers through Perusall- Disney & Eisenreich	201. Making Sense of Fractions: Using Number Talks to Strengthen Prospective PreK-8 Teachers' Fraction Number Sense- Stevens & Gibson
Salon 18	184. Equipping and Empowering 8th Grade Mathematics Teachers to Create Dynamic Learning Activities Promoting Conceptual Understanding- Moreno & Cheng	202. Brief Report Session: Facilitating Collaboration- Kulow, Belliston, & Sugimoto; Haines & Munter; Garner
Ballroom C	185. Authentic STEAM Instruction to Support and Challenge Each and Every Learner- Bush	203. Developing Teacher Candidates' Proficiency with Equitable Pedagogy Across Multiple Program Components- Strutchens & Martin
Ballroom D	186. Impact of Professional Development on Elementary Teachers' Beliefs, Practices, and Knowledge for Promoting Classroom Discourse- Alnizami, Sztajn, Malzahn, & Heck	204. Double Vision: Considering Different Perspectives on Professional Development Task Modules to Promote Equitable Mathematics Instruction- Amidon & Foote

	10:30 AM - 11:30 AM
Salon 1	205. Using Strip Diagrams as a Practice in a Middle School Content Course- Siy
Salon 2	206. From Charlottesville to School Segregation: Knowledge for Equitable Mathematics Teacher Education- Felton-Koestler
Salon 3	207. The Development of Teacher Noticing for PSTs in a Varied Field Experience- Cooper, Crowley, Salisbury, & Warren
Salon 4	208. Developing a Responsive and Emergent Curriculum for Elementary Teachers' Professional Development: Successes and Challenges- Galindo, Yoder, Liu, & Bharaj
Salon 5	209. Secondary Rehearsals: How Might the Structure of Instructional Activities Differ with a Complex Mathematical Topic?- Hawthorne & Gruver
Salon 6	210. Brief Report Session: Teaching in Linguistically Diverse Contexts- Gonzalez; Appelgate, Jurgenson, I, & Huey; Fernandes
Salon 7	211. Brief Report Session: Examining Teacher Education- Livers & Willey; Morgan & Powers; Mohr-Schroeder & Rushton
Salon 8	212. Partnering to Support STEM Learning for Minoritized Youth and (Future) Mathematics Teachers- Harper & Hodge
Salon 9	213. Content Knowledge, Trajectories, and Instruction: Transforming Teaching of Fractions through a Professional Development Project- McLeod & Cutter-Lin
Salon 10	214. Interrogating Identity Narratives within Academic, Social, and Cultural Contexts for Mathematics Teaching- Guzman & Sheldon
Salon 11	215. The Impact of Rehearsals in Immersive Classroom Simulation Activities (ICSAs) with Elementary Preservice Teachers- Lee
Salon 12	216. Unnatural Teaching: Learning from Enactments of the Same Lesson- Howell & Liebars
Salon 13	217. Developing and Assessing Inservice Precalculus Teachers' Mathematical Meanings for Trigonometric Functions- Patterson
Ballroom C	218. Characterizing Prospective Elementary Teachers' Knowledge of Measurement and Considering its Impact on MTEs' Instructional Practices- Feldman & Starks
Ballroom D	219. Teaching Teachers to Lead Statistical Investigations with Technology- Casey, Hudson, Lee, Mojica, Azmy, Barker, & Harrison

SATURDAY, FEBRUARY 9, 2019

Session 169

School and University Partnerships and Projects Individual Session

RETHINKING PROFESSIONAL DEVELOPMENT AND THE PROFESSIONAL DEVELOPMENT SCHOOL

Barbara Ann Swartz, McDaniel College

This session describes a new take on the PDS model by creating a graduate course for cooperating teachers serving as mentors to teacher candidate interns enrolled in an elementary mathematics pedagogy course.

Session 170 Salon 2 Development of Mathematics Teacher Educators

Individual Session

DEVELOPING LEADERS THROUGH SELF-STUDY RESEARCH: AN ANALYSIS OF FIELD EXPERIENCES IN A MATHEMATICS SPECIALIST PROGRAM

Courtney K. Baker, George Mason University Laura Bitto, George Mason University Theresa E Wills, George Mason University Terrie McLaughlin Galanti, George Mason University Cassandra Cook Eatmon, George Mason University

This session describes how one advanced certification program prepared inservice teachers to be K-8 mathematics specialists through an online, synchronous capstone course that included a culminating field experience centered on self-study research. Analysis indicated growth in teacher leadership domains.

Session 171 Equity, Social Justice, and Mathematics Teacher Education Symposium

"IT JUST GOT REAL!": INTEGRATING SOCIAL AND POLITICAL ISSUES IN PRESERVICE ELEMENTARY MATHEMATICS CONTENT COURSES

Eva Thanheiser, Portland State University Brenda Rosencrans, Portland State University Jennie Osa, Portland State University Mathew D. Felton-Koestler, Ohio University Courtney Koestler, Ohio University, OCEMS

We discuss our investigation into income distribution in our course. We focus on a particularly powerful task where the context of racial/ethnic income disparities was revealed near the end. Findings suggest shifts in the students' views about mathematics.

Session 172

Mathematics Content, Processes, and Practices Individual Session

MATHEMATICAL MODELING IN CULTURAL AND COMMUNITY CONTEXTS WITH ELEMENTARY TEACHERS **AND STUDENTS GRADES 3-5**

Amy Roth McDuffie, Washington State University Mary Q Foote, Queens College, CUNY

This session reports on research and professional development focused on teaching and learning mathematical modeling with community and cultural contexts for grades 3-5. Presenters discuss how the project's design supports teacher learning, teacher practices, and student learning about modeling.

Teacher Professional Development Discussion Session

USING A PROFESSIONAL DEVELOPMENT FRAMEWORK TO PROMOTE TEACHERS' IMPLEMENTATION OF TASKS

Jane M Wilburne, Pennsylvania State University, Harrisburg Dana Pomykal Franz, Mississippi State University

Using a framework for professional development on selecting and implementing tasks we provide guided action points for mathematics coaches/university supervisors to prepare action plans and structure discussions with teachers around strategies to promote the effective implementation of high-level tasks.

Session 174

Session 173

Salon 1

Salon 3

Salon 4

Salon 6

BRIEF REPORT SESSION: UNDERSTANDING FRACTIONS AND DECIMALS

EXAMINING TEACHERS' AND STUDENTS' STRATEGY VARIABILITY IN ORDERING FRACTIONS

Jinging Liu, Indiana University

Enrique Galindo, Indiana University

This study focuses on solving a fraction-ordering task to find empirical evidence to address the practical needs of preparing teachers with the ability to solve a problem with multiple strategies so that their students can make broader mathematical connections.

EXAMINING THE LINKS BETWEEN PROSPECTIVE TEACHERS' MATHEMATICAL KNOWLEDGE FOR TEACHING AND NOTICING OF STUDENT THINKING

Sandy Spitzer, Towson University

Christine M Phelps-Gregory, Central Michigan University

We investigated the relationship between prospective elementary teachers' (PTs') MKT and their ability to notice student thinking about comparing decimals. MKT was associated with PTs' ability to attend to student thinking but not with their ability to interpret that thinking.

QUANTITATIVE REASONING, MAGNITUDE, AND TRANSFORMING FRACTIONS

Eun Jung, University of Georgia

Using clinical interviews, this study investigated 10 middle grades preservice teachers' understanding of the magnitude of fractions guantitatively. The data illustrate the impact of different levels of multiplicative reasoning and cognitive operations.

Session 175

School and University Partnerships and Projects

BRIEF REPORT SESSION: SCHOOL PARTERNSHIPS

CULTIVATING MATHEMATICAL CURIOSITY THROUGH SCHOOL AND UNIVERSITY PARTNERSHIP

Christy Graybeal, Hood College

To help teachers learn to cultivate mathematical curiosity, a school system and professor partnered to develop videos of three classrooms (2nd grade, 6th grade, Algebra II). This session gives an overview of the project and provides access to free resources.

(continued on next page)

Salon 7

8:00 AM - 9:00 AM

EXAMINING CRITICAL CONVERSATIONS DURING CO-DESIGN OF K-5 INSTRUCTIONAL FRAMEWORKS

Arren Duggan, University of North Carolina, Greensboro Catherine Schwartz, East Carolina University Michelle Stephan, University of North Carolina, Charlotte Leigh B Belford, East Carolina University

In this session, we report on research about critical conversations that occurred in a research-practice partnership in which multiple partners across our state collaborated to create instructional frameworks to support teachers and district leaders with implementation of standards.

PARTNERING WITH PURPOSE: SUPPORTING EARLY CHILDHOOD TEACHERS WITH MATHEMATICS PEDAGOGY

Jennifer Ward, Kennesaw State University

This session will highlight the work of an early childhood mathematics teacher educator and lab school director in collaborating towards meeting AMTE's preparation standards.

Session 176

Mathematics Pedagogy and Instructional Practice Individual Session

ASSESSING WHAT IT MEANS TO BE GOOD AT MATH

Jennifer L. Ruef, University of Oregon Shannon P Sweeny, Northern Arizona University James Willingham, James Madison University

Mathematics Content, Processes, and Practices

In this session, we will share a suite of instruments designed to elicit prospective elementary teachers' beliefs related to what it means to be "good at math." You will have the chance to explore the tools and share your insights.

Session 177

Symposium

Salon 9

Salon 10

Salon 8

NCTM'S CATALYZING CHANGE: IMPLICATIONS FOR PREPARING TEACHERS TO TEACH STATISTICS

Gail Burrill, Michigan State University

Christine Annette Franklin, Univ. of Georgia & American Statistical Assoc.

Catalyzing Change describes essential statistical concepts for all graduating secondary students. This session will focus on recommendations for resources that preservice and professional development programs can utilize for designing statistics curricula to meet this new challenge in teacher preparation.

Session 178

Mathematics Content, Processes, and Practices Discussion Session

LET'S GET RATIONAL! SHIFTING PSTS' MATHEMATICAL DISPOSITIONS THROUGH FRACTION DIVISION TASKS

Angela Broaddus, Benedictine College Jeanine Haistings, William Jewell College Carrie La Voy, University of Kansas Katrina Rothrock, University of Kansas

Participants will discuss a sequence of fraction division tasks designed to cultivate PSTs' mathematical representations, computations, and explanations. Presenters will share data describing PSTs' shifting mathematical dispositions and engage participants in discussing strategies for addressing conceptual and dispositional difficulties.

Session 179

Salon 11

Teacher Professional Development Discussion Session

PROFESSIONAL DEVELOPMENT TOWARD SUSTAINABLE CHANGES IN PRACTICE: LEADING WITH TEACHERS

Angela Barlow, University of Central Arkansas Lucy Watson, Middle Tennessee State University

During the sixth and final year of a professional development project, teachers formed school-based teams and designed/implemented their own professional activities. This session features the design and impact of these self-directed learning efforts.

Session 180

Salon 12

Salon 13

Mathematics Pedagogy and Instructional Practice Individual Session

LEARNING TO LAUNCH: GROWING AS NEW TEACHER EDUCATORS THROUGH COLLABORATIVE UNIT DESIGN IN SECONDARY METHODS

Mark A Creager, University of Southern Indiana Christopher Parrish, University of South Alabama Rachel B. Snider, The College of New Jersey

In this session, we present a unit designed to support secondary preservice teachers in learning to launch complex tasks. We also discuss the collaborative work among a group of early career mathematics teacher educators that led to this unit.

Session 181

Mathematics Pedagogy and Instructional Practice Individual Session

EXAMINING EARLY AMBITIOUS TEACHING TO SUPPORT NOVICE MATHEMATICS TEACHERS

Tutita M. Casa, University of Connecticut Jillian Cavanna, University of Hartford

Holly Henderson Pinter, Western Carolina University

Come engage in discussions about how to support preservice teachers to teach ambitiously as beginning teachers. We will identify specific and observable ambitious instruction dimensions, investigate cases where these were apparent, and discuss applications to teacher preparation programs.

Session 182

Salon 14

Development of Mathematics Teacher Educators Discussion Session

GRADUATE STUDENTS' DEVELOPING IDENTITIES AS MATHEMATICS EDUCATION RESEARCHERS

Carlos Nicolas Gomez, Clemson University Stacy R Jones, Clemson University Yashica Latimer, Clemson University Hilary Tanck, Clemson University McKenzie Hoxit Brittain, Clemson University

In this session, graduate students and faculty are invited to discuss activities they have found useful and productive in developing their identities as researchers. We share the outcomes of one activity used in a course for mathematics education doctoral students.

Session 183 Salon 17 Mathematics Pedagogy and Instructional Practice Individual Session	Session 185Ballroom CAMTE Early Career Award WinnerIndividual Session
MAKING CONNECTIONS: PSTS' REACTIONS TO READINGS AND THEIR PEERS THROUGH PERUSALL Andria Disney, Georgia Southern University Heidi Eisenreich, Georgia Southern University This session explores how K-8 preservice teachers relate class content/pedagogy to an NCTM article using the social learning platform Perusall. Findings from the study will be shared to inform instruction in mathematics content and methods courses. Session 184 Salon 18 Mathematics Pedagogy and Instructional Practice Individual Session EQUIPPING AND EMPOWERING 8TH GRADE MATHEMATICS TEACHERS TO CREATE DYNAMIC LEARNING ACTIVITIES PROMOTING CONCEPTUAL UNDERSTANDING Callie Moreno, University of California, Los Angeles Ivan Cheng, California State University, Northridge Participants reflect on effective professional development (PD) for math teachers, learn of an innovative PD program that resulted in increased teacher capacity and improved student achievement and evaluate and	AUTHENTIC STEAM INSTRUCTION TO SUPPORT AND CHALLENGE EACH AND EVERY LEARNER Sarah B Bush, University of Central Florida This session explores how and advocates for reform mathematics teaching to be realized through integrated STEAM instruction. Intentionally focus mathematics as an essential component to solving authentic problems in our world (rather than trivially or without attention to grade-level standards)! Session 186 Ballroom D Teacher Professional Development Individual Session IMPACT OF PROFESSIONAL DEVELOPMENT ON ELEMENTARY TEACHERS' BELIEFS, PRACTICES, AND KNOWLEDGE FOR PROMOTING CLASSROOM DISCOURSE Reema Alnizami, North Carolina State University Paola Sztajn, North Carolina State University Kristen Malzahn, Horizon Research, Inc. Daniel Heck, Horizon Research, Inc.
teacher capacity and improved student achievement, and evaluate and leave with interactive tasks to help students make sense of mathematics.	We present the design of professional development focused on mathematics discourse and findings from a quasi-experimental study. Our HLM analysis showed significantly positive effects of the PD on teacher beliefs about discourse, instructional practices, and mathematics knowledge for teaching.
SATURDAY, FEBRUARY 9, 2019	9:15 AM - 10:15 AM
Session 187Salon 1Teaching and Learning with TechnologyIndividual Session	Session 189Salon 3Mathematics Pedagogy and Instructional PracticeDiscussion Session
A PROFESSIONAL DEVELOPMENT MODEL TO SUPPORT	PROSPECTIVE TEACHERS' WHAT ARE THEY NOTICING?
Lindsay Reiten, University of Northern Colorado A professional development model aimed at supporting teachers to teach with (not near) virtual manipulatives is shared. Discussion will focus on applying the model to other opportunities aimed at supporting preservice and inservice teachers' efforts to teach with technology tools.	Lisa Lanette Poling, Appalachian State University Diana L. Moss, Utah State University In this session, we will explore how prospective teachers' negotiation of a noticing framework for the analysis of student work samples demonstrates their understanding and misconceptions of mathematical content knowledge.
Lindsay Reiten, University of Northern Colorado A professional development model aimed at supporting teachers to teach with (not near) virtual manipulatives is shared. Discussion will focus on applying the model to other opportunities aimed at supporting preservice and inservice teachers' efforts to teach with technology tools. Session 188 Salon 2 Mathematics Pedagogy and Instructional Practice Individual Session	Lisa Lanette Poling, Appalachian State University Diana L. Moss, Utah State University In this session, we will explore how prospective teachers' negotiation of a noticing framework for the analysis of student work samples demonstrates their understanding and misconceptions of mathematical content knowledge. Session 190 Salon 4 Equity, Social Justice, and Mathematics Teacher Education Individual Session

Session 191

Teacher Professional Development Individual Session

FIX THE SYSTEM, NOT THE TEACHER: THEORIZING TRANSFORMATION OF HIGH SCHOOL MATHEMATICS IN ONE DISTRICT

Brian R Lawler, Kennesaw State University Abigail A Leaf, Escondido (CA) Union High School District

We present our effort to rehumanize mathematics for students and teachers in one district. We describe a theory of system change focused on implementing classroom, school, and district structures that engage teachers in new practices, leading to new beliefs.

Session 192

Salon 6

Salon 5

BRIEF REPORT SESSION: TEACHER COLLABORATIONS

COACHING AMID EXTERNAL PRESSURES: THE IMPACT OF THREE KEY DISTRICT POLICIES ON MODELING AND CO-TEACHING

Evthokia Stephanie Saclarides, University of Alabama, Tuscaloosa

We describe three key district policies and discuss their impact on two instructional coaches and five elementary teachers as they co-engaged in modeling and co-teaching cycles during mathematics instruction.

COLLABORATION IN ELEMENTARY MATHEMATICS TEACHER EDUCATION: NAVIGATING AND CONNECTING MATHEMATICS, TEACHING, AND TEACHER BELIEFS

Susan Cannon, Georgia State University

This paper reflects on a co-teaching experience during the first mathematics methods course of a teacher preparation program and proposes continued reflection in co-planning the second. We employ poststructural theories to reflect on tensions with teacher beliefs, practice, and mathematics.

COLLABORATIVE DISCUSSIONS ABOUT PLANNING, TEACHING AND LEARNING BETWEEN A TEACHER EDUCATOR AND FIRST-YEAR TEACHER

Justin Boyle, University of Alabama David Dai, University of Alabama

A first-year teacher collaborated with a teacher educator to improve classroom talk. In thinking about school induction programs, we wonder how our work can support schools with developing individualized plans for first-year teachers to promote productive first-year teaching experiences.

Session 193

Salon 7

BRIEF REPORT SESSION: MATHEMATICS FOR PRESERVICE TEACHERS

PROSPECTIVE TEACHERS' INTEGER REASONING: COLLECTIVE KNOWLEDGE AND PRODUCTIVE DISPOSITIONS

Laura Bofferding, Purdue University

Nicole M. Wessman-Enzinger, George Fox University

This session presents the results of fifteen preservice teachers who solved integer addition and subtraction problems with the start or change value missing. The results support viewing prospective teachers as productive learners of mathematics with rich collective knowledge.

SUPPORTING INSTRUCTION THAT FOSTERS ALGEBRAIC THINKING

Susanne M Strachota, University of Wisconsin, Madison

The aim of this study was to understand principles of instruction that can support the implementation of an early algebra instructional sequence in kindergarten, at the start of formal schooling

SUPPORTING PROSPECTIVE ELEMENTARY TEACHERS' WAYS OF REASONING ABOUT ANGLE MEASURE: EFFECTS OF A RESEARCH-BASED INTERVENTION

Hamilton Hardison, Texas State University Hwa Young Lee, Texas State University

In this session, we (a) present a series of research-based tasks we designed to foster critical ways of reasoning about angle measure and (b) report upon the impact of these tasks on prospective elementary teachers enrolled in a geometry content course.

Session 194

Preservice Teacher Field Experiences Discussion Session Salon 8

ATTENDING TO EQUITY IN CLINICAL EXPERIENCES VIA COPLANNING AND COTEACHING STRATEGIES

Ruthmae Sears, University of South Florida Jennifer Oloff-Lewis, California State University, Chico Laurie Riggs, California Polytechnic State University, Pomona Patti Brosnan, The Ohio State University Maureen Grady, East Carolina University

Jamalee Stone, Black Hills State University

We will describe how coplanning and coteaching strategies can be used during clinical experiences to promote equitable learning opportunities within classroom settings. Particularly, we will highlight how purposeful collaboration during clinical experiences can attend equity in mathematics.

Session 195

Salon 9

Mathematics Pedagogy and Instructional Practice Individual Session

FOSTERING AND IMPROVING SMALL GROUP, STUDENT-TO-STUDENT DISCOURSE: A PROFESSIONAL DEVELOPMENT PROGRAM

Sarah Quebec Fuentes, Texas Christian University

This presentation reports on a long-term professional development program that guided teachers in learning how to interact with students while they are working collaboratively to foster student-to-student communication. Through a four-stage iterative process, teachers examined, modified, and improved their practice.

Session 196

Salon 10

Mathematics Pedagogy and Instructional Practice Discussion Session

A PROTOCOL FOR IDENTIFYING FACTORS THAT INFLUENCE THE ENACTMENT OF TEACHERS' CONTENT KNOWLEDGE

Michael Tallman, Oklahoma State University Courtney Renee Simmons, Oklahoma State University Rosaura Uscanga, Oklahoma State University Michael Oehrtman, Oklahoma State University

We will share a research-based protocol for identifying aspects of teacher identity, goal structures, and mathematical knowledge implicative in their classroom decision-making. Participants will explore examples and reflect on implications for teacher education programs.

Session 197Salon 11Mathematics Content, Processes, and PracticesIndividual Session	Session 201Salon 17Mathematics Content, Processes, and PracticesIndividual Session
TEACHER MOVES TO FACILITATE THE BELIEVING GAME IN THE MATHEMATICS CLASSROOM Bethany Noblitt, Northern Kentucky University Shelly Sheats Harkness, University of Cincinnati The believing game can enhance mathematical discourse in mathematics content courses for preservice teachers. This can have great impact on instructors and students. This session will show examples of this and describe teacher moves that facilitate the believing game.	MAKING SENSE OF FRACTIONS: USING NUMBER TALKS TO STRENGTHEN PROSPECTIVE PREK-8 TEACHERS' FRACTION NUMBER SENSE Alexis L. Stevens, James Madison University Jennifer Gibson, James Madison University This session will examine the role of fraction number talks in a mathematics content course for prospective PreK-8 teachers. We will share examples of fraction number talks and discuss how fraction number talks can build fraction number sense.
Session 198Salon 12Mathematics Pedagogy and Instructional PracticeIndividual Session	Session 202 Salon 18 BRIEF REPORT SESSION: FACILITATING COLLABORATION
PRESERVICE TEACHERS' DECISION MAKING: WHAT HAPPENS WHEN THE ANSWER IS WRONG? Anne Estapa, University of Iowa Tracy L Weston, Middlebury College Julie Amador, University of Idaho We report findings from a study that asked preservice teachers to make pedagogical decisions for what should happen next in a classroom episode and then analyzed the reasons for decisions made. Discussion will focus on responsive teaching and mathematical access.	PREPARING TEACHER CANDIDATES TO ESTABLISH EXPECTATIONS FOR THE COLLECTIVE WORK OF STUDENTSTorrey Kulow, Portland State UniversityAlisa C. Belliston, Brigham Young UniversityAmanda Sugimoto, Portland State UniversityParticipants discuss support teacher candidates need to identify and establish expectations for the collective work of students through learning about mathematics methods course assignments and an ongoing study investigating what teacher candidates learned from the
Session 199Salon 13Mathematics Pedagogy and Instructional PracticeIndividual Session	assignments. SECONDARY MATHEMATICS TEACHERS' PERSPECTIVES ON EQUITABLE GROUPING STRATEGIES
STRATEGIES THAT PROMOTE KNOWLEDGE INTEGRATION IN CONTENT AND METHODS COURSES FOR PRESERVICE TEACHERS J Vince Kirwan, Kennesaw State University Matthew Winsor, Illinois State University David Barker, Illinois State University We will present empirically-based mathematics teacher educator actions that have the potential to promote knowledge integration. Data on the impact of these strategies in a content and methods course will be	Cara Haines, University of Missouri Charles Munter, University of Missouri In this session, we share an interview-based investigation of mathematics teachers' perspectives on equitable grouping strategies and consider how teachers' engagement in conversations about grouping might support them in reflecting on their perceptions of ability, differentiation, language, and diversity. SHOULD I STAY OR SHOULD I GO: LINGERING ON RICH TASKS AND MAINTAINING COGNITIVE DEMAND
presented. Attendees will discuss potential implementation into their courses. Session 200 Salon 14 Mathematics Education Policy and Program Issues Individual Session	Brette Ashley Garner, University of Denver We share a case study from a DBR project using video-based formative feedback cycles to support mathematics teachers' learning. The focal teacher used feedback on students' small-group conversations to maintain high cognitive demand over three days of task implementation.
CONTENT ALIGNMENT OF TEACHER KNOWLEDGE ASSESSMENTS WITH THE COMMON CORE STANDARDS IN MATHEMATICS Yasemin Copur-Gencturk, University of Southern California Richard M Rasiej, University of Southern California Erik Jacobson, Indiana University In this presentation, we share our findings on the content alignment between the most commonly used assessments of teachers' mathematical knowledge and the Common Core State Standards for Mathematics.	Session 203 Ballroom C Mathematics Pedagogy and Instructional Practice Symposium DEVELOPING TEACHER CANDIDATES' PROFICIENCY WITH EQUITABLE PEDAGOGY ACROSS MULTIPLE PROGRAM COMPONENTS Marilyn E. Strutchens, Auburn University W Gary Martin, Auburn University Participants will explore activities aligned with AMTE's "Social Contexts of Mathematics Teaching and Learning" standard for preparing teachers of mathematics. These activities help develop well-started beginning teachers who strive to ensure the mathematical success of each and every student.

Ballroom D

Equity, Social Justice, and Mathematics Teacher Education Individual Session

DOUBLE VISION: CONSIDERING DIFFERENT PERSPECTIVES ON PROFESSIONAL DEVELOPMENT TASK MODULES TO PROMOTE EQUITABLE MATHEMATICS INSTRUCTION

Joel Amidon, University of Mississippi Mary Q Foote, Queens College, CUNY

Good professional development is co-constructed with participants. What happens when co-construction doesn't happen but the PD does? The session will explore tensions involved within the development, deployment, and refinement of PD task modules designed to promote more equitable mathematical systems.

SATURDAY, FEBRUARY 9, 2019

10:30 AM - 11:30 AM

Session 205 Mathematics Content, Processes, and Practices Individual Session	Salon 1	Session 208 Teacher Professional Development Individual Session	Salon 4
USING STRIP DIAGRAMS AS A PRACTICE IN A I SCHOOL CONTENT COURSE Eric Siy, University of Georgia I present my findings from a year-long investigation of a for prospective middle school teachers. I trace the use a of strip diagrams in class discussions.	MIDDLE content course nd key features	DEVELOPING A RESPONSIVE AND E FOR ELEMENTARY TEACHERS' PROF DEVELOPMENT: SUCCESSES AND CH Enrique Galindo, Indiana University Gina Borgioli Yoder, Indiana University-Pur Jinqing Liu, Indiana University	EMERGENT CURRICULUM FESSIONAL HALLENGES rdue University, Indianapolis
Session 206 Equity, Social Justice, and Mathematics Teacher Education Individual Session FROM CHARLOTTESVILLE TO SCHOOL SEGREGA	Salon 2	Pavneet Kaur Bharaj, Indiana University Using a model of professional developmer emergent we collaborated with K-6 teache classroom practice. We share successes ar strategies used to implement this approac	nt that is responsive and ers to support their shifts in nd challenges as well as the ch.
KNOWLEDGE FOR EQUITABLE MATHEMATICS EDUCATION Mathew D. Felton-Koestler, Ohio University I discuss my response in my math methods courses to the Right" rally in Charlottesville, VA in August 2017. I then ex and promises in this work and consider the specialized k needed for sociopolitical mathematics teaching.	TEACHER he "Unite the xplore tensions knowledge	Session 209 Teacher Professional Development Individual Session SECONDARY REHEARSALS: HOW M INSTRUCTIONAL ACTIVITIES DIFFEI MATHEMATICAL TOPIC?	Salon 5 IGHT THE STRUCTURE OF R WITH A COMPLEX
Session 207 Preservice Teacher Field Experiences Individual Session THE DEVELOPMENT OF TEACHER NOTICING FO VARIED FIELD EXPERIENCE	Salon 3 DR PSTS IN A	Casey Hawthorne, Furman University John Gruver, Michigan Technological Unive We present a new model of instructional a complex mathematical topic. We report or of this IA that emerged during rehearsals i teachers as well as in their classroom instr	ersity activity organized around a n affordances and limitations involving inservice secondary ruction that followed.
Sandi Cooper, Baylor University Brandy N Crowley, Baylor University Kurt Salisbury, Baylor University Michael Warren, Baylor University This session reports on the development of preservice elementary teacher noticing during a summer mathematics academy for children from low-socioeconomic populations. The authors share the analysis of data collected before, during and after the varied field experience.		Session 210 BRIEF REPORT SESSION: TEACHING DIVERSE CONTEXTS ELICITING AND INTERPRETING THI LINGUISTICALLY DIVERSE STUDENT Monica Lyn Gonzalez, East Carolina Univer This session shares results from a perform evaluate preservice teachers' capacity for e thinking of a linguistically diverse student. teacher education will be discussed.	Salon 6 IN LINGUISTICALLY INKING OF IS rsity hance assessment designed to eliciting and interpreting the Implications for mathematics

EVOLUTION OF TEACHERS' BELIEFS AND ATTITUDES TOWARDS TEACHING BLACK AND EMERGING BILINGUAL STUDENTS

Mollie Appelgate, Iowa State University Kari Jurgenson, Iowa State University Ji Yeong I, Iowa State University Maryann Huey, Drake University

In this session, we will share discussion prompts, activities, and outcomes from our professional development, and its influence on middle level teachers' beliefs and attitudes towards teaching Black and emergent bilingual students.

PRESERVICE TEACHERS' BELIEFS ABOUT THE USE OF THE NATIVE LANGUAGE BY ENGLISH LEARNERS

Anthony Fernandes, University of North Carolina, Charlotte

This session will discuss the beliefs that preservice teachers have about English learners using their native language in the mathematics class. Survey results from 646 preservice teachers and 14 interviews will be shared and implications will be discussed.

Salon 7

Session 211 Mathematics Education Policy and Program Issues

BRIEF REPORT SESSION: EXAMINING TEACHER EDUCATION

SCRUTINIZING THE PREPARATION OF MATHEMATICS TEACHERS FOR SOCIAL AND RACIAL JUSTICE: A COLLABORATIVE SELF-STUDY

Stefanie Denise Livers, Missouri State University Craig J Willey, Indiana University-Purdue University Indianapolis

In an effort to confront persistent inequities in mathematics teaching and learning, this study lays bare the connections among MTEs' backgrounds, professional influences, and political outlooks, and the curricular, pedagogical, and sociopolitical decisions made in the preparation of prospective teachers.

STANDARDS-BASED GRADING AND ITS IMPLICATIONS FOR MATHEMATICS TEACHER PREPARATION AND PROFESSIONAL DEVELOPMENT

Michelle Ann Morgan, University of Northern Colorado Robert Powers, University of Northern Colorado

This report will include results from research on standards-based grading practices at the middle school level that provide evidence that lack of training and professional development result in inequitable implementation of the practice and policy within and across school districts.

USING SOCIAL NETWORK ANALYSIS TO STUDY TEACHER RETENTION

Margaret J. Mohr-Schroeder, University of Kentucky Gregory Rushton, Stony Brook University

In this session, we report on a social network analysis of retention efforts of three university-based teacher preparation programs involved in the NSF Noyce Program from across the US. In addition to key findings, we summarize challenges revealed and insights gained.

Session 212

School and University Partnerships and Projects Individual Session

PARTNERING TO SUPPORT STEM LEARNING FOR MINORITIZED YOUTH AND (FUTURE) MATHEMATICS TEACHERS

Frances K Harper, University of Tennessee Lynn Hodge, University of Tennessee

We discuss partnerships to bridge university-based and school-based knowledge with community-based knowledge. Participants consider prospective teachers' development of mathematics activities for a Family STEM Night and how this experience helped them identify and build on students' and families' mathematics strengths.

Session 213

Teacher Professional Development Individual Session

CONTENT KNOWLEDGE, TRAJECTORIES, AND INSTRUCTION: TRANSFORMING TEACHING OF FRACTIONS THROUGH A PROFESSIONAL DEVELOPMENT PROJECT

Kevin McLeod, University of Wisconsin, Milwaukee Elizabeth Cutter-Lin, University of Wisconsin, Milwaukee

Learn about a year-long project in which elementary teachers studied critical shifts (including language, unit fractions, number line representations, content progressions, and assessment) needed to transform instruction of fractions. Evidence of both teacher and student learning will be provided.

Session 214

Salon 10

Equity, Social Justice, and Mathematics Teacher Education Individual Session

INTERROGATING IDENTITY NARRATIVES WITHIN ACADEMIC, SOCIAL, AND CULTURAL CONTEXTS FOR MATHEMATICS TEACHING

Lynette Guzman, University of Arizona James Richard Sheldon, University of Arizona

Prospective secondary teachers interrogate their identity narratives as learners and teachers of mathematics. Their engagement as Noyce Scholars in identity exploration activities revealed complexities in their preparation as socially and culturally competent mathematics teachers.

Session 215

Mathematics Pedagogy and Instructional Practice Individual Session

THE IMPACT OF REHEARSALS IN IMMERSIVE CLASSROOM SIMULATION ACTIVITIES (ICSAS) WITH ELEMENTARY PRESERVICE TEACHERS

Carrie W Lee, East Carolina Univsersity

This session reports on the implementation of Immersive Classroom Simulation Activities within an elementary mathematics method course. Participants will engage in an ICSA, deconstruct the experience to provide feedback on the rehearsal process, and discuss implications for methods coursework.

Salon 8

Salon 9

Session 216Salon 12Mathematics Pedagogy and Instructional PracticeIndividual Session	Session 218Ballroom CMathematics Content, Processes, and PracticesIndividual Session
UNNATURAL TEACHING: LEARNING FROM ENACTMENTS OF THE SAME LESSON Heather Howell, Educational Testing Service Cathy Liebars, The College of New Jersey We invite participants in this session to consider the 'unnatural' but potentially useful set of conditions that is generated when a group of preservice teachers teach the same lesson to the same group of students in a simulated classroom.	CHARACTERIZING PROSPECTIVE ELEMENTARY TEACHERS' KNOWLEDGE OF MEASUREMENT AND CONSIDERING ITS IMPACT ON MTES' INSTRUCTIONAL PRACTICES Ziv Feldman, Boston University Rachel Noelle Starks, Boston University This session examines pre- and post-assessments of prospective elementary teachers' knowledge of measurement in 26 teacher preparation courses that used the same lessons. Participants will analyze written work to understand PSTs' knowledge of measurement
Mathematics Content, Processes, and Practices Individual Session	and consider implications for MTEs' instruction. Session 219 Ballroom D
DEVELOPING AND ASSESSING INSERVICE PRECALCULUS TEACHERS' MATHEMATICAL MEANINGS FOR TRIGONOMETRIC FUNCTIONS Cody L Patterson, University of Texas, San Antonio We will present some activities designed to develop robust mathematical meanings for angle measure and trigonometric functions, and share some questions that we have used to assess the trigonometric thinking of inservice precalculus teachers in a professional development program.	Teaching and Learning with Technology Individual Session TEACHING TEACHERS TO LEAD STATISTICAL INVESTIGATIONS WITH TECHNOLOGY Stephanie Casey, Eastern Michigan University Rick A. Hudson, University of Southern Indiana Hollylynne S. Lee, North Carolina State University Gemma Foust Mojica, North Carolina State University Christina Azmy, North Carolina State University Heather Barker, North Carolina State University Taylor Harrison, North Carolina State University The ESTEEM project's curriculum materials that address educating teachers to lead students in conducting statistical investigations with technology will be shared. Bring your laptop to do a statistical investigation using CODAP, a free data analysis platform!
SATURDAY, FEBRUARY 9, 2019	11:30 AM - 1:30 PM
AMTE	

LUNCH AND BUSINESS MEETING

Please join us for lunch, organizational updates, and official AMTE proceedings.

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Nazelli, Christopher Dennis Neumayer DePiper, Jill Newton, Jill Nickels, Megan Nieman, Hannah Nikula, Johannah Nirode, Wayne Noblitt, Bethany

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Oehrtman, Michael Olanoff, Dana Oloff-Lewis, Jennifer Olson, Travis Austin Ortiz, Enrique Osa, Jennie Otten, Samuel Ozturk, Ayse Nur

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Pape, Stephen Parrish, Christopher Patterson, Cody L Peters, Susan A Peterson, Blake E Phelps-Gregory, Christine M Philipp, Randy Phillips, Elizabeth Pinter, Holly Henderson Plumley, Courtney Poling, Lisa Lanette Powell, Marvin Powers, Robert Pynes, Kristen D'Anna

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Utah State University
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North Carolina State University
Kennesaw State University

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HISTORY OF THE JUDITH E. JACOBS LECTURE

The Judith E. Jacobs Lecture was established in 2003 to honor Dr. Judith E. Jacobs, one of the founding AMTE members. Dr. Jacobs was instrumental in developing AMTE into a national organization and in the development of the AMTE conference with its current structure and emphasis on interaction. Judith Jacobs is an active member who served as treasurer, president, and as the first executive director. The Judith Jacobs Lecture was established after Dr. Jacobs completed her tenure as AMTE Executive Director.

Dr. Jacobs gave the first lecture where she described what it means to be a mathematics teacher educator. She outlined how being a mathematics teacher educator is different from being a mathematics teacher, a career professional developer, or a researcher in mathematics education. Dr. Jacobs challenged us to recognize our roles as mathematics teacher educators and reminded us that, through the AMTE organization, an outlet has been created to share and learn from each other.

YEAR	JUDITH E. JACOBS LECTURER	AFFILIATION	TITLE
2019	Denise A. Spangler	University of Georgia	Fundamental Commitments of My Work as a Mathematics Teacher Educator
2018	Margaret (Peg) Smith	University of Pittsburgh	A Mathematics Teacher Educator's Journey: Responding to An Evolving Field
2017	Marilyn E. Strutchens	Auburn University	Attending to Access, Equity, and Empowerment Matters for Each and Every Student: Beyond Courses and Workshops
2016	Francis (Skip) Fennell	McDaniel College	Mathematics Teacher Education: Normal Schools to Now. What's the Fit and Future for AMTE?
2015	Nadine Bezuk	San Diego State University	Supporting Elementary Teachers in Developing Their Mathematics Teaching
2014	Barbara J. Reys	University of Missouri	Curriculum Matters! For Teachers, for Students, and for Mathematics Teacher Educators
2013	Karen Karp	University of Louisville	The Invisible 10% - Preparing Teachers to Teach Mathematics to Students with Special Needs
2012	Deborah Schifter	Education Development Center	Interpreting the Common Core: What Might It Look Like in the Classrooms?
2011	Joan Ferrini-Mundy	Michigan State University	Learning for Tomorrow: Challenges and Opportunities in Mathematics Teacher Education
2010	James Hiebert	University of Delaware	Building Knowledge for Helping Teachers Learn to Teach: An Alternative Path for Teacher Education
2009	Jeremy Kilpatrick	University of Georgia	Going to War with the Army You Have
2008	Ed Silver	University of Michigan	Mathematics Teacher Education in Dodge City: Desperately Seeking Wyatt Earp and Henri Poincaré
2007	Deborah Loewenberg Ball	University of Michigan	The Core and Contemporary Challenges of Mathematics Teacher Education
2006	Judith Sowder	San Diego State University	Preparing Elementary Teachers: The Role of Reasoning about Numbers and Quantities
2005	Glenda Lappan	Michigan State University	Reflections on a Lifetime of Work: Why Curriculum Matters
2004	Thomas J. Cooney	University of Georgia	The Role of Mathematics Teacher Education: Reform or Enculturation?
2003	Judith E. Jacobs	California State Polytechnic University, Pomona	Improving Mathematics Education: Mathematics Teacher Educators Lead the Way

PROPOSAL REVIEWERS FOR 2019 ANNUAL AMTE CONFERENCE

Abel. Todd Adams, Melissa Aguilar, Jair Alshehri, Khaled Amador, Julie Anantharajan, Madhuvanti Arnold, Elizabeth G Asempapa, Reuben Atabas, Sebnem Bair, Sherry L Baldinger, Erin E. Barker, David Bayazit, Nermin Bhansali, Sneha Bharaj, Pavneet Kaur Black, Brittney L Bondurant, Liza Bowman, Elayne Weger Brasel, Jason Brass, Amy Broaddus, Angela Brown, Rachael Eriksen Buchheister, Kelley Burton, Megan Campbell, Tye Cardon, Aimee H Carlson, Mary Alice Casey, Stephanie Cayton, Charity Chao, Theodore Chen, Grace Chen, Lizhen Cheng, Karen Cirillo, Michelle Colonnese, Madelyn Conner, AnnaMarie Conway, Basil Costner, Kelly M Cox, Dana Crowley, Brandy N Cunningham, Elizabeth Petit Dennett, Emily Nicole Diamond, Jaime Marie Dingman, Shannon Disney, Andria Driskell, Shannon Dubbs, Christopher Duncan. Matthew Eatmon, Cassandra Cook Eddy, Colleen M Edenfield, Kelly W Eli, Jennifer Ann Elrod, Emily Felton-Koestler, Mathew D. Ferguson, Sarah Foster, lonathan Frank, Toya Jones Franz, Dana Pomykal Galindo, Enrique Gerardo, Juan M Champaign

University of Central Arkansas The Ohio State University University of Texas Rio Grande Valley Imam Abdulrahman Bin Faisal Univ. University of Idaho Stanford University James Madison University Pennsylvania State Univ., Harrisburg Florida State University Illinois State University University of Minnesota Illinois State University Fitchburg State University University of Iowa Indiana University North Carolina State University Delta State University Oklahoma Christian University University of Michigan University of Northern Iowa Benedictine College Penn State Univ. - Abington College University of Nebraska, Lincoln Auburn University University of Alabama University of Wisconsin at Madison Montana State University Eastern Michigan University East Carolina University The Ohio State University Vanderbilt University Purdue University University of Tennessee University of Delaware University of North Carolina, Charlotte University of Georgia Columbus State University Winthrop University Miami University **Baylor University** University of Michigan, Flint The Ohio State University University of Georgia University of Arkansas Georgia Southern University University of Dayton Michigan State University Middle Tennessee State University George Mason University University of North Texas University of Georgia The University of Arizona North Carolina State University Ohio University Old Dominion University University of Georgia George Mason University Mississippi State University Indiana University University of Illinois, Urbana-

Glenwerks, Corinne R Glover Jr, Eugene Timothy Gomez, Carlos Nicolas Graybeal, Christy Gregson, Susan Ann Grosser-Clarkson, Dana L Hallman-Thrasher, Allyson Harbour, Kristin E. Harper, Frances K Harper, Suzanne R. Hodges, Thomas Horwitz, Kenneth Allen Hudson, Rick A. Hughes, Elizabeth Johnson, Kate R Johnson, Kim Helene Jones, Dusty Kasmer, Lisa Anne Keiser, Jane Kirwan, J Vince Kitchen, Richard Klein, Valerie Knapp, Melinda Koester, Mark Kwon, Minsung LaCroix, Tiffany Lawler, Brian R Lee, Alees Lee, Carrie W Lee, Hea-Jin Liebars, Cathy Lin, Hochieh Lischka, Alyson E. Liu, Jinqing LoPresto, Kevin Lovett, Jennifer Marchionda, Hope Marshall, Samantha A McCulloch, Allison McLeod, Kevin Meagher, Michael Singer Moldavan, Alesia Mickle Morrow-Leong, Kimberly Moss, Diana L. Mullins, Brooke Mutlu, Asli Myers, Marrielle Neumaver DePiper, lill Nguyen, Giang-Nguyen Nirode, Wayne Ogbomo, Queen O Olanoff, Dana Ozturk, Ayse Nur Park, Hyejin Parrish, Christopher Peters, Susan A Phelps-Gregory, Christine M Poling, Lisa Lanette Powers, Robert Rassi, Darl

Tufts University The University of Alabama Clemson University Hood College University of Cincinnati University of Maryland **Ohio University** The University of Alabama University of Tennessee Miami University University of South Carolina New Jersey Institute of Technology University of Southern Indiana University of Northern Iowa **Brigham Young University** West Chester Univ. of Pennsylvania Sam Houston State University Grand Valley State University Miami University Kennesaw State University University of Wyoming **Drexel University** Oregon State University, Cascades **MSU Denver** California State University Northridge Virginia Tech Kennesaw State University University of Northern Colorado East Carolina Univsersity The Ohio State University, Lima The College of New Jersey The Ohio State University Middle Tennessee State University Indiana University Francis Marion University Middle Tennessee State University Western Kentucky University Vanderbilt University University of North Carolina, Charlotte University of Wisconsin, Milwaukee Brooklyn College - CUNY Fordham University George Mason University Utah State University Virginia Tech North Carolina State University Kennesaw State University Education Development Center University of West Florida Miami University **Tennessee Technological University** Widener University The Ohio State University University of Georgia University of South Alabama University of Louisville Central Michigan University Appalachian State University University of Northern Colorado Illinois State University Saint Mary's College of California

Raygoza, Mary Candace

Saclarides, Evthokia Stephanie Schwartz, Catherine Sears, Ruthmae Seashore, Kimberly Sherman, Diana Skultety, Lisa Smith, Ryan C Smith, Wendy Snider, Rachel B. Somers, John W Spitzer, Sandy Stehr, Eryn Michelle Stewart, Gail Patricia Stockero, Shari L Strassfeld, Brenda Sturgill, Derek Joseph Sun, Kathy Suurtamm, Christine Telese, James A.

University of Alabama, Tuscaloosa East Carolina University University of South Florida San Francisco State University Saint Anselm College Univ. of Illinois, Urbana-Champaign Radford University University of Nebraska The College of New Jersey University of Indianapolis **Towson University** Georgia Southern University University of South Florida Michigan Technological University Touro College University of Wisconsin, Stout Santa Clara University University of Ottawa University of Texas Rio Grande Valley Thanheiser, Eva Utley, Juliana Ward, Jennifer Wasserman, Nick Weiland, Travis Whipple, Kyle Stephen Wickstrom, Megan H. Wieman, Rob Wilburne, Jane M Wilkerson, Trena Wilson, Holt Yao, Xiangquan Yeo, Sheunghyun Young, Jamaal Yu, Paul Zelkowski, Jeremy S Zhuang, Yuling

Portland State University Oklahoma State University Kennesaw State University Teachers College, Columbia University Appalachian State University University of Wisconsin, Eau Claire Montana State University Rowan University Pennsylvania State Univ., Harrisburg **Baylor University** Univ. of North Carolina, Greensboro Pennsylvania State University University of Missouri University of Iowa Grand Valley State University University of Alabama University of Georgia

2019 AMTE BUSINESS MEETING AGENDA

Saturday, February 9, 2019 Rosen Plaza, Orlando, FL

A. WELCOME

- **B. APPROVAL OF THE MINUTES**
- C. TREASURER AND MEMBERSHIP REPORT
- **D. CONFERENCE REPORT**

E. DIVISON REPORTS AND RECOGNITIONS

Headquarters Division Membership Division Professional Learning Division Publications Division Advocacy, Equity and Research Division Communications and Outreach Division

F. NEW BUSINESS

G. INSTALLATION OF NEW BOARD MEMBERS H. DISCUSSION OF AMTE PRIORITIES

I. ADJOURNMENT

RANDOLPH PHILIPP, *AMTE PRESIDENT*, PRESIDING SANDI COOPER ANITA WAGER, TIM HENDRIX SUSAN GAY

> Tim Hendrix, Executive Director Maggie McGatha, Vice-President Lynn Breyfogle, Vice-President Babette Benken, Vice-President Paola Sztajn, Vice-President Suzanne Harper, Vice-President

> > RANDOLPH PHILIPP RANDOLPH PHILIPP MIKE STEELE MIKE STEELE

2018 AMTE BUSINESS MEETING MINUTES

Saturday, February 10, 2018 11:45am – 1:15pm (CST) Woodway I, Westin Galleria Hotel, Houston, TX

Randolph Philipp, AMTE President, Presiding

Randy Philipp, president, called the meeting to order at 12:29pm (CST).

I. Welcome

Randy briefly shared the 2017 strategic priorities.

- Continue to place issues of equity and social justice at the forefront of AMTE's focus
- Disseminate the AMTE *Standards for Preparing Teachers of Mathematics* and make the Standards a focal point for work of AMTE
- Strengthen the AMTE infrastructure to support our individual and collective capacities to advance mathematics teacher education for the next 25 years

II. Approval of the Minutes

Sandi Cooper presented the minutes from last year's business meeting from 2017 Conference. *Motion to accept the minutes as presented made by Fran Arbaugh and seconded by Jenny Bay-Williams. Motion passed unanimously.*

III. Treasurer and Membership Report

Anita Wager shared the treasurer report which included the operating budget and the conference budget. The 2018 YTD Income is \$61,984 and Expenses total \$76,050. Current cash reserves are \$188,279. For the 2017 Conference in Orlando, the conference income was \$233,047 and expenses were \$200,514, with a net income of \$32,533.

Tim Hendrix reported that current membership is 982, which is fairly consistent in the last two or three years with a little fluctuation. There are 149 graduate student members and 29 Emeritus members. Current members are from 49 states in the U.S., plus DC, Puerto Rico, and 3 Canadian provinces. In addition, there are members from Malta, Malaysia, and Saudi Arabia.

Tim reminded everyone to complete the conference survey and indicated that participants would receive an email with a link.

IV. Conference Report

Susan Gay, AVP for Conferences, Conference Director, offered thanks to the conference team, Tim, and Randy and thanks to the hotel staff for their gracious hospitality. She announced that the 2019 conference will be in Orlando, Florida and the call for proposals will be available on March 1.

Randy acknowledged the local arrangements committee (names below) and Jennifer Chauvot who served as chair.

Angela Broaddus Emma Bullock Justin Burris Sandi Cooper Shea Culpepper Carrie Cutler Colleen Eddy Jeanine Hastings Whitney Hanna Kimberly Hicks Dusty Jones Mark Klespis Carrie La Voy Keith Leatham Alyson Lischka Carol Lucas Sararose Lynch Carlos Nicolas Gomez Monica Gonzalez Katrina Rothrock Trena Wilkerson

Anita Wager, Tim Hendrix

Susan Gay

Sandi Cooper

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V. Division Reports and Recognitions

Randy provided an overview of the new divisions. He invited everyone to peruse the 2017 annual report, which was distributed on all of the tables, and indicated that the purpose of this report is to increase the communication between the AMTE Board and the membership. The board is interested in making all work and actions as transparent as possible and the board wants to document the activities and directions on a year to year basis of the organization. Randy offered thanks to Tim for organizing this annual report. Tim indicated that a limited number of these documents were printed just for the business meeting, but the report will be posted as a pdf file on the web site. This year is organized as a pilot, but the plan is to publish this report on an annual basis. Tim and Randy encouraged everyone to share with colleagues, administrators, and others.

a. Headquarters Division

Tim recognized outgoing AVP for Constitution & By-Laws, Skip Fennell and incoming AVP, Sararose Lynch. He recognized outgoing AVP for Nominations and Elections, Margaret Mohr-Schroeder, and then recognized incoming AVP Toya Frank. Tim also announced that this committee would seek nominations for two AMTE Board positions, Treasurer and one Board Member-at-Large for 2019. (Report for this division can be found on page 5 of the 2017 Annual Report located at <u>https://amte.net/sites/default/files/Annual-Report-2017-AMTE.pdf</u>)

b. Membership Division

Maggie recognized the three AVPs for this division - AVP for Affiliates: Tom Evitts; AVP for Awards: Lisa Poling; AVP for Membership: Nicole Rigelman. All three will continue in this role for 2018. (Report for this division can be found on pages 9-10 of the 2017 Annual Report located at <u>https://amte.net/sites/default/files/Annual-Report-2017-AMTE.pdf</u>)

c. Professional Learning Division

Lynn offered thanks to Susan Gay for extraordinary coordination of the conference details and offered thanks to the program committee for their work over the course of the year. She invited Farshid Safi up for recognition as the 2018 program chair and offered recognition to Dana Cox as 2019 conference chair. She offered thanks to Carol Lucas, the Assistant Conference Director. Lynn recognized AVPs for professional development - outgoing Julie James and incoming Sam Eskelson. She invited the group to submit ideas for future webinars. Lynn recognized STaR program outgoing AVP Karen Hollebrands and incoming AVP Jeff Shih. She recognized AVPs for technology – outgoing Barbara Swartz and incoming Ryan Smith. Lynn shared that this committee was initiating a blog called TechTalk. (Report for this division can be found on pages 11-12 of the 2017 Annual Report located at https://amte.net/sites/default/files/Annual-Report-2017-AMTE.pdf)

d. Publications Division

Christine Browning recognized AVP and Chair of Editoral Panel of MTE, 2017 Randall Groth, and incoming 2018 Gloriana Gonzáles-Rivera. She recognized outgoing Editor, Sandra Crespo and Associate Editor, Kristen Bieda and Incoming Editor, Karen Hollebrands and Incoming Associate Editor, Valerie Faulkner. Christine recognized outgoing AVP for Connections Newsletter, Babette Benken, and incoming AVP, James Telese. She recognized the Co-AVPs for the CITE Journal, S. Asli Özgün-Koca and Beth Bos, who will both continue this next year. She recognized the AVPs for Publications Review, outgoing Patricia Wilson and incoming LouAnn Lovin. On behalf of the publications review committee, Christine shared that this committee will review new ideas/proposals so that we continue to put out great resources. (Report for this division can be found on pages 13-14 of the 2017 Annual Report located at https://amte.net/sites/default/files/Annual-Report-2017-AMTE.pdf)

Tim Hendrix, Executive Director

Lynn Breyfogle, Vice-President

Maggie McGatha, Vice-President

Christine Browning, Vice-President

e. Advocacy, Equity and Research Division

Paola indicated that this division spent time on issues related to advocacy, equity, and research on behalf of the organization. She thanked the AVPs for Advocacy: outgoing Corey Drake and incoming Shari Stockero; AVP for Equity: Marta Civil who will continue in this role for 2018; AVPs for Research: outgoing Sarah van Ingen and incoming Blake Peterson. (Report for this division can be found on pages 15-16 of the 2017 Annual Report located at https://amte.net/sites/default/files/Annual-Report-2017-AMTE.pdf)

f. Communications and Outreach Division

Suzanne recognized AVPs for this division and indicated that all will continue next year. These include AVP for Web Development, Joe Champion; AVP for Sponsorship, Damon Bahr; AVP for STaR Fundraising, Denise Spangler; and AVP for Marketing, Joel Amidon. (Report for this division can be found on pages 17-18 of the 2017 Annual Report located at https://amte.net/sites/default/files/Annual-Report-2017-AMTE.pdf)

VI. New Business

Randy asked if there was any new business to consider. None was offered.

VII. Installation of New Board Members

Randy recognized outgoing board members Christine Thomas, Past President (service as President-Elect for one year, President for 2 years, and Past President for 1 year); Dorothy White (3-year term, but will serve out Mike's term); Mike Steele member at large; and Christine Browning as AVP for Publications.

Randy recognized incoming board members, President-Elect Mike Steele and Board Member-at-Large Christa Jackson.

VIII. New Affiliate Recognition

Randy announced and recognized the 25th AMTE Affiliate and first non-state, non-regional affiliate – Women and Mathematics Education.

IX. Discussion of AMTE Priorities

Randy presented the strategic priorities for this coming year

- Educate about and advocate for the role of research and scholarship in mathematics teacher education, with a particular focus on equity, diversity, and social justice.
- Understand the commonalities and differences among policy documents across various organizations that intersect with the work of AMTE.

In regards to this second priority, Randy explained that many organizations are creating documents with important policies, standards, etc. and shared that AMTE might initiate a discussion across the organizations to think about commonalities and differences and how our organizations might support each other.

X. Adjournment

Meeting adjourned 1:24pm (CST)

Paola Sztajn, Vice-President

Suzanne Harper, Vice-President

Randolph Philipp

Randolph Philipp

Randolph Philipp

Randolph Philipp

Randolph Philipp

MORE INFORMATION ON AMTE.NET

On the AMTE website (amte.net), you will find information on each of the following:

- AMTE Leadership, including members serving on committees and task forces
- AMTE Awards, including the Excellence in Mathematics Teacher Education Awards and the Early Career Award
- Susan Gay AMTE Conference Scholarship for Graduate Students
- Elementary Mathematics Specialist (EMS) Scholarship
- Call for Manuscripts, Reviewers, Readers, & Comments for CITE-Math Journal
- Call for Manuscripts for *Mathematics Teacher Educator*

2020 ANNUAL AMTE CONFERENCE



See you in Phoenix

We invite you to attend and present at the Twenty-Fourth Annual AMTE Conference, to be held **February 6-8, 2020**, in **Phoenix, AZ**.

The Call for Proposals will be available on the AMTE website (amte.net) by March 1, 2019, and in the next issue of *AMTE Connections*. The Program Chair is AnnaMarie Conner, University of Georgia (programchair@amte.net).

THE DEADLINE FOR SUBMITTING PROPOSALS FOR THE 2020 ANNUAL CONFERENCE IS MAY 15, 2019.

Visit **amte.net/conferences** for updated information about past and future conferences.

