

KENTUCKY MATHEMATICS EDUCATOR DEVELOPMENT
INAUGURAL CONFERENCE



KENTUCKY MATHEMATICS
EDUCATOR
DEVELOPMENT

Richmond, Kentucky

April 24, 2015



KENTUCKY MATHEMATICS
EDUCATOR
DEVELOPMENT

KENTUCKY MATHEMATICS EDUCATOR DEVELOPMENT

The Kentucky Mathematics Educator Development (KMED) group is a newly established group of stakeholders in mathematics teacher preparation in Kentucky. The group's purpose includes disseminating research and effective mathematics teacher education practices, establishing collaborative working groups of mathematics teacher education professionals, informing mathematics education policy, and advocating for high quality mathematics education for all. The inaugural KMED conference will serve as the commencement of the group and its activities, which are currently supported by the Kentucky Center of Mathematics.



Thank you to the Kentucky Center for Mathematics for supporting the inaugural KMED Conference. A special thanks to Nicholas Borne, Allison Buchanan, Mandy Geyman, Pam Reichelderfer, and Paula Stapleton for their help in organizing the conference.

KMED CONFERENCE OVERVIEW

8:30-9:00	Check-in and Breakfast
9:00-9:30	Welcoming Remarks Dan McGee, Executive Director, Kentucky Center for Mathematics Sarah Kasten, Northern Kentucky University, Conference Organizer Bethany Noblitt, Northern Kentucky University, Conference Organizer
9:30-10:30	Session 1
10:45-11:45	Session 2
11:45-12:45	Lunch and Networking
12:45-1:15	Keynote Presentation Maggie McGatha, University of Louisville
1:30-2:30	Session 3
2:45-3:45	Session 4: Connecting Teaching and Teacher Development
3:50-4:00	Wrap-Up

Thank you, Speakers!

Thank you for your dedication to provide stimulating presentations to enrich mathematics educator development in Kentucky. We are confident that conference attendees were inspired by your sessions and learned from your expertise. We acknowledge the many hours of preparation you have spent to provide us with the valuable opportunity for growth and networking. We are especially grateful that you took a chance on a brand new conference and submitted a proposal! Thank you for being a speaker at the inaugural KMED Conference.

KMED proudly welcomes Maggie McGatha
as the inaugural KMED Conference keynote speaker.



Dr. Maggie B. McGatha is an associate professor of mathematics education in the Department of Middle and Secondary Education in the College of Education and Human Development at the University of Louisville. She is a former middle school mathematics teacher. At the university level, she has taught elementary and middle school mathematics methods courses and currently teaches courses on coaching and mentoring. Dr. McGatha works with coaches, teacher leaders, and administrators as a Training Associate for Cognitive Coaching and an Agency Trainer for Adaptive Schools. She is a co-author of *Mathematics Coaching: Resources and Tools for Coaches and Leaders, K-12* (Pearson, 2014) and *Mathematics Activities to Build Financial Literacy, Grades 6-8* (NCTM, in press). She received her doctorate from Vanderbilt University (Tennessee), her master's degree from Austin Peay State University (Tennessee) and her bachelor's degree from Morehead State University (Kentucky).

KEYNOTE PRESENTATION

Supporting the Development of Mathematics Educators

Mathematics Educator is a broad term that can include several different groups of professionals: (a) mathematics teacher educators, (b) mathematics coaches and specialists, and (c) mathematics teachers. Supporting the development of mathematics educators requires differentiation based on the particular professional group. We will explore the Leading for Mathematical Proficiency framework, which was developed to support mathematics coaches as they support mathematics teachers. We will conclude with a discussion on supporting the development of mathematics teacher educators in Kentucky.

CONFERENCE SCHEDULE

8:30-9:00 **CHECK-IN** **LOBBY**

8:30-9:00 **BREAKFAST** **ROOM B**

9:00-9:30 **WELCOME** **ROOM A**

9:30-10:30 **SESSION 1** **ROOM 209**

Presenter Karen Heavin, Kentucky State University
Bret Cormier, Kentucky State University

Session Title Assessment Driven Instruction

Abstract Much attention has been paid to the different pedagogies available to teach the Common Core Math Standards. However, less attention has been given to assessment of the CCSSM mathematics practices - other than a general dislike of the standardized testing methods available. Is there an effective way to assess the mathematics practices? Can the assessment results be used to measure the effectiveness of and improve teaching practices? This session will address as well as ask for participant answers to these important questions.

Grade Band K-12

SESSION 1 **ROOM 210**

Presenter Jonathan Thomas, Kentucky Center for Mathematics/Northern Kentucky University

Co-Presenter(s) Edna Schack, Morehead State University
Janet Tassell, Western Kentucky University
Cindy Jong, University of Kentucky
Lenore Kinne, Northern Kentucky University

Session Title Elementary Preservice Teacher Preparation Collaborative:
Initiating and Sustaining a Multi-Institutional Research Venture

Abstract This session will consist of a panel-type discussion involving members of the elementary Preservice Teacher Preparation Collaborative. Panelists will engage participants in conversations dealing with establishing, sustaining, and expanding collaborative research endeavors that involve partners at multiple institutions.

Grade Band K-5

SESSION 1 **ROOM 211**

Presenter Lisa Holden, Northern Kentucky University

Co-Presenter(s) Jill Terlau, Fort Thomas Independent Schools
Aimee Krug, Northern Kentucky University
Kathy Donelan, Fort Thomas Independent Schools
Ginger Webb, Fort Thomas Independent Schools

Session Title The Northern Kentucky Math Teachers' Circle: Ready, SET, Go!

Abstract The Northern Kentucky Math Teachers' Circle will officially launch this summer with an immersion workshop for middle grades math teachers. Math Teachers™ Circles are professional development communities comprised of middle school math teachers, math professors and professional mathematicians. Our goals are to encourage teachers as mathematicians, connect mathematics professors with K-12 education, and build a community of mathematics professionals committed to fostering a love and understanding of mathematics among all students. Join us as we discuss and demonstrate our plans for encouraging teachers, professors and professionals to work together intensively on mathematics. Our purpose is to build community through persevering in solving problems together and developing a shared mathematical language. Early research indicates that Math Teachers™ Circles help teachers feel more pedagogically prepared and more enthusiastic about mathematics. Teachers participating in Math Circles are also found to have more mathematical knowledge and to use more inquiry-based teaching practices and more interactive, student-centered problem solving in their classrooms. Our session will offer you the chance to participate in a typical Math Teachers™ Circle problem solving session. We hope to encourage you to participate in your nearest Circle or consider starting your very own Circle!

Grade Band 5-9

10:45-11:45

SESSION 2

ROOM 209

Presenter Benjamin Braun, University of Kentucky

Session Title Improving Mathematical Practices for Preservice Teachers through Engagement with Famous Unsolved Problems in Mathematics

Abstract By working on famous unsolved problems in mathematics, preservice teachers can develop a deep understanding of the Standards for Mathematical Practice. I will discuss a sample of such problems, accessible to teachers and students in grades 3-12. I will also discuss how I incorporate these problems in upper-level mathematics courses that serve large numbers of preservice high school teachers, and provide some examples of undergraduate student responses to this activity.

Grade Band 3-12

SESSION 2

ROOM 210

Presenter Shelby Albers, University of Kentucky

Co-Presenter(s) Katherine Poe, University of Kentucky
Margaret Mohr-Schroeder, University of Kentucky
Kayla Blyman, University of Kentucky
Maureen Cavalcanti, University of Kentucky

Session Title Using Informal Learning Environments to Prepare Preservice Teachers to Work with Struggling Mathematics Learners

Abstract According to the Teaching Principle from the Principles and Standards of School Mathematics, effective mathematics teaching requires understanding what students know and need to learn and then challenging and supporting them to learn it well (NCTM, 2000, p. 17). Traditionally, teacher education programs have placed little emphasis on preparing mathematics teachers to work with struggling learners (Allsopp, Kyger, & Lovin, 2007). The purpose of this session is to discuss how a

course situated in an informal learning environment affects the preparation of secondary mathematics prospective teachers to work with students who struggle in mathematics

Grade Band 6-12

SESSION 2 ROOM 211

Presenter Jerry Michael Combs, Hazard Community and Technical College

Session Title Writing to Learn in the Mathematics Classroom

Abstract If you would like to learn a variety of ways to help pre-service and in-service teachers use writing in the mathematics classroom, then this session is for you! I will discuss my work as a co-director of the Mountain Writing Project, a summer program housed at Hazard Community and Technical College for experienced and new teachers alike that provides a month of intensive instruction in writing and the use of writing as a tool for teaching. During the session, techniques will be demonstrated, the theory behind those techniques will be discussed, and relevant resources will be shared. Topics from the session include the mathography, creative writing to LEARN mathematics, and incorporating writing into homework completion.

Grade Band K-12

11:45-12:45 LUNCH ROOM B

12:45-1:15 KEYNOTE PRESENTATION ROOM A

Presenter Maggie McGatha

Session Title Supporting the Development of Mathematics Educators

Abstract Mathematics Educator is a broad term that can include several different groups of professionals: (a) mathematics teacher educators, (b) mathematics coaches and specialists, and (c) mathematics teachers. Supporting the development of mathematics educators requires differentiation based on the particular professional group. We will explore the Leading for Mathematical Proficiency framework, which was developed to support mathematics coaches as they support mathematics teachers. We will conclude with a discussion on supporting the development of mathematics teacher educators in Kentucky.

1:30-2:30 SESSION 3 ROOM 209

Presenter Jim Moore, PIMSER, University of Kentucky

Co-Presenter(s) Jennifer McDaniel, PIMSER, University of Kentucky

Session Title Shifting Instruction to Increase Student Success

Abstract Drawing from our experience of working with more than 50 teachers in more than a dozen schools over the last three years, this session will focus on the instructional shifts we see as doable and worth the effort in order to increase the engagement and level of learning for all students. A short list includes classroom climate, focused class openers and reflective closures, talk partners, student metacognition, high level

questions from both teachers and students, use of technology to support learning and a variety of formative assessments that determine the next step. Our work with teachers takes the form of two or three days of training, a day of observing those teachers in their classrooms, written feedback to those teachers and then a repeat of that cycle often based on our observation data. Come prepared to listen to our ideas and findings, but also come willing to act as students as we present some activities we share with teachers.

Grade Band 6-12

SESSION 3 ROOM 210

Presenter April Pilcher, Kentucky State University

Co-Presenter(s) Mickenzie Wells, Kentucky State University
Kristen Finley, Kentucky State University

Session Title Modeling Conceptual Teaching: What Is It, Why Does It Work, and How Do You Transform Your Own Classroom to Use It?

Abstract This resenatation will model conceptual teaching on three levels: Lesson, Discussion, and Presentation. Research will be presented on the theoretical model for this practice, and data will be given describing the success of this model in practice. The second half of the presentation will consist of a mathematics lesson modeling this approach and discussion regarding how to apply this method across mathematics topics and grade levels. This session is designed for practical application and will encourage participation.

SESSION 3 ROOM 211

Presenter Robin Hill, Kentucky Department of Education

Session Title Principles to Actions: Guiding Principles to Ensure Mathematical Success for ALL

Abstract Principles to Actions (P2A NCTM 2014 publication) is an incredibly powerful, well laid-out book that focuses on six guiding principles to ensure mathematical success for all students. This compact book provides strongly recommended, research informed actions for teachers, coaches, administrators and even policymakers. The first guiding principle 'Effective Teaching and Learning' recognizes from the beginning that teaching mathematics in complex, not only does it require teachers to have a deep understanding of mathematical knowledge (Ball, Thames and Phelps 2008), it also requires teachers to have a clear understanding of how students' learning of mathematics develops (Daro, Mosher and Corcoran 2011; Sztajn et al 2012). During this session participants will explore the eight TEACHING practices for strengthening teaching and learning of mathematics as well as visit the other five guiding principles - from Effective Teaching and Learning to Professionalism. You will want to read and study P2A cover to cover!

Grade Band K-12

2:45-3:45	SESSION 4	ROOM 209
Presenter	Tim Truitt, Jefferson County Public Schools	
Session Title	Mathematics Assessment Project: Resources for Developing Individual Teachers and Professional Learning Communities	
Abstract	<p>The formative assessment lessons and formative assessment tasks that have been developed as part of the Mathematics Assessment Project are tremendous resources for preservice and inservice teachers to become familiar with and use. These resources are FREE AND READILY AVAILABLE wherever a teacher has internet access. Not only are the lessons and tasks excellent resources to use by themselves, but they also can serve as excellent models of lesson design or assessment items. The lessons and tasks also serve as a gateway to the suite of resources known as Teaching for Robust Understanding of Mathematics, TRU Math. The TRU Math resources can be used by teachers, instructional coaches, and administrators to help in lesson planning, observations, post-observation conferences, and professional learning community meetings.</p>	
Grade Band	6-12	
	SESSION 4	ROOM 210
Presenter	Jamie-Marie Miller, PIMSER, University of Kentucky	
Session Title	Building Algebraic Reasoning from the Ground Up: Using CRA for Conceptual Understanding	
Abstract	<p>Many students struggle with algebraic understanding. Quite often students have not made the transition from arithmetic and concrete thought to the abstract reasoning that traditional algebraic teaching requires. This session highlights an instructional strategy known as Concrete-Representational-Abstract (CRA) in which students utilize manipulatives in order to build algebraic conceptual understanding.</p>	
Grade Band	5-9	
	SESSION 4	ROOM 211
Presenter	Joshua Rhodes, Jefferson County Public Schools	
Session Title	Implementing Math Workshop in the Elementary Classroom	
Abstract	<p>Teaching in the elementary classroom with the math workshop model will engage and inspire students to explore and play with math in a way that students have not experienced before from traditional methods. Learn how to implement workshop in your school and take away valuable resources that you can implement immediately.</p>	
Grade Band	K-5	
3:50-4:00	WRAP-UP	ROOM A

NOTES

NOTES



This publication was prepared by Northern Kentucky University. NKU is an affirmative action/equal opportunity institution.