Southern Illinois University Carbondale is Proud to Present

The 33rd Annual Conference on Teaching Mathematics

Illinois Council of Teachers of Mathematics/Southern Section

Common Core State Standards for Mathematics
Thursday, February 15, 2018

Conference and Program Chairpersons

Jerry P. Becker & (Ms.) Eunmi Joung
Dept. of Curriculum & Instruction
Southern Illinois University Carbondale

Cheng-Yao Lin

(Ms.) Weichen Zhao

Conference Coordinator
Leslie Brock
Conference and Scheduling Services
Southern Illinois University Carbondale
ACKNOWLEDGEMENTS

A mathematics conference such as this is the result of work and support of many people. Reference is made below to some of the many who contributed significantly and generously to supporting, planning and carrying out the conference…to them go our many thanks.

To all PARTICIPANTS in the conference, for their participation that makes it a success.

To SPEAKERS – they are the heart and substance of the conference program;

To Jackie Murawska, ICTM President, and George Reese, Past President of ICTM, for bringing greetings from ICTM to the conference and each conducting a session in the program;

To Dr. Akihiko Takahashi, to give the main conference presentation at the Luncheon;

To Dr. Barry Hancock for his assistance in organizing the conference in the Hancock Conference Center at John A. Logan College;

To ICTM for “seed” money towards conference expenses and its continued support of our efforts;

To MONTE NEWLIN, JULIE WOLLERMAN, KELTON DAVIS, JANE QUINLAN, LAWRENCE FILLINGIM, LORIE LEQUATTE, CHERYL GRAFF, RON DANIELS, ROBERT DAIBER, MICHELLE MUELLER and SUSAN SARFATY, Regional Superintendents, for their assistance in disseminating conference information; and their support of teachers attending the conference; and

To LESLIE BROCK and the Conference & Scheduling Services staff for handling a myriad of activities in organizing the conference.
1. **Math Activities for Young Students**  
*Room G216*  
Grades Pre-K-K  
**JOANNA LEE**, Unity Point School, Makanda, IL  
Participants will be provided with commonly used math materials in the PreK classroom. Group discussions will follow. Pre-service teachers are welcome.

2. **Understanding Place Value Begins with Grouping and Partitioning Problems**  
*Room F109*  
Grades K-3 (with application for 4-6)  
**DR. CHERYL LUBINSKI**, Elementary Teacher and University Professor of Mathematics (Retired), Ellisville, MO  
Word problems that progress from beginning place value understanding of whole numbers to decimals will be discussed. Videos and pictures of students will be shown. Handouts provided.

3. **Teaching Multiplication with Area Measurement Models**  
*Room G125*  
Grades K-6  
**JEFFREY BARRETT**, Illinois State University, Normal, IL  
I will examine area measurement activities as models for teaching multiplication, following CCSS-M, and reflect on lesson study processes to help teachers motivate mathematical ideas.

4. **How Do I Manage Differentiation in my Classroom?**  
*Room F118*  
Grades K-8  
**GREG GIERHART**, Murray State University, Murray, KY  
Differentiation doesn’t have to be an ugly word. Differentiation shouldn’t be about the teacher doing more work. Differentiation should be a seamless experience for both the student and the teacher. This session will focus on some top 10 differentiation strategies to use in the classroom. Ideas will be presented so that the teacher can return to their classroom and implement.

5. **What’s in a Name?**  
*Room F106A*  
Grades 5-12  
**DR. BOB MANN**, Western Illinois University, Macomb, IL  
Participants will experience a classroom activity where student names are used to explore many topics and ideas from data analysis and statistics including mean, median, mode, variance, histograms, box plots and outliers.

6. **Math Teachers' Circle Demonstration**  
*Room TDR*  
Grades 5-12  
**DR. ANGELA ANTONOU**, University of St. Francis  
**DR. RITA PATEL**, College of DuPage  
Participate in a math teachers' circle demonstration in which you collaborate with colleagues to investigate rich math problems implemented using inquiry based teaching! (continued on next page)
SESSION I
(9:00 AM – 10:00 AM)

7. Putting Some Life Back Into 9th Grade Algebra
   Room G123
   Grades 9th
   GEORGE REESE, University of Illinois, Urbana-Champaign, IL
   JANA SEBESTIK, University of Illinois, Urbana-Champaign, IL
   9th graders in Algebra 1 struggle. Why? What can we do? This talk will be both discussion and exploration. We will share experiences and activities.

8. Using “Open Middle” Problems to Encourage Productive Struggle
   Room F106B
   Grades K-12
   ALISON CHILDERS, Carmi High School, Carmi, IL
   This session will discuss using problems that have many solution strategies and paths in a variety of contexts in math class. We will discuss how we can encourage practice and productive struggle without assigning a large number of problems. Lots of examples and resources will be given, as well as tips for developing your own!

9. Choosing Tasks for Productive Struggle, Not Frustration
   Room F112
   Grades 6-12
   JACKIE MURAWSKA, ICTM President and Saint Xavier University, Palos Park, IL
   Identifying cognitively demanding tasks is the first step toward promoting struggle in mathematics. Participants will explore how worthwhile tasks can shape students’ mathematical dispositions.

10. Mathematical Insights about Numbers, Formulas and Equations from Geometric, Algebraic and Historical Connections
    Room F111
    Grades 7-12
    CRAIG W. ROBERTS, Southeast Missouri State University, Cape Girardeau, MO
    Explore connections among geometry, algebra and history that provide interesting and instructive insights into number relationships, formulas and equations that help students master these concepts.

11. Accurate Assessment in the Common Core Era
    Room F119
    Grades K-14
    ERIC BRIGHT, Charleston Middle School, Charleston, IL
    What does a grade mean? What should count for a grade? What about homework? A discussion on how to develop meaningful assessment practices and policies.
1. Literature and Mathematics: What’s the Connection?
   Room F111
   Grades 2-5
   DR. JACKIE L COX, Clinical Associate Professor/Clinical Supervisor, Carbondale, IL
   LILY GRABER, Student Teacher at Thomas School – 3rd Grade, Carbondale, IL
   BRITTANY ATHA, Student Teacher at Lewis School – 5th Grade, Carbondale, IL
   ELISABETH ELLIOTT, Student Teacher at Thomas School – 2nd Grade, Carbondale, IL
   See how these student teachers add relevancy to their mathematics classroom through the use of literature. This session will offer an overview of techniques and strategies for using literature to enhance the teaching and learning of mathematics in your classroom. We will explore a variety of children’s books and offer sample lessons/activities that you can use immediately with your students. Plan to share your favorite literature and how you use it in your math class!

2. Reading, Vocabulary and Writing in Mathematics – Oh My!
   Room F118
   Grades K-5
   GREG GIERHART, Murray State University, Murray, KY
   There is power in the mathematics classroom when reading, vocabulary, and writing is part of the curriculum. But how to do this? This session will focus on important topics a teacher can use to bring literacy alive within the mathematics classroom.

3. Getting Students to Talk about Shapes and Properties
   Room F109
   Grades 1-6
   PETER WILES, Eastern Illinois University; Charleston, IL
   RICK ANDERSON, Eastern Illinois University; Charleston, IL
   Adapt the Number Talk instructional strategy to develop geometric thinking. Engage with tasks that help students visualize shapes and reason about their properties. Learn about strategies to implement meaningful classroom discussions about geometric ideas.

4. Math Teachers' Circle: What It Is and How to Start Your Own
   Room TDR
   Grades 5-12
   DR. ANGELA ANTONOU, University of St. Francis
   DR. RITA PATEL, College of DuPage
   We will present information on how to start your own math teachers’ circle, research associated with teachers’ circles, and examples of activities done in the circles which can be used in the classroom to engage your students at a deeper level.

(continued on next page)
SESSION II  
(10:10 AM – 11:10 AM)

5. Procedural Knowledge and Conceptual Knowledge on Decimal Operations  
Room G125  
Grades 3-8  
CHENG-YAO LIN, Southern Illinois University, Carbondale, IL  
This presentation will discuss procedural knowledge and conceptual knowledge on decimal operations. We will discuss the differences between procedural knowledge and conceptual knowledge.

6. Justifying Your Answer  
Room G123  
Grades 6-8  
JILL WINTHROP, Elverado Junior High, Elkville, IL  
What does ‘justify your answer’ mean? What should it look like? Why is it important? This session will also look at the importance of visual models.

7. Autism Essentials and Teaching/Working Strategies  
Room F106A  
Grades 3-12  
STACIE HICK, Perandoe Special Education District, Red Bud, IL  
I will give basics about autism and then discuss how to work with children with autism and how to support them in the classroom and home.

8. Logic, Numbers and Art  
Room F106B  
Grades 6-12  
KATHLEEN M. FICK, Methodist University, Fayetteville, NC  
An activity encouraging critical thinking, creativity, and appropriate mathematical language by writing simple logical statements for puzzles defined in columns and rows. Handouts provided.

9. Accurate Assessment: Standards Based Grading in a Southern Illinois Classroom  
Room F119  
Grades 7-12  
JON WILHELM, Vienna High School, Vienna, IL  
We will explore how to modify a traditional grade book into a standards based system. Standards based grading helps students take ownership of their learning by identifying their strengths and weaknesses. Numerous assessment ideas will be discussed.

10. Who Knew the Quadratic Formula was This Versatile?  
Room F112  
Grades 9-14, Teacher Education  
LANIS L. LENKER, Wesclin High School (Retired), Mount Vernon, IL  
Learn to use the Quadratic Formula in two unusual areas. Trig students can use it to solve the difficult SSA triangle problems. Conic section students can use it to graph translated and rotated conics. Bring your graphing calculator with you for some surprises and fun (TI-83/84 featured).
SESSION III  
(11:20 AM – 12:20 PM)

1. Counting Collections  
   Room F119  
   Grades Pre K-2  
   DENISE BROWN, Murphysboro School District, Murphysboro, IL  
   Use collections of everyday objects to develop mathematical problem solving and number sense with young children. Presentation is based on CGI research of T. Carpenter and M. Franke.

2. Understanding Fractions Begins with Geometry  
   Room F109  
   Grades K-4  
   DR. CHERYL ANN LUBINSKI, Elementary Teacher and University Professor of Mathematics (Retired), Ellisville, MO  
   We will talk about solving fraction problems from pictures to symbols. Handouts for classroom use provided.

3. Scratching the Surface and Minding the Gap  
   Room F106B  
   Grades K-6  
   WILLIAM MCNEARY, Southeast Missouri State University, Cape Girardeau, MO  
   Scratch and Scratch Jr allow students to learn to code, but they can be used in a variety of ways to develop mathematical concepts.

4. Teaching Math Through Problem Solving: Experiences at Prieto  
   Room F112  
   Grades K-8  
   ANDREW FRIESEMA, Dr. Jorge Prieto Math and Science Academy, Chicago, IL  
   Detail the history of the work done at Prieto using Lesson Study to better understand teaching through problem solving.

5. Hands-on Math in Elementary School: Number Concept as an Example  
   Room F111  
   Grades 1-6  
   JUEI-HSIN WANG, National Chiayi University, Taiwan; Visiting Scholar at Southern Illinois University, Carbondale, IL  
   YEN-TING CHEN, National Taichung University of Education, Taiwan; Visiting Scholar at Southern Illinois University, Carbondale, IL  
   This session is about the practice in all kinds of number concepts. The math content is from first grade to sixth grade in elementary school. First, the researchers will discuss the number concept development in Taiwan Math Curriculum. Then, the researchers will use hands-on Math games for examples.

(continued on next page)
6. Integrating Digital Games Into Your Mathematics Classroom
   Room G123
   Grades K-8
   EUNMI JOUNG, Southern Illinois University, Carbondale, IL
   During this presentation, participants will learn how digital games can be used in mathematics learning and the effects of such games. Bring your tablet or laptop to this session.

7. How to Teach Effectively? (Operations on Fractions, Decimals and Percentages)
   Room G125
   Grades 3-8
   WEICHEN ZHAO, Southern Illinois University, Carbondale, IL
   Teachers’ procedural knowledge and conceptual knowledge are the important factors of students’ achievements. Comparing Chinese and American preservice mathematics teachers’ procedural knowledge and conceptual knowledge can help preservice teachers not only improve their computational skills but also develop their teaching abilities. In addition, organizing preservic teachers’ procedural knowledge and conceptual knowledge on operations of fraction, decimal and percentage will give preservice teachers the guidance they need to teach effectively.

8. Teaching Through Problem Solving
   Room TDR
   Grades K-12
   TOM MCDOWAL, Lesson Study Alliance, Chicago, IL
   Examine the Japanese approach of teaching math through problem solving, from both lesson and lesson-sequence perspectives, as a way to address SMP #1 and 3.

9. So Why Do We Want Multiple Solutions?
   Room F118
   Grades Experience with Algebra I
   ALBERT OTTO, Illinois State University, Normal, IL
   We will look at serval examples that illustrate how multiple solutions can develop deeper understanding of mathematical situations.

10. Using Open-Ended Tasks to Build Conceptual Understanding
    Room F106A
    Grades 9-12
    ALISON CHILDERS, Carmi High School, Carmi, IL
    Tired of lecturing to introduce a topic? Tired of students memorizing steps with no conceptual understanding? In this session we will discuss how we can use open-ended, low entry point tasks to let students explore a topic before we teach it, giving them an important bridge between prior knowledge and the new knowledge we want to build.
Greetings from John A. Logan College .................................................. Dr. Barry Hancock, Dean for Community Education

Luncheon
12:20 p.m. – 2:00 p.m.
Conference Center Banquet Room

LUNCHEON MENU

FRESH MEX, includes Chicken Fajitas, Seasoned Beef Fajitas
Flour Tortillas – Chips, Sour Cream, Cheese, Pico De Gallo
Served with Refried Beans
Brownie
Ice Tea/Water

Greetings from ICTM .......................................................... Jackie Murawska, ICTM President

Introduction of Speaker......................................................... Dr. Cheng-Yao Lin

Luncheon Speaker............................................................... Dr. Akihiko Takahashi
DePaul University
Chicago, IL

“A Way to Make a School as a Place for Joyful Learning for Both Students and Teachers”
Quality lesson study in Mathematics using the Ideas of Collaborative Lesson Research (CLR) and Teaching Math through Problem Solving.

Adjournment

Continuing Professional Development Unit documentation will be available at the registration table.