SSMA

School Science and Mathematics Association

Founded in 1901

2017 Annual Convention

Lexington, Kentucky

November 2 - 4, 2017

KEENELAND

On behalf of the Board of Directors of the School Science and Mathematics Association, welcome to the 116th Annual Convention at the Hilton Downtown in Lexington, Kentucky. We are an international organization that continues to nurture new researchers and practitioners through our meetings. Our organization, made of researchers and practitioners, is friendly and supportive in our efforts to improve science and mathematics teaching and learning across the nation and around the world.

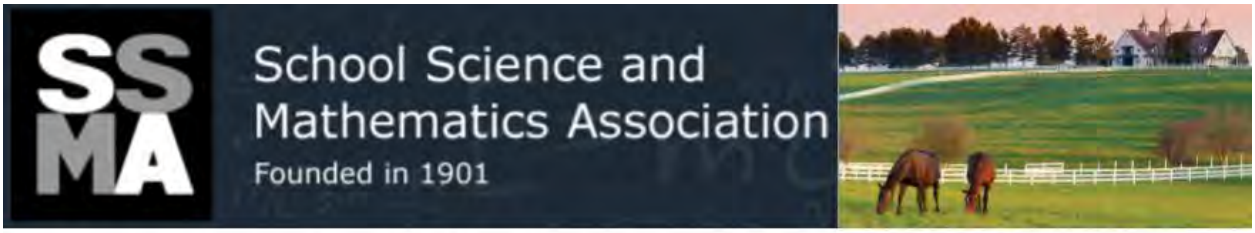
The activities of SSMA are guided by four primary goals:

1. To build and sustain a community of educators and researchers in STEM fields.
2. To advance knowledge through research in science and mathematics education, and in their integration and application in the real world.
3. To inform practice through the dissemination of scholarly works in science and mathematics, in our journal, School Science and Mathematics.
4. To influence policy in science and mathematics education at all levels of government.

As you engage in the sessions, events, meals, dynamic conversation, and committee meetings, remember that it is people like you who make a difference in the quality of our educational systems. Also, be mindful of the fact that for more than 100 years, many of the most distinguished mathematics and science educators have been members of SSMA, gave their first presentations of research at our convention, and had their first manuscripts published in our journal, School Science and Mathematics.

Enjoy your time in Lexington as you network with friends and new acquaintances in your field and make sure to introduce yourself if we have not already met.

Stacy Reeder
SSMA President



2017 SSMA Convention - Lexington, KY

November 2 - 4, 2017
Hilton Lexington/Downtown
http://ssma.org

SSMA Leadership

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Past-President, Gil Naizer, Texas A&M University – Commerce, 2016-2018

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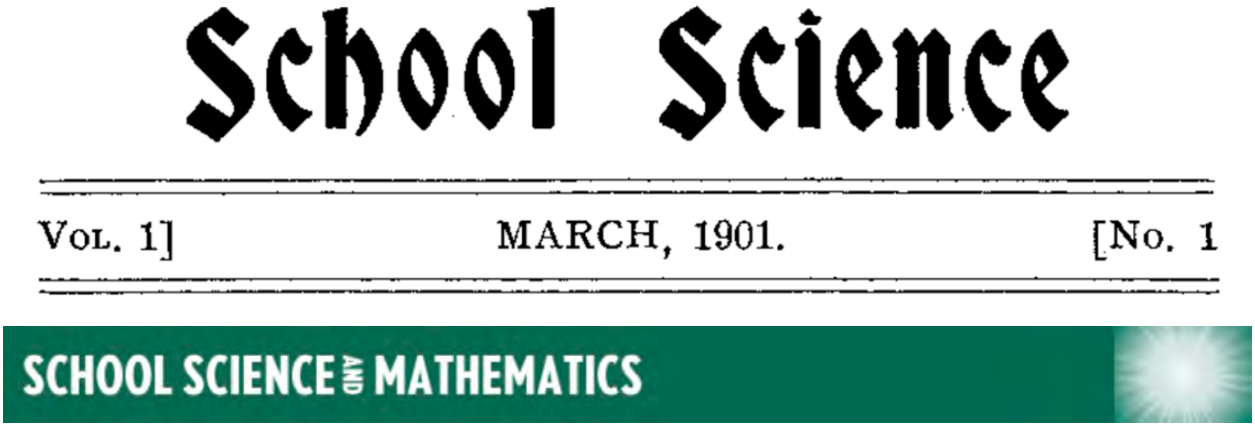
SSMA School Science and Mathematics Association
Founded 1901

Own a piece of history!

Did you know School Science and Mathematics is the oldest STEM journal?

Copies of *School Science and Mathematics* Journal will be available in a Silent Auction format throughout the Conference near the registration table.

All Silent Auction proceeds will go into the SSMA Endowment.


School Science

Vol. 1] MARCH, 1901. [No. 1

SCHOOL SCIENCE AND MATHEMATICS

Convention Overview

Thursday	Friday	Saturday
7:30 a.m. – 5:00 p.m. Registration – ***Top of Escalator***	7:30 a.m. – 5:00 p.m. Registration – ***Top of Escalator***	7:30 a.m. – 11:00 a.m. Registration – ***Top of Escalator***
8:00-9:00 Continental Breakfast – ***Grand Kentucky Ballroom AB***	7:30-9:00 Full Breakfast Buffet Awards and Business Meeting – ***Grand Kentucky Ballroom AB***	8:00-9:30 Continental Breakfast & General Session - ***Grand Kentucky Ballroom AB***
9:10-10:00 Breakouts	9:10-10:00 Breakouts	9:40 – 10:30 Breakouts
10:10-10:35 Breakouts	10:10-10:35 Breakouts	10:40 – 11:30 Breakouts
10:45-11:10 Breakouts	10:45-11:10 Breakouts	
11:20-11:45 Breakouts	11:20-11:45 Breakouts	11:10 – 12:00 Breakouts
11:45-1:00 Lunch on your own	11:45-1:00 Luncheon & General Session - ***Grand Kentucky Ballroom AB***	Explore Lexington!
1:10-1:35 Breakouts	1:10-1:35 Breakouts	Safe Travels!
1:45-2:35 Breakouts	1:45-2:35 Breakouts	
2:35-2:55 PM Snack Break	2:35-2:55 PM Snack Break	
2:55-3:45 Breakouts	2:55-3:45 Breakouts	
3:55-4:20 Breakouts	3:55-4:20 Breakouts	
4:20-5:15 Transition	4:30-5:30 Committee Meetings	
5:15-6:15 General Session - ***Grand Kentucky Ballroom AB***	Dinner on your own Explore Lexington!	
6:15-8:00 Reception - ***Grand Kentucky Ballroom AB***	8:00-10:00 SSMA President Graduate Student Reception ***Location to be determined***	

THURSDAY Morning, November 2, 2017

	9:10 - 10:00 a.m.	10:10 - 10:35 a.m.	10:45 - 11:10 a.m.	11:20 - 11:45 a.m.
Triple Crown Salon A	**Research Session** Comparison of Preservice teachers' mental computation performance using two different approaches: The Direct Teaching and an Open approach (Developing Students' own Strategies). ***Joung & Becker*** Math, Preservice	**Research Session** Preparing Future STEM Educators by Learning across Informal Science Environments ***Asim*** STEM, Preservice		**Research Session** Item Difficulty and Item Discrimination: A Case of Whole Number Multiplication Problems ***Tjoe*** Math, K12
Triple Crown Salon B	**75-minute workshop** Student-Centered Learning Environment Development for a Learning Progression on Dinosaurs ***Snider, Lyons, Thomson, Bourquein, & Stuessy*** Science, K12		**Research Session** Identifying Number Sense App Affordances ***Adkins, Ito*** Math, K12	**Quick Fire – 15 minutes** Analyzing Preservice Elementary Teachers' Content Knowledge using the TEDS-M Assessment ***Fisher, Davis, Thomas, Jong, & Schack*** Math, Preservice
Triple Crown Salon C	**Research Session** How does "Girls in Science Day" effect Adolescent Girls' Attitudes about Science? ***Dixon*** Science, K12	**Research Session** A Deweyan Perspective on Experience in a Planetarium ***Hartweg*** Science, Preservice	**Research Session** Becoming Science Teachers: Exploring Pre-Service Elementary Teachers' Science Experiences ***Askew*** Science, Preservice	**Research Session** Comparison of Two Elementary Prospective Teachers' Ideas about Photosynthesis and Respiration in Trees ***Krall*** Science, Preservice
Blackberry Lilly	**Regular Session** Fostering Creativity in Science & Mathematics Classrooms ***Foster & Herron*** STEM, Inservice	**Research Session** Examining relationships between preservice teachers' expressed values and their mathematics questioning practices ***Zhao*** Math, Preservice	**Regular Session** STEM and the "Shine": Utilizing Artifacts in the STEM Lesson Development ***Griggs & Zollman*** STEM, K12	**Research Session** Transitioning an Integrated, PBL Program from Middle to High School: How Do Students Respond? ***Jekkals & Scogin*** STEM, K12
Crimson Clover	**Research Session** Enriching Prospective Teachers' Understandings of Area: Addressing Preferences for Boundedness and Resemblance ***Chamberlin*** Math, Preservice	**Research Session** Evaluation of Environmental Education Programming ***Brandl*** Science, K12	**Regular Session – 50 minutes** Finding the POWER in "I Don't Know" ***Speer*** Math, Inservice	
Lilly of the Valley	**Research Session** The PD is over, any impact? See the evidence. ***Cobbs*** STEM, Inservice	**Research Session** Middle School Teachers' Retention of Science Content after the Professional Development Year ***Clary*** Science, Inservice	**Research Session – 50 minutes** Transgender Students' Experiences in Postsecondary STEM Education ***Kersey*** STEM, Undergraduate	
Bluegrass Room Salon A	**Research Session** Purposefully Playing the Believing Game in a College Mathematics Course ***Noblitt & Harkness*** Math, K12	**Research Session** What is Algebra? Perceptions of Inservice Teachers and Others ***Telese & Jewett*** Math, Inservice	**Regular Session – 50 minutes** Turning your Dissertation into a Publication(s) ***Harkness & Johnson*** STEM	
Bluegrass Room	**Research Session** Elementary Preservice Teachers' Perceptions of Computation ***Hargrove & Higgins*** Math, Preservice	**Research Session** Analysis of Contextual Problems Present in Textbooks ***Kane*** Math, K12	**Regular Session – 50 minutes** Creating Integrated Guided Inquiry STEM Lessons for the K-12 Classroom ***Cooper*** STEM, Inservice	

THURSDAY Afternoon, November 2, 2017

	1:10 - 1:35 p.m.	1:45 - 2:35 p.m.	2:55 - 3:45 p.m.	3:55 - 4:20 p.m.
Triple Crown Salon A	**Research Session** The Power of Story in Mathematics: PSTs' reactions to working with culturally responsive stories ***Corp & Maiorca*** Math, Preservice	**Research Session** Preservice Elementary Teachers' Perceptions of Mathematical Mindset ***Redmond-Sanogo & Naegele*** Math, Preservice	**Regular Session** Counting Collections: Links between Early Childhood and Preservice Teachers ***Cunningham*** Math, Preservice	**Research Session** Examining the Influence of Lesson Study on Elementary Science Teachers' Practice ***Franklin*** Science, Inservice
Triple Crown	**75-minute Workshop** Building Discourse to Foster Equity and Rigor in Mathematics ***Kinch*** Math, K12		**75-minute workshop** Edible Ed 201: Engaging Science/Math Activities for Hungry Minds ***Mink & Singleton*** STEM, K12	
Triple Crown Salon C	**Research Session** Examining transfer: Effects of professional development on the implementation of inquiry based instruction ***Regian, Fields, Sinclair, & Naizer*** STEM, Inservice	**Regular Session** Pen Pals with Purpose: STEM ***Andrews, Askew, & Tuschl*** STEM, Undergraduate	**Regular Session** STEM PD for STEM PDSs ***Cooper, Nesmith, & Dixon*** STEM, Inservice	**Regular Session** Using Quality Matters to Design Online Statistics Courses ***Shores*** STEM, Undergraduate
Blackberry Lilly	**Research Session** An Innovative Co-teaching Model of Integrated Mathematics and Science Methods Courses: Perceptions of Elementary Preservice Teachers ***Allison & Byrd*** STEM, Preservice	**Regular Session** They've taken Chem 101 and Math 101, but can they teach middle level science and math? ***Cady & MacTavish*** STEM, Preservice	**Regular Session** Engaging Elementary Preservice Teachers & K-8 Students with Engineering in Community-Based Field Experiences ***Mittelberg, Cribbs, & Huss*** STEM, Preservice	**Regular Session** Using Foldables in a Math Methods Course to Serve as a Future Reference ***Orona*** Math, Preservice
Crimson Clover	**Regular Session** Involving Preservice Elementary School Teachers in Family Math Nights ***Tuft*** Math, Preservice	**Research Session** Students' Perceptions of Doing Mathematics through Drawing ***Sullivan & Matney*** Math, K12	**Regular Session** Deeper Learning Strategies – Ensuring Success in Math ***Jasper & Foster*** Math, K12	**Quick Fire – 15 minutes** Secondary Mathematics & edTPA: Strategies for Success ***Chamblee*** Math, Preservice
Lilly of the Valley	**Research Session** Teaching in a Post-standardized Tested World: Physics and Chemistry Teachers' Voices ***Pearce*** Science, Inservice	**Research Session** Discover Future Teacher's Views about Science: An Exploratory Study of the Scientific Epistemological Views of Teacher Candidates ***Google*** Science, Preservice	**Research Session** Introducing the Modified Draw an Engineer Test (mDAET): Development, Validation, and Implementation ***Thomas & Hawley*** STEM, K12	
Bluegrass Room Salon A	**Research Session** Using knowledge maps to assess emergent bilingual 5th graders' use of hybrid language and argumentation in science notebooks ***Wu, Silveus, Vasquez, Biffi, & Weinburgh*** Science, K12	**50-minute Workshop** Eureka! Grade 3–5 Science Activities and Stories ***Farland-Smith & Thomas*** STEM, K12	**Research Session** Newton vs. Wyle E. Coyote ***Emenaker & Kramer*** STEM, K12	**Regular Session** A Computer Tool that Will Allow Secondary Science Teachers to Differentiate Reading Materials for Students with Varied Reading Abilities ***W. Ma*** Science, Inservice
Bluegrass Room	**Research Session** Supporting STEAM Practices with Digital Notebooking ***Martin & Miller*** STEM, Undergraduate	**Regular Session** Vertical Groups for Solving Mathematical Tasks: A Collaborative Model ***Franz & Wilburne*** Math, Inservice	**Regular Session** Writing for School Science and Mathematics Journal ***Johnson & Harkness*** STEM	**Quick Fire – 15 minutes** STEM Ed Bites: A Reader's Digest for STEM Education Research ***Pratt, Cole, & Russey*** STEM, Undergraduate
Grand KY Ballroom AB	**General Session – 5:15 – 6:15 p.m.** Combining Science, Art and Education Through Brewing Beer ***LeVaughn***			

FRIDAY Morning, November 3, 2017

	9:10 - 10:00 a.m.	10:10 - 10:35 a.m.	10:45 - 11:10 a.m.	11:20 - 11:45 a.m.
Triple Crown Salon A	**Research Session** Measuring Openness to Pedagogical Change Among Secondary Mathematics Teachers: A Structural Model ***Williams*** Math, Inservice	**Research Session** Scientific Curiosity and Young Children: A Preliminary View ***Stewart*** Science, K12	**Research Session** Making Meaning from Curriculum materials in Algebra 2 ***Raymond*** Math, Inservice	**Research Session** Teaching Calculus I Through Inquiry: Beyond Memorizing Rules ***Chavez*** Math, Undergraduate/K12
Triple Crown	**75-Minute Workshop** Soy Many Possibilities ***Hunt*** STEM, K12		**75-minute workshop** Science/Math Integration for a Sustainable Planet ***Stivender*** STEM, K12	
Triple Crown Salon C	**Regular Session** Leveraging Technology into Great Tasks ***Schrock*** Math, K12	**Research Session** Language and Content of the Science Speech Community in a Student's Journal: A case study ***de la Fuente, Vasquez, Biffi, & Weinburgh*** Science, K12		
Blackberry Lilly	**Research Session** Project Lead The Way and Persistence in Engineering Degrees ***Utley, Ivey, Self & Weaver*** STEM, K12	**Research Session** Integrated Mathematics and Science Education: A Scoping Review ***Sample McMeeking, Weinberg, & Trott*** STEM, K12	**Research Session** Exploring the Acceptance of the Theory of Evolution and Views of Nature of Science Held by Undergraduate Freshmen Enrolled at an Oklahoma Research Institution ***Heaton, Angle*** Science, Undergraduate	**Regular Session** Integrating Essential Educational Tools for Science and Mathematics Methods Courses ***Asim & Fields*** STEM, Preservice
Crimson Clover	**Research Session** Developing Science Pre-service Teachers Beliefs and Understandings Through the Brick Wall Graphic Organizer ***Fortney & Matteson*** Science, Preservice		**Research Session** Explaining their Actions: Analyzing Writings Accompanying Drawings of Preservice Teachers' Science Classrooms ***Hathcock*** Science, Preservice	**Research Session** The Influence of Practical Work on Alternative Conceptions in the Science Classroom ***Brown*** Science, K12
Lilly of the Valley	**Research Session** Lesson Study and Problem Solving as Impactful Professional Learning ***Matney & Sullivan*** Math, Inservice	**Research Session** A TIMSS Video Comparison of Problem Solving in Japan and United States Classrooms ***Amyett*** Science, K12	**Regular Session** Development of a Physical Science Course for Elementary Education Majors ***Lamar & Wang*** Science, Preservice	**Research Session** An Investigation of Math Teaching Methods in PBL, Subject-Integrated Classrooms ***Plohetski & Scogin*** Math, K12
Bluegrass Room Salon A	**Research Session** Unpacking Teachers' Attitude toward Mathematical Modeling: Implications for Teacher Education and Professional Development ***Asempapa*** Math, Inservice	**Research Session** Pre-service Teacher Perceptions of Parental Engagement ***Kelley*** STEM, Preservice	**Research Session** Effectiveness of an Inquiry Focused Professional Development: Teachers' Beliefs and Instruction ***Cribbs, Day, & Duffin*** STEM, Inservice	**Research Session** Undergraduate Research in Science Education: Impacts on Preservice Teachers ***Thomson, Snider, & Bourquein*** Science, Preservice
Bluegrass Room Salon B	**Research Session** Developing Preservice Teachers' Understanding of Effective Mathematical Teaching Practices Using Vignettes ***Kerschen, Shelton, & Wilkerson*** Math, Preservice	**Research Session** Boredom as an obstacle in developing positive mathematics identities ***Roberts*** Math, K12	**Workshop Session** Implementing Ozobots into your Classroom and Professional Development ***Mohr-Schroeder & Schroeder*** STEM, K12	
Grand Kentucky Ballroom AB	**General Session – 11:45 a.m. – 1:00 p.m.** How Do We Develop Drones for Weather Science? CLOUD-MAP: Collaboration Leading Operational UAS Development for Meteorology and Atmospheric Physics ***Smith***			

FRIDAY Afternoon, November 3, 2017

	1:10 - 1:35 p.m.	1:45 - 2:35 p.m.	2:55 - 3:45 p.m.	3:55 - 4:20 p.m.
Triple Crown Salon A	**Quick Fire – 15 Minutes** "From School of Crisis to Distinguished": Mathematics' Role in Transforming a Rural School ***Fisher & Crawford*** Math, K12	**Regular Session** How to Use Soroban to Teach Mental Maths ***Lin*** Math, Undergraduate	**Regular Session** Free for All's In the STEM K-9 classroom ***Pinkston, Ridout, Asim, Hughes, & Ridout*** STEM, K12	**Research Session** Preservice Teachers Conceptualization of a Learning Progression and Their PCK ***Lyons*** Science, Preservice
Triple Crown Salon B	**75-minute Workshop** Providing Access to ELLs: Integrating Mathematics and Language ***Aparicio & Smith*** Math, K12		**75-minute Workshop** The STEM Princess: Engaging Young Females in STEM ***Delaney*** STEM, K12	
Triple Crown Salon C	**Research Session** Online mathematics tutoring for rural area students: Pre-service teachers' participation and perspectives ***Hu*** Math, Preservice	**Regular Session** Learning to provide effective written feedback in mathematics ***Thompson*** Math, Preservice	**Regular Session** Getting Out of the Doldrums: Books to Spark Interest in Mathematics ***Garrett*** Math, K12	**Quick Fire – 15 minutes** Queer Perspectives on Math and Science Education ***Kersey*** STEM, Undergraduate
Blackberry Lilly	**Research Session** Preservice Teachers' Planning for Mathematical Discourse ***Columba*** Math, Preservice	**Regular Session** Where the Math Lives in Classic Science Activities for Elementary Grades ***Foster & Herron*** STEM, K12	**Research Session** Preparing Teachers to Incorporate Modeling Tasks into Instruction ***Enderson & Watson*** Math, Preservice	
Crimson Clover	**Research Session** Writing in the Secondary Math Classroom ***Gunter*** Math, K12	**Regular Session** Using Web-Based Technology to Support Mathematics Content Knowledge ***Powell*** Math, K12	**Special Session** SSMA Past President's Session	**Regular Session** Oilland ***Wells*** STEM, K12
Lilly of the Valley	**Regular Session** What About This Do You NOT Understand? ***Riley & Figgins*** Math, Inservice	**Regular Session** Overcoming Resistance: Strategies for Training Elementary Coaches Responsible for Mathematics Achievement ***Balka*** Math, Inservice	**Regular Session** Promoting Math-Talk with Purposeful Actions ***Columba*** Math, K12	**Research Session** Online versus traditional statistics courses: Which do students prefer? ***Shores*** Math, Undergraduate
Bluegrass Room Salon A	**Research Session** Middle School Teachers' Spatial Ability and Understanding of Chemistry ***Cole & Wilhelm*** Science, Inservice	**Research Session** Learn How to Score VNOS-D Responses Using the VNOS Scoring Index ***Angle*** Science, Undergraduate	**Research Session** *2017 SSMA Dissertation Award Winner* STEM Out of School Time Programs: Examining the Impacts on Middle School Females' Science Identity Construction ***MacTavish*** Science, K12	**Research Session** Hybrid discourse practices as entry into chemistry research community ***Weinburgh, Cordell, Thompson, & Malkoc*** Science, Undergraduate
Bluegrass Room Salon B	**Research Session** Looking Beyond Graphical Representations with Transnumeration ***Daiga*** Math, Preservice	**Research Session** Developing Deep Rational Number Concepts in a Fraction of the Time ***Reeder, Utley, & Che*** Math, Preservice	**Regular Session** Reviewing for School Science and Mathematics Journal ***Johnson & Harkness*** STEM	**Research Session** Making Authentic Connections With Peers and Research: Investigating a Residential STEM Program ***Scogin & Alexander*** STEM, Undergraduate

Committee Meetings

Awards and Endowment – Triple Crown B; Conventions – Blackberry Lilly; Finance – Crimson Clover; Membership – Lilly of the Valley; Nomination and Election – Bluegrass Room Salon A; Policy – Bluegrass Room Salon B; Publications – Triple Crown Salon C

SATURDAY Morning, November 4, 2017			
	9:40 – 10:30 a.m.	10:40 - 11:30 a.m.	11:10 - 12:00 a.m.
Triple Crown Salon B	**Syllabus Share** Elementary Math Methods for the Masters of Arts in Teaching ***Higgins*** How much "education" fits in a two-semester chemistry sequence for pre-service teachers? ***Breiner*** Fundamentals of Mathematics for K-8 Teachers ***Gill & Meador*** Van de Walle Text Contribution to Mathematics Methods Courses ***Figgins*** NGSS and Science Methods Courses ***Riley*** The Teaching of Mathematics ***Hargrove & Higgins***	**Innovation Showcase** Using thermal imaging cameras in middle school STEM ***Hammack*** STEM, K12	**Innovation Showcase** Implementing Generative Learning Strategies in Excelet-based Modeling Tasks ***Watson & Enderson*** STEM, K12
Blackberry Lilly	**Research Session** Supporting Female Students in Mathematics for Alternative Certification Teachers ***Evans*** Math, Inservice	**Regular Session** STEM Literacy through Engineering and Philosophy ***Kruse & Wilcox*** STEM, K12	**Regular Session** History of Mathematics in the Classroom: A Focus on Cultures ***Evans*** Math, K12
Crimson Clover	**Regular Session** Tools for Teaching STEM to English-Learning and English-Speaking Students: Supporting Learning with Nonlinear Teaching ***Hoffman & Zollman*** STEM, K12	**Regular Session** Assessing Impact of Two MSP Elementary Mathematics MSP Projects: Successes, Pitfalls & Recommendations ***Chamblee & Cobbs*** Math, Inservice	**Research Session** Early-career, Secondary Mathematics Teachers' Descriptions of their Professional Learning and Support ***Amick & Martinez*** Math, Inservice
Bluegrass Room Salon A	**Research Session** Experiential Learning to Examine the Environmental Impacts of Energy Production ***Quebec Fuentes*** Science, Inservice	**Research Session** Generating Inferences During Science: The SMARTTIS Project ***Morrison & Milner*** Science, K12	**Research Session** Elementary Science Teacher Preparation: Exploring Attitudes, Self-Efficacy, and Content Pedagogical Needs and Impacts ***Nesmith*** Science, Preservice

Detailed Conference Schedule

Thursday, November 2, 2017 9:10 – 10:00 a.m.	
Triple Crown Salon A	**Research Session** Comparison of Preservice teachers' mental computation performance using two different approaches: The Direct Teaching and an Open Approach ***Eunmi Joung and Jerry Becker*** *Students may acquire mental computation knowledge through explicit teaching methods and in contrast, they may construct their own knowledge through social interaction and class discussion. In this regard, this presentation will report on differences in Preservice teachers' mental computation strategies using two different approaches. Useful handouts will be provided.* Math, Preservice
Triple Crown Salon B	**75-minute Workshop** Student-Centered Learning Environment Development for a Learning Progression on Dinosaurs ***Brie Snider, Luke Lyons, Katherine Thomson, Alyssa Bourquein, and Carol Stuessy*** *This workshop focuses on the development of student-centered learning environments (SCLEs) as a part of a learning progression (LP) on dinosaurs. Experience the SCLE developed around high school NGSS core ideas embedded in the LP. Get to play "Evolution" the board game with specially designed dinosaur themed trait cards.* Science, K12
Triple Crown Salon C	**Research Session** How does "Girls in Science Day" effect Adolescent Girls' Attitudes about Science? ***Carmen Dixon*** *Due to the lack of women in STEM fields, a rural school conducted a grassroots effort called "Girls in Science Day [GIS]." Research to determine if, how, and for how long this event had an impact on its middle school participants was conducted. The results, implications, and applications are presented.* Science, K12
Blackberry Lilly	**Regular Session** Fostering Creativity in Science & Mathematics Classrooms ***Andrea Foster and Julie Herron*** *The interplay of creativity in science and mathematics is essential in our world today. Yet, creativity is rarely the focus in science and mathematics classrooms. This workshop provides activities that promote creativity for learners of all ages. They are problem driven; emphasize critical thinking, collaboration, and communication. Get "droodle-ing!"* STEM, Inservice
Crimson Clover	**Research Session** Enriching Prospective Teachers' Understandings of Area: Addressing Preferences for Boundedness and Resemblance ***Michelle Chamberlin*** *Like students, teachers need conceptually-sound understandings of area measurement. Using a lesson experiment, I examined the area unit understandings of elementary prospective teachers. Results include empirical findings about the prospective teachers' understandings of area units and instructional recommendations for PSTs as well as grade K-12 students.* Math, Preservice
Lilly of the Valley	**Research Session** The PD is Over, Any Impact? See the Evidence. ***Georgia Cobbs*** *Two universities collaborated with 15 school districts across an inter-mountain state developing blended professional development workshops and modules. Eighteen months after the grant ended, research was collected through administrator and teacher questionnaires and interviews as well as classroom observations to collect evidence teachers gained from the professional development.* STEM, Inservice
Bluegrass Room Salon A	**Research Session** Purposefully Playing the Believing Game in a College Mathematics Course ***Bethany Noblitt and Shelly Sheats Harkness*** *Playing the believing game in a mathematics classroom can impact the mathematical understanding of the students and the teacher. We will share our research on what the believing game looks like in the classroom and suggestions on how to play.* Math, K12
Bluegrass Room Salon B	**Research Session** Elementary Preservice Teachers' Perceptions of Computation ***Tracy Hargrove and Heidi Higgins*** *This session presents the findings of a mixed-methods study investigating how elementary pre-service teachers' view the role of computation in the curriculum and their beliefs about how computational concepts should be taught. Data from computational tasks, beliefs survey, and one-one-one interviews using a "talk out loud" strategy will be shared.* Math, Preservice

Thursday, November 2, 2017 10:10 – 10:35 a.m.	
Triple Crown Salon A	**Research Session** Preparing Future STEM Educators by Learning across Informal Science Environments ***Sumreen Asim*** *The study investigated the nature of K-6 teacher candidates' beliefs. To address the challenge of investigating K-6 teacher candidates' beliefs about informal science instruction, the elementary science methods course was purposefully designed to integrate the Six Strands of Learning Science in Informal Science Education (NRC, 2009).* STEM, Preservice
Triple Crown Salon B	**75-minute Workshop (continued)** Student-Centered Learning Environment Development for a Learning Progression on Dinosaurs ***Brie Snider, Luke Lyons, Katherine Thomson, Alyssa Bourquein, and Carol Stuessy*** *This workshop focuses on the development of student-centered learning environments (SCLEs) as a part of a learning progression (LP) on dinosaurs. Experience the SCLE developed around high school NGSS core ideas embedded in the LP. Get to play "Evolution" the board game with specially designed dinosaur themed trait cards.* Science, K12
Triple Crown Salon C	**Research Session** A Deweyan Perspective on Experience in a Planetarium ***Beau Hartweg*** *A pilot study was conducted using an Deweyan lens to explore the experiences of students who participate in a planetarium program. A qualitative case study approach was utilized for this study. Participants consisted of 30 preservice elementary teachers enrolled in a science content course. Initial findings will be presented.* Science, Preservice
Blackberry Lilly	**Regular Session** Examining Relationships between Preservice Teachers' Expressed Values and their Mathematics Questioning Practices ***Wenmin Zhao*** *We examined relationships between preservice teachers' (PSTs) questioning practices and their general statements about questions. 86 PSTs completed five simulated teaching experiences via the LessonSketch platform and wrote a reflection paper about effective questions. Our findings indicate that PSTs' statements about effective questioning were aligned with their questioning practices.* Math, Preservice
Crimson Clover	**Research Session** Evaluation of Environmental Education Programming ***Rayelynn Brandl*** *We will discuss the evaluation methods and outcomes for the Clark Fork Watershed Education Program, which is an environmental education program in the nation's largest Superfund site.* Science, K12
Lilly of the Valley	**Research Session** Middle School Teachers' Retention of Science Content after the Professional Development Year ***Renee Clary*** *Our research probes middle teachers' discipline-specific content retention beyond professional development. All disciplines resulted in significant gains after the 10-day summer academy, but physics content was not retained throughout the PD year, and chemistry content was not retained beyond the instructional year. We propose discipline-specific support is needed beyond PD.* Science, Inservice
Bluegrass Room Salon A	**Research Session** What is Algebra? Perceptions of Inservice Teachers and Others ***James Telese and Laura Jewett*** *This session reports on a graduate mathematics education class project. The participants interviewed individuals about their perception of algebra. Their perceptions of algebra will be discussed along with implications.* Math, Inservice
Bluegrass Room Salon B	**Research Session** Analysis of Contextual Problems Present in Textbooks ***Keilah Krane and Jo Ann Cady*** *Contextual problems help children with understanding the various meanings, relationships, and interpretation implied by the operations of addition and subtraction. Thus, using the Cognitively Guided Instruction problem types, we coded elementary textbooks to determine if each type was adequately represented.* Math, K12

Thursday, November 2, 2017 10:45 – 11:10 a.m.	
Triple Crown Salon B	**Research Session** Identifying Number Sense App Affordances ***Amy Adkins and Taro Ito*** *iPad Apps offer unique opportunities for preschoolers to learn mathematic concepts such as counting, identifying numbers, ordering, comparing, and sorting. Due to the newness of digital curriculum, this research seeks to describe affordances accessed by low-income preschoolers when playing with number sense iPad apps to maximize the learning experience.* Math, K12
Triple Crown Salon C	**Research Session** Becoming Science Teachers: Exploring Pre-Service Elementary Teachers' Science Experiences ***Rachel Askew*** *This study explored how pre-service elementary teachers conceptualized their identities as science teachers after experiencing two different styles of science education preparation. Participants completed interviews about how an experiential science program and their science methods course impacted their views on science education, teaching, and their identities as science teachers.* Science, Preservice
Blackberry Lilly	**Regular Session** STEM and the "Shine": Utilizing Artifacts in the STEM Lesson Development ***Bradford Griggs and Alan Zollman*** *Do moonshine and STEM relate? We can link artifacts to science and engineering concepts. Each cultural- or historical-value object can be the beginning scaffolding steps in the theory to conceptual understanding. Beginning with a social studies artifact, this project-based learning approach has both cognitive and affective benefits.* STEM, K12
Crimson Clover	**Regular Session – 50 minutes** Finding the POWER in "I Don't Know" ***William Speer*** *We can't ask our students to be seekers if we aren't seekers ourselves. This research-based, practice-oriented session explores the benefits of productive struggle with questions that initially yield "I don't know" to help students shake up naïve or loose thinking and to construct "new" knowledge by encouraging transfer of related knowledge.* Math, Inservice
Lilly of the Valley	**Research Session – 50 minutes** Transgender Students' Experiences in Postsecondary STEM Education ***Elizabeth Kersey*** *This session reports the findings from a pilot study exploring the experiences of transgender students in postsecondary education, particularly how those experiences have varied as their gender presentation has evolved. The theoretical framework draws from post-structuralism, feminism, and queer theory. A narrative methodology was used to collect the data.* STEM, Undergraduate
Bluegrass Room Salon A	**Regular Session – 50 minutes** Turning your Dissertation into a Publication(s) ***Shelly Harkness and Carla Johnson*** *Join us to engage in conversation about how to turn your dissertation into publication(s).* STEM
Bluegrass Room Salon B	**Regular Session – 50 minutes** Creating Integrated Guided Inquiry STEM Lessons for the K-12 Classroom ***Susan Cooper*** *Creating integrated STEM lessons can be a way to promote positive dispositions toward learning when students experience different subjects supporting each other. Planning and implementing engaging lessons can be challenging, especially for new teachers. Come explore how we help preservice and inservice teachers connect STEM lessons with English Language Arts.* STEM, Inservice

Thursday, November 2, 2017 11:20 – 11:45 a.m.	
Triple Crown Salon A	**Research Session** Item Difficulty and Item Discrimination: A Case of Whole Number Multiplication Problems ***Hartono Tjoe*** *This study examines both the accuracy of third graders in anticipating how difficult certain problems would be to solve and the readiness of preservice teachers in distinguishing how suitable those problems should be to pose. Pedagogical implications that relate problem posing to problem solving in teacher training programs are discussed.* Math, K12
Triple Crown Salon B	**Quick Fire – 15 minutes** Analyzing Preservice Elementary Teachers' Content Knowledge using the TEDS-M Assessment ***Molly Fisher, Jonathan Thomas, Cindy Jong, and Edna Schack*** *This study focuses on the mathematics content knowledge of preservice elementary teachers' (PSETs') that are enrolled in a mathematics methods course. The mathematics content assessment consisted of eight questions drawn from the TEDS-M assessment. Analyses of PSETs' content knowledge will be discussed through example responses and pre- and post-assessment comparison.* Math, Preservice
Triple Crown Salon C	**Research Session** Comparison of Two Elementary Prospective Teachers' Ideas about Photosynthesis and Respiration in Trees ***Rebecca Krall*** *This case study explored two prospective elementary teachers' understandings of photosynthesis and respiration in trees. Semi-structured interviews were conducted using a series of pictures illustrating trees in different seasons. Findings indicated the use of the images supported rich discussions leading participants to improve their understanding, or to identify some misunderstandings.* Science, Preservice
Blackberry Lilly	**Research Session** Transitioning an Integrated, PBL Program from Middle to High School: How Do Students Respond? ***Regan Jekkals and Stephen Scogin*** *Using mixed methods, we investigated the struggles and successes of the transition of students from a middle school to high school project-based, outdoor learning program. Qualitative data were obtained from student interviews, and quantitative data were derived from surveys to determine students' attitudes about STEM content and future careers.* STEM, K12
Crimson Clover	**Regular Session – 50 minutes (continued)** Finding the POWER in "I Don't Know" ***William Speer*** *We can't ask our students to be seekers if we aren't seekers ourselves. This research-based, practice-oriented session explores the benefits of productive struggle with questions that initially yield "I don't know" to help students shake up naïve or loose thinking and to construct "new" knowledge by encouraging transfer of related knowledge.* Math, Inservice
Lilly of the Valley	**Research Session – 50 minutes (continued)** Transgender Students' Experiences in Postsecondary STEM Education ***Elizabeth Kersey*** *This session reports the findings from a pilot study exploring the experiences of transgender students in postsecondary education, particularly how those experiences have varied as their gender presentation has evolved. The theoretical framework draws from post-structuralism, feminism, and queer theory. A narrative methodology was used to collect the data.* STEM, Undergraduate
Bluegrass Room Salon A	**Regular Session – 50 minutes (continued)** Turning your Dissertation into a Publication(s) ***Shelly Harkness and Carla Johnson*** *Join us to engage in conversation about how to turn your dissertation into publication(s).* STEM
Bluegrass Room Salon B	**Regular Session – 50 minutes (continued)** Creating Integrated Guided Inquiry STEM Lessons for the K-12 Classroom ***Susan Cooper*** *Creating integrated STEM lessons can be a way to promote positive dispositions toward learning when students experience different subjects supporting each other. Planning and implementing engaging lessons can be challenging, especially for new teachers. Come explore how we help preservice and inservice teachers connect STEM lessons with English Language Arts.* STEM, Inservice

Thursday, November 2, 2017 1:10 – 1:35 p.m.	
Triple Crown Salon A	**Research Session** The Power of Story in Mathematics: PSTs' reactions to working with culturally responsive stories ***Amy Corp and Cathrine Maiorca*** *Using culturally responsive stories to teach mathematics can make it more relevant and engaging for students. We will share findings from an on-going study of preservice teachers from a West Coast and Midwest university. We examine what the PT's learn about teaching mathematics, using culturally responsive stories and about themselves.* Math, Preservice
Triple Crown Salon B	**75-minute Workshop** Building Discourse to Foster Equity and Rigor in Mathematics ***Diane Kinch*** *This session engages participants in a language rich meaningful, high cognitive demand task is approached through multiple representations that display the versatility of mathematics when approached across grade levels. We use a mathematics idea wave to engage in academic discourse around the mathematics and the process.* Math, K12
Triple Crown Salon C	**Research Session** Examining transfer: Effects of professional development on the implementation of inquiry based instruction ***Christina Shea Regian, Melanie Fields, Becky Sinclair, and Gil Naizer*** *A unique group of rural teachers volunteered to participate in a yearlong professional development program that promotes inquiry-based teaching practices. Many of the instructional strategies encouraged were converse to their current teaching practices. The paper presented will highlight changes in the inservice teachers' perspectives and implementation of the inquiry-based practices.* STEM, Inservice
Blackberry Lilly	**Research Session** An Innovative Co-teaching Model of Integrated Mathematics and Science Methods Courses: Perceptions of Elementary Preservice Teachers ***Elizabeth Allison and Kelly Byrd*** *This session will give insights into the process of redesigning teacher education courses (science and mathematics methods) to incorporate co-taught STEM modules. The courses' redesign was part of a study to determine the impact of co-taught STEM lessons on preservice teachers' STEM self-efficacy. Results and implications will be shared.* STEM, Preservice
Crimson Clover	**Regular Session** Involving Preservice Elementary School Teachers in Family Math Nights ***Elaine Tuft*** *This session will describe the involvement of preservice elementary school teachers with Family Math Nights held at a local elementary school. The intended purposes for including the students majoring in elementary education as well as some of the benefits will be discussed.* Math, Preservice
Lilly of the Valley	**Research Session** Teaching in a Post-Standardized Tested World: Physics and Chemistry Teachers' Voices ***Erin Pearce*** *The Texas legislature removed standardized testing for chemistry and physics in the 2012-13 school year. This research followed two teachers transitioning into teaching subjects no longer state-tested. This session will focus on change or lack thereof in administrative support, student demeanor, curriculum, and instructional practice in the post-standardized tested world.* Science, Inservice
Bluegrass Room Salon A	**Research Session** Using knowledge maps to assess emergent bilingual 5th graders' use of hybrid language and argumentation in science notebooks ***Shelly Wu, Allison Silveus, Stacy Vasquez, Daniella Biffi, and Molly Weinburgh*** *The session will present research which examined emerging bilingual students' science journals. Having participated in a 3-week science program, students documented their experiences investigating the effects of erosion. The researchers used a unique coding system which utilizes multicolored knowledge maps to capture change in hybrid language and argumentation.* Science, K12
Bluegrass Room Salon B	**Research Session** Supporting STEAM Practices with Digital Notebooking ***Christie Martin and Bridget Miller*** *Incorporating digital technologies for notebooking offers students' opportunities to engage with several mediums to scaffold their learning. In this study, we explore the use of electronic notebooking practices (e-STEAM) to provide multiple mediums through interactive technology. We found digital notebooks afforded students the opportunity to further their scientific literacy.* STEM, Undergraduate

Thursday, November 2, 2017 1:45 – 2:35 p.m.	
Triple Crown Salon A	**Research Session** Preservice Elementary Teachers' Perceptions of Mathematical Mindset ***Adrienne Redmond-Sanago and Jessyca Naegele*** *Preservice elementary teachers read Boaler's Mathematical Mindsets book as part of their primary math methods. This session will discuss their perceptions of mindset and mathematics teaching.* Math, Preservice
Triple Crown Salon B	**75-minute Workshop (continued)** Building Discourse to Foster Equity and Rigor in Mathematics ***Diane Kinch*** *This session engages participants in a language rich meaningful, high cognitive demand task is approached through multiple representations that display the versatility of mathematics when approached across grade levels. We use a mathematics idea wave to engage in academic discourse around the mathematics and the process.* Math, K12
Triple Crown Salon C	**Regular Session** Pen Pals with Purpose: STEM ***Omozusi Andrews, Rachel Askew, and Jeannie Tuschl*** *While middle school Math and science teachers may have a strong content preparation from secondary programs, they may lack the depth to teach adolescents. We will share our program in hopes of generating discussion about the pedagogical preparation of middle school teachers.* STEM, Preservice
Blackberry Lilly	**Regular Session** They've taken Chem 101 and Math 101, but can they teach middle level science and math? ***Jo Ann Cady and Elizabeth MacTavish*** *This session will give insights into the process of redesigning teacher education courses (science and mathematics methods) to incorporate co-taught STEM modules. The courses' redesign was part of a study to determine the impact of co-taught STEM lessons on preservice teachers' STEM self-efficacy. Results and implications will be shared.* STEM, Preservice
Crimson Clover	**Research Session** Students' Perceptions of Doing Mathematics through Drawing ***Corrinne Sullivan and Gabriel Matney*** *This presentation demonstrates using drawing protocols with students to research their perceptions about doing mathematics. We collected drawings from students of different nations to investigate perceptions across cultures. We will share our statistically significant results and student samples as well as benefits and implications for teachers and teacher leaders.* Math, K12
Lilly of the Valley	**Research Session** Discover Future Teacher's Views about Science: An Exploratory Study of the Scientific Epistemological Views of Teacher Candidates ***Angela Google*** *Exploration of one's values surrounding how they know what they know about science is defined as understanding one's Scientific Epistemological Views (SEV). Within this study, we will explore the SEV's of teacher candidates to reveal characteristics of scientific knowledge that could potentially influence how they teach. Results will be shared.* Science, Preservice
Bluegrass Room Salon A	**50-minute Workshop** Eureka! Grade 3–5 Science Activities and Stories ***Donna Farland-Smith and Julie Thomas*** *At this workshop participate in some of the 27 lessons linking non-fiction historical trade books and science content for grades 3-5.* STEM, K12
Bluegrass Room Salon B	**Regular Session** Vertical Groups for Solving Mathematical Tasks: A Collaborative Model ***Dana Franz and Jane Wilburne*** *When mathematics teachers across a vertical span of grade levels work together on tasks to expand their knowledge about how students think mathematically, often teachers position themselves unproductively and fail to experience potential learning opportunities. This session discusses a framework for selecting tasks to promote productive discussions for all teachers.* Math, Inservice

Thursday, November 2, 2017 2:55 – 3:45 p.m.	
Triple Crown Salon A	**Regular Session** Counting Collections: Links between Early Childhood and Preservice Teachers ***Elizabeth Cunningham*** *The complexity of counting is not always clear to preservice teachers. This session will address how PSTs interact with and encounter some of the same challenges as young children when counting collections, a common early childhood activity. The session will engage audience members with data from PSTs counting collections.* Math, Preservice
Triple Crown Salon B	**75-minute Workshop** Edible Ed 201: Engaging Science/Math Activities for Hungry Minds ***Debi Mink and Jacque Singleton*** *This hands-on session will focus on motivating and engaging students through practical, thought-provoking and classroom-tested lessons that integrate math and science for elementary (K-6) students. The session is designed to help educators help their students retain difficult science/math skills and concepts more effectively using food as the overarching theme.* STEM, K12
Triple Crown Salon C	**Regular Session** STEM PD for STEM PDSs ***Sandi Cooper, Suzanne Nesmith, and Erin Balk*** *A series of STEM professional development sessions was coordinated and facilitated with all teachers in two STEM-focused Professional Development Schools. Their participation led to the implementation of STEM learning experiences for their students. In this session, an overview of the PD sessions and their impact on participants will be shared.* STEM, Inservice
Blackberry Lilly	**Regular Session** Engaging Elementary Preservice Teachers & K-8 Students with Engineering in Community-Based Field Experiences ***Julia Mittelberg, Jennifer Cribs, and Jeanine Huss*** *This study involved elementary preservice teachers implementing engineering-based lesson plans using LEGO simple machines and robotics kits to teach in a high needs community-based program serving K-8 children. Results, lessons learned, and future plans will be discussed based on data collected through pre- and post-surveys, interviews, and artifacts.* STEM, Preservice
Crimson Clover	**Regular Session** Deeper Learning Strategies – Ensuring Success in Math ***Bill Jasper and Andrea Foster*** *This session will provide research-based instructional strategies that help all students achieve deeper understanding of math concepts. Too often, students don't retain mathematics skills. Examples that improve success will be discussed in an interactive manner, with the goal to ensure equitable and high quality mathematics education.* Math, K12
Lilly of the Valley	**Research Session** Introducing the Modified Draw an Engineer Test (mDAET): Development, Validation, and Implementation ***Julie Thomas and Leslie Hawley*** *This session will introduce the modified Engineer at Work Test (mDAET) and provide some background on its development, validation, and implementation. This new assessment tool, rooted in the tradition of the Draw-a-Scientist Test (DAST), reaches beyond other closed-ended instruments to enhance researchers' ability to assess children's engineering education benefits.* STEM, K12
Bluegrass Room Salon A	**Research Session** Newton vs. Wyle E. Coyote ***Chuck Emenaker and Gene Kramer*** *While pursuing the roadrunner, Wyle E. Coyote seems to operate independent of Newton's Laws. Using portions of several Roadrunner cartoons, we will explore how these cartoons can be used as great lead-ins and a means of assessment for classroom physics and mathematics. Beep! Beep!* STEM, K12
Bluegrass Room Salon B	**Regular Session** Writing for School Science and Mathematics Journal ***Carla Johnson and Shelly Harkness*** *This session will provide an overview of the requirements for publishing in the School Science and Mathematics journal. We will also share information regarding our Research to Practice online companion publication.* STEM

Thursday, November 2, 2017 3:55 – 4:20 p.m.	
Triple Crown Salon A	**Research Session** Examining the Influence of Lesson Study on Elementary Science Teachers' Practice ***Chatoria Franklin*** *I will discuss my research on the effect of the use of lesson study in elementary science classrooms on instructional practice.* Science, Inservice
Triple Crown Salon B	**75-minute Workshop (continued)** Edible Ed 201: Engaging Science/Math Activities for Hungry Minds ***Debi Mink and Jacque Singleton*** *This hands-on session will focus on motivating and engaging students through practical, thought-provoking and classroom-tested lessons that integrate math and science for elementary (K-6) students. The session is designed to help educators help their students retain difficult science/math skills and concepts more effectively using food as the overarching theme.* STEM, K12
Triple Crown Salon C	**Regular Session** Using Quality Matters to Design Online Statistics Courses ***Melanie Shores*** *Quality Matters (QM) is a faculty-centered, peer review process that is designed to certify the quality of online and blended courses. QM was used to design and certify an undergraduate, online statistics course to improve teaching and learning.* STEM, Undergraduate
Blackberry Lilly	**Regular Session** Using Foldables in a Math Methods Course to Serve as a Future Reference ***Cynthia Orona*** *Changing up a math methods course by using foldables to present material. Preservice teachers explore creating a reference notebook for mathematics methods which may be taken into their classroom as a reference.* Math, Preservice
Crimson Clover	**Quick Fire – 15 minutes** Secondary Mathematics & edTPA: Strategies for Success ***Gregory Chamblee*** *This session will be used to share ideas on how to make the edTPA process for prospective secondary mathematics teachers.* Math, Preservice
Bluegrass Room Salon A	**Regular Session** A Computer Tool that Will Allow Secondary Science Teachers to Differentiate Reading Materials for Students with Varied Reading Abilities ***Wanjing Ma*** *A challenge for the secondary science teacher is selecting written material that is appropriate for varying reading levels of their students. I have developed a computer program that analyzes selected text in terms of word/sentence complexity, academic language and specific scientific language to determine an appropriate reading grade level.* Science, Inservice
Bluegrass Room Salon B	**Quick Fire – 15 minutes** STEM Ed Bites: A Reader's Digest for STEM Education Research ***Justin Pratt, Merryn Cole, and Christopher Russey*** *STEM Ed Bites is an online daily literature journal, dedicated to sharing research in a publicly accessible way for those who are interested in current research in STEM Education. Presentation will include an overview of STEM Ed Bites and information on how you can contribute.* STEM, Undergraduate

Thursday, November 2, 2017
5:15 – 8:00 p.m.
General Session and Reception
Grand Kentucky Ballroom AB

Combining Science, Art and Education Through Brewing Beer

Justin LeVaughn
Chief Science Officer
Ethereal Brewing Company

At its core, making beer can be as simple as mixing barley, water, hops and yeast. However, modern beer making practices rely on scientific concepts in chemistry, physics and biology. Beer brewers must balance this by artfully combining different ingredient sensory combinations consistently and repeatedly. This talk will (a) review the basic science concepts behind modern brewing practices, (b) how breweries combine scientific inquiry with creative art, and (c) future science careers in the brewing industry. Lastly, we will discuss potential avenues for science outreach and collaborations with educators.

Justin's background of study is cellular biology and STEM education. Receiving undergraduate degree and graduate training in biology, and graduate degree in STEM education at the University of Kentucky. During that time he developed beer brewing as a hobby and communicating brewing science to other students and colleagues. He currently works as Ethereal Brewing's Chief Science Officer managing the quality control and sensory analysis programs, and small batch testing. He also, isolates and maintains yeast stocks for the brewery, as well as building science outreach.

ETHEREAL BREWING
LEXINGTON, KENTUCKY

http://www.etherealbrew.com/

Friday, November 3, 2017 9:10 – 10:00 a.m.	
Triple Crown Salon A	**Research Session** Measuring Openness to Pedagogical Change Among Secondary Mathematics Teachers: A Structural Model ***Cathy Williams*** *This session features quantitative research regarding secondary math teachers' openness to changing pedagogy. The speaker will share a structural equation model--based on a survey of over 500 teachers--that illuminates teacher reluctance to adopt new practices. The findings are also relevant to science teacher attitudes toward NGSS.* Math, Inservice
Triple Crown Salon B	**75-minute Workshop** Soy Many Possibilities ***Jane Hunt*** *Have you eaten a soybean today? Have you used a product that contains soybeans? You probably have! What are the uses of soybeans and what products can students make using soybeans? This session will show how soybeans are used in paints, beauty products, polymers, lubricants, biofuel, and even bubble solution. Participants will make and test some of these products.* STEM, K12
Triple Crown Salon C	**Regular Session** Leveraging Technology into Great Tasks ***Connie Schrock – NCSM Presidential Session*** *A great task engages students with an interesting problem involving essential content. It builds deeper understanding, supports discourse and provides the opportunity to persevere. Technology alone does not solve it – nor does technology replace thinking. learning is enhanced when we leverage classroom technology to guide students to deeper understanding.* Math, K12
Blackberry Lilly	**Research Session** Project Lead The Way and Persistence in Engineering Degrees ***Juliana Utley, Toni Ivey, Mary Jo Self, and John Weaver*** *Project Lead the Way programs are attempting to address the need to produce more engineers. In this session, we share data that compares whether PLTW students persist in pursuing an engineering bachelor's degree at a higher rate than the traditionally prepared high school student.* STEM, K12
Crimson Clover	**Research Session** Developing Science Pre-service Teachers Beliefs and Understandings Through the Brick Wall Graphic Organizer ***Brian Fortney and Shirley M. Matteson*** *This session focuses on as study conducted with approximately 20 science pre-service teachers who were tasked with developing science lessons using the Brick Wall graphic organizer. The researchers examined the Brick Wall Organizers and conducted semi-structured interviews with the pre-service teachers as to their development in pedagogical and content skills.* Science, Preservice
Lilly of the Valley	**Research Session** Lesson Study and Problem Solving as Impactful Professional Learning ***Gabriel Matney and Corrinne Sullivan*** *The aim of this research presentation is to share results of a comparison study between students of teachers in a program that included Lesson Study as its imbedded professional development (PD) and students of teachers maintained their districts non-imbedded PD. Student data and statistical results will be shared.* Math, Inservice
Bluegrass Room Salon A	**Research Session** Unpacking Teachers' Attitude toward Mathematical Modeling: Implications for Teacher Education and Professional Development ***Reuben Asempapa*** *Teachers' attitude influence students' success and learning, and have been of interest for many decades in mathematics education. This presentation reviews findings from a study involving teachers of mathematics focusing on their interpretation, experience, and attitude toward math modeling. The presentation will discuss implications for teacher preparation, professional development, and next iteration of common standards.* Math, Inservice
Bluegrass Room Salon B	**Research Session** Developing Preservice Teachers' Understanding of Effective Mathematical Teaching Practices Using Vignettes ***Keith Kerschen, Ryann Shelton, and Trena Wilkerson*** *This study sought to assess the use of targeted vignettes in developing secondary mathematics preservice teacher understanding of effective mathematical teaching practices with a vignette activity sequence. Attendees will have an opportunity to engage in a mini-version of the sequence. Findings related to PST growth and development will be shared.* Math, Preservice

Friday, November 3, 2017 10:10 – 10:35 a.m.	
Triple Crown Salon A	**Research Session** Scientific Curiosity and Young Children: A Preliminary View ***Morgan Stewart*** *This session will present preliminary data analysis on a dissertation research study examining scientific curiosity in young children.* Science, K12
Triple Crown Salon B	**75-minute Workshop (continued)** Soy Many Possibilities ***Jane Hunt*** *Have you eaten a soybean today? Have you used a product that contains soybeans? You probably have! What are the uses of soybeans and what products can students make using soybeans? This session will show how soybeans are used in paints, beauty products, polymers, lubricants, biofuel, and even bubble solution. Participants will make and test some of these products.* STEM, K12
Triple Crown Salon C	**Research Session** Language and Content of the Science Speech Community in a Student's Journal: A case study ***Yohanis de la Fuente, Stacy Vasquez, Daniella Biffi, and Molly Weinburgh*** *In a case study of an 8th grade English Language Learner, we used an inductive approach to analyze the journaling of science instruction. Evidence of the gains in scientific language as well as science knowledge of the student, were compared to evaluate his ingress in the science speech community.* Science, K12
Blackberry Lilly	**Research Session** Integrated Mathematics and Science Education: A Scoping Review ***Laura Sample McMeeking, Andrea E. Weinberg, and Carlie D. Trott*** *We present a scoping review that systematically examines the literature on Integrated STEM education. We examine overarching trends in integrated mathematics and science research regarding study methods as well as the philosophical and pedagogical forms of interdisciplinarity present in these settings. Finally, we offer recommendations for enhancing STEM education research.* STEM, K12
Lilly of the Valley	**Research Session** A TIMSS Video Comparison of Problem Solving in Japan and United States Classrooms ***Monica Amyett*** *This session will compare the incidence of student problem solving behaviors observed in ten classrooms. Problem solving is defined and categorized into five distinct behavioral types. Five Japanese classrooms and five United States classrooms from the TIMSS video study are analyzed and compared for time of student engagement in problem solving.* Science, K12
Bluegrass Room Salon A	**Research Session** Pre-service Teacher Perceptions of Parental Engagement ***Traci Kelley*** *Preliminary findings are discussed from a mixed methods study intended to analyze pre-service teacher conceptions of parental engagement before and after a semester long course; transformative learning experiences most effective in preparing them to positively build relationships with the parents of students in culturally diverse schools are identified.* STEM, Preservice
Bluegrass Room Salon B	**Research Session** Boredom as an Obstacle in Developing Positive Mathematics Identities ***Thomas Roberts*** *This session discusses a third-grade African American learner's experience in the mathematics classroom. Using a case study approach, Delijah's experiences are explored to provide insight into how his home preparation has led to his limited views in what he is learning in the classroom.* Math, K12

Friday, November 3, 2017 10:45 – 11:10 a.m.	
Triple Crown Salon A	**Research Session** Making Meaning from Curriculum Materials in Algebra 2 ***Kate Raymond*** *Teachers have access to a myriad of curriculum materials: textbooks, supplementary resources, and online lesson plans. How do teacher decide what curriculum materials to adopt and how to adapt them? What factors influence these decisions? This session will a case study exploring these questions and discuss implications and future research.* Math, Inservice
Triple Crown Salon B	**75-minute Workshop** Science/Math Integration for a Sustainable Planet ***Pattie Stivender*** *Discover hands-on activities on real-world human ecology concepts (population growth, natural resource use and biodiversity) while building foundational math skills. Presented strategies include creating representational models with manipulatives, cooperative group problem-solving challenges, graphing and analysis.* STEM, K12
Blackberry Lilly	**Research Session** Exploring the Acceptance of the Theory of Evolution and Views of Nature of Science Held by Undergraduate Freshmen Enrolled at an Oklahoma Research Institution ***Brenna Heaton and Julie Angle*** *This session presents research findings that identify college freshmen students' acceptance of the Theory of Evolution and the views they hold regarding aspects of Nature of Science. Session discussion will focus on the implications these findings have for science educators at both the high school and collegiate level.* Science, Undergraduate
Crimson Clover	**Research Session** Explaining their Actions: Analyzing Writings Accompanying Drawings of Preservice Teachers' Science Classrooms ***Stephanie Hathcock*** *When using visual data such as the Draw-A-Science-Teacher-Test (DASTT), the supporting writing is typically used only as a clarification for the image. This session will detail a study involving placing the focus of the data analysis on the written explanation, with analysis based on the NGSS Science and Engineering Practices.* Science, Preservice
Lilly of the Valley	**Regular Session** Development of a Physical Science Course for Elementary Education Majors ***Mary Lamar and Jing Wang*** *This session describes the development of a Physical Science course for pre-service elementary teachers. Faculty from both the chemistry and physics departments were involved with the course creation and are currently teaching this course with emphasis on both the NGSS Performance Expectations, and the Science and Engineering Practices.* Science, Preservice
Bluegrass Room Salon A	**Research Session** Effectiveness of an Inquiry Focused Professional Development: Teachers' Beliefs and Instruction ***Jennifer Cribbs, Martha Day, and Lisa Duffin*** *This session will discuss the first year of a two-year project involving middle and high school mathematics and science classrooms focused on inquiry instruction. Initial results indicate changes in teacher beliefs as well as the extent to which teachers used inquiry-based instruction in their classrooms.* STEM, Inservice
Bluegrass Room Salon B	**50-minute Workshop** Implementing Ozobots into your Classroom and Professional Development ***Margaret Mohr-Schroeder and Craig Schroeder*** *This session will introduce the Ozobot and include lots of time for playing with and exploring the endless opportunities with the Ozobots! Bring a computer or tablet if you have one available.* STEM, K12

Friday, November 3, 2017 11:20 – 11:45 a.m.	
Triple Crown Salon A	**Research Session** Teaching Calculus through Inquiry: Beyond Memorizing Rules ***Oscar Chavez*** *In this presentation, I will share results from a freshman Calculus I course taught using an inquiry-based approach. Students wrote proofs and presented their solutions to their classmates. Results suggest that this is a feasible alternative to courses where procedural understanding is emphasized.* Math, Undergraduate
Triple Crown Salon B	**75-minute Workshop (continued)** Science/Math Integration for a Sustainable Planet ***Pattie Stivender*** *Discover hands-on activities on real-world human ecology concepts (population growth, natural resource use and biodiversity) while building foundational math skills. Presented strategies include creating representational models with manipulatives, cooperative group problem-solving challenges, graphing and analysis.* STEM, K12
Blackberry Lilly	**Regular Session** Integrating Essential Educational Tools for Science and Mathematics Methods Courses ***Sumreen Asim and Melanie Fields*** *The purpose of this session is to share 15 essential educational tools for integrating technology in science and math content methods courses. The tools will be used to complement classroom instruction to allow for collaboration, learning and interaction beyond the classroom learning environment. These tools will help with course redesign to suit 21st century skills.* STEM, Preservice
Crimson Clover	**Research Session** The Influence of Practical Work on Alternative Conceptions in the Science Classroom ***Jessica Brown*** *The purpose of this exploratory case study is to examine the influence of engagement in practical work on middle school students' alternative conceptions regarding biodiversity. The results will be classified in thematic units centered on how students' thoughts are restructured concerning alternative conceptions.* Science, K12
Lilly of the Valley	**Research Session** An Investigation of Math Teaching Methods in PBL, Subject-Integrated Classrooms ***Sara Plohetski and Stephen Scogin*** *In this study, researchers used mixed methods to investigate a middle school program that combined project-based learning with subject integration. Preliminary results indicated many challenges related to integrated teaching while meeting stringent math standards in a PBL context. However, several useful examples of successful integrated lessons were discovered.* Math, K12
Bluegrass Room Salon A	**Research Session** Undergraduate Research in Science Education: Impacts on Preservice Teachers ***Katherine Thomson, Brie Snider, and Alyssa Bourquein*** *There are multiple paths into today's education settings for the preparation of preservice teachers. This case study examines three preservice teachers conducting research in science education. Findings found undergraduate research in education to have positive of impacts on career, education and teaching philosophies for these preservice teachers.* Science, Preservice
Bluegrass Room Salon B	**50-minute Workshop (continued)** Implementing Ozobots into your Classroom and Professional Development ***Margaret Mohr-Schroeder and Craig Schroeder*** *This session will introduce the Ozobot and include lots of time for playing with and exploring the endless opportunities with the Ozobots! Bring a computer or tablet if you have one available.* STEM, K12

Friday, November 3, 2017
11:45 – 1:00 p.m.
Luncheon and General Session
Grand Kentucky Ballroom AB

How Do We Develop Drones for Weather Science? CLOUD-MAP: Collaboration Leading Operational UAS Development for Meteorology and Atmospheric Physics

Suzanne Weaver Smith, PhD
Donald and Gertrude Lester Professor of Mechanical Engineering
Director, NASA Kentucky Space Grant and EPSCoR Programs
Director, UK Unmanned Systems Research Consortium
suzanne.smith@uky.edu

CLOUD-MAP is a 4-year, multi-university collaboration to develop small unmanned aircraft systems (UAS) technologies for enhanced meteorology and atmospheric physics. The team includes atmospheric scientists, meteorologists, engineers, computer scientists, geographers, and chemists necessary to develop and evaluate advanced sensing and imaging, robust autonomous navigation, enhanced data communication, and data management capabilities for atmospheric science. Annual testing and evaluation of the systems is accomplished through a coordinated field campaign. Another important impact of CLOUD-MAP will be the multi-disciplinary collaboration of the faculty and students.

Dr. Suzanne Weaver Smith's 37 years working in aeronautics and space R&D started at Harris Corporation with launch vibration analysis and test of the Fine Guidance Electronics of the Hubble Space Telescope. There she also first encountered an early U.S. unmanned aerial systems (UAS). Dr. Smith joined the University of Kentucky (UK) faculty in 1990 and is an award-winning researcher and educator.
Dr. Smith reconnected with UAS research in 2002 on the UK Mars Airplane project, BIG BLUE, that demonstrated the feasibility of deployable wing technologies for extraterrestrial exploration. Research since then on UAS projects led to the current multi-university project, CLOUD-MAP, to develop UAS to enable key measurements for meteorology and atmospheric physics. At UK, Dr. Smith is the director of the UK Unmanned Systems Research Consortium and of NASA's statewide research and workforce development programs, NASA Kentucky, including connecting students for NASA center internships. Her husband, Bill, is a Kentucky native and University of Kentucky graduate. He is a professor in the UK Department of Electrical and Computer Engineering. They have one daughter, Virginia, who is a senior in Mechanical Engineering at UK.

Friday, November 3, 2017 1:10 – 1:35 p.m.	
Triple Crown Salon A	**Quick Fire – 15 minutes** "From School of Crisis to Distinguished": Mathematics' Role in Transforming a Rural School ***Molly Fisher and Benjamin Crawford*** *Despite conditions that would work against a small and rural school in an impoverish area of rural Kentucky, Fairway Elementary School has managed to excel in its accountability measures. This presentation will discuss the role that mathematics has played in their dramatic transformation.* Math, K12
Triple Crown Salon B	**75-minute Workshop** Providing Access to ELLs: Integrating Mathematics and Language ***Silvia Aparicio and Anne Smith*** *Problem Based Enhanced Language Learning (PBELL) provides access to rigorous content instruction and academic language to culturally and linguistically diverse learners in the math classroom. This workshop will provide ideas in problem-based instruction, content-language objectives, mathematics discourse, collaboration, and integration of reading, writing, listening, and speaking.* Math, K12
Triple Crown Salon C	**Research Session** Online Mathematics Tutoring for Rural Area Students: Preservice Teachers' Participation and Perspectives ***Hsing Wen Hu*** *This study is one part of the research project in online tutoring which focuses on pre-service teachers' participation and perspectives toward online mathematics tutoring for rural area students. The partnership between the university and school districts will be introduced and the pre-service teachers' reflections about online tutoring will be presented.* Math, Preservice
Blackberry Lilly	**Research Session** Preservice Teachers' Planning for Mathematical Discourse ***Lynn Columba*** *Participants will be able to describe how pre-service elementary education teachers apply questioning in a mathematical discourse interview of kindergartners. How novice teachers describe the implementation of mathematical discourse in their teaching, which can be difficult to manage and implement, will be discussed.* Math, Preservice
Crimson Clover	**Research Session** Writing in the Secondary Math Classroom ***Melissa Gunter*** *This qualitative case study sought to discover how, when, and why secondary mathematics teachers are using writing in their classrooms to help students learn mathematics. Results and implications for future research will be discussed.* Math, K12
Lilly of the Valley	**Regular Session** What About This Do You NOT Understand? ***Carolyn Riley and Linda Figgins*** *"What about this do you not understand?" is a question teachers often ask English language learners when they are working with story problems. Is it more than just the mathematics? Is it the textbook publishers' translation of the language? This session will delve more deeply into this dilemma.* Math, Inservice
Bluegrass Room Salon A	**Research Session** Middle School Teachers' Spatial Ability and Understanding of Chemistry ***Merryn Cole and Jennifer Wilhelm*** *This session will describe the research study and outcomes, including implications for inservice and preservice teacher education. This mixed-methods study highlights the relationship between spatial reasoning and understanding chemistry for middle school teachers, including both a significant, positive correlation between the two and supporting qualitative data.* Science, Inservice
Bluegrass Room Salon B	**Research Session** Looking Beyond Graphical Representations with Transnumeration ***Michael Daiga*** *A continuation of last year's presentation, AP-Stats released items were used to write tasks reviewed by inservice teachers and administered in an eight-task survey to preservice teachers in three different courses. Preliminary findings suggest that preservice teachers content knowledge was the main avenue utilized in thinking about transnumeration.* Math, Preservice

Friday, November 3, 2017 1:45 – 2:35 p.m.	
Triple Crown Salon A	**Regular Session** How to Use Soroban to Teach Mental Maths ***Cheng-Yao Lin*** *The soroban is an ancient handy calculator is widely used in Asian countries including Japan. This presentation will introduce how to use Japanese soroban apps to teach mental math. Expand your and your children mental calculation skills with this very useful and fun abacus.* Math, Undergraduate
Triple Crown Salon B	**75-minute Workshop (continued)** Providing Access to ELLs: Integrating Mathematics and Language ***Silvia Aparicio and Anne Smith*** *Problem Based Enhanced Language Learning (PBELL) provides access to rigorous content instruction and academic language to culturally and linguistically diverse learners in the math classroom. This workshop will provide ideas in problem-based instruction, content-language objectives, mathematics discourse, collaboration, and integration of reading, writing, listening, and speaking.* Math, K12
Triple Crown Salon C	**Research Session** Learning to Provide Effective Written Feedback in Mathematics ***Tony Thompson*** *Feedback is an important component of effective instruction; however, many teachers struggle to provide meaningful feedback for their students. This session presents activities designed to improve middle and high school mathematics pre-service teachers' ability to provide feedback. Research indicated these activities resulted in significant improvement in feedback provided by pre-service teachers.* Math, Preservice
Blackberry Lilly	**Regular Session** Where the Math Lives in Classic Science Activities for Elementary Grades ***Andrea Foster and Julie Herron*** *In this stimulating interactive session, participants become fish with specialized mouth parts and engage in a, "Fishy Feeding Frenzy!" But the fun does not stop there -- We will go DEEP into this sea of science learning and explore the rich opportunities to expertly integrate mathematics with science. Come hungry!* STEM, K12
Crimson Clover	**Regular Session** Using Web-Based Technology to Support Mathematics Content Knowledge. ***Angiline Powell*** *This session will examine web-based learning systems to support mathematics content knowledge.* Math, K12
Lilly of the Valley	**Regular Session** Overcoming Resistance: Strategies for Training Elementary Coaches Responsible for Mathematics Achievement ***Don Balka*** *Resistance to change is a major obstacle in developing and implementing effective mathematics programs, yet it is rarely considered or addressed when coaches are trained. In overcoming resistance, mathematics coaches need to concentrate on three areas: learning research, building rapport, and implementing change.* Math, Inservice
Bluegrass Room Salon A	**Research Session** Learn How to Score VNOS-D Responses Using the VNOS Scoring Index ***Julie Angle*** *VNOS questionnaires have been widely used to measure learners' understanding about nature of science (NOS). However, an obstacle to scoring any free-response instrument is maintaining consistency among reviewers. Session participants will learn how to interpret and score learners' VNOS-D responses using the newly developed VNOS Scoring Index.* Science, Undergraduate
Bluegrass Room Salon B	**Research Session** Developing Deep Rational Number Concepts in a Fraction of the Time ***Stacy Reeder, Juliana Utley, and S. Megan Che*** *Research has shown that pre-service teachers have a limited understanding of rational number concepts. Tasks that only take a few minutes and can help pre-service teachers and students alike develop deep understanding of rational number concepts will be presented. Participants will be actively engaged with the tasks throughout the session.* Math, Preservice

Friday, November 3, 2017 2:55 – 3:45 p.m.	
Triple Crown Salon A	**Regular Session** Free for All's in the STEM K-9 Classroom ***Gary Pinkston, Susan Ridout, Sumreen Asim, Melanie Hughes, and Patrick Ridout*** *Free or inexpensive high interest K-9 STEM/STEAM (Science, Technology, Engineering, Arts, Math) curricular resources, such as math manipulatives, problem solving, coding apps, virtual field trips, graphic arts creation apps, and related Web 2.0 resources that will excite and help students learn STEM/STEAM skills will be shared at a rapid pace.* STEM, K12
Triple Crown Salon B	**75-minute Workshop** The STEM Princess: Engaging Young Females in STEM ***Ashley Delaney*** *In this workshop presentation, we examine how princess-themed STEM day camp partners with female STEM professionals and student role models to increase STEM interests in early childhood girls. We will experience hands-on activities grounded in STEM concepts with a princess theme.* STEM, K12
Triple Crown Salon C	**Regular Session** Getting Out of the Doldrums: Books to Spark Interest in Mathematics ***Tonya Garrett*** *We will look at several books that can be used in a middle or high school math classroom or college methods course to spark interest in mathematical concepts. Participants will be shown how to effectively integrate math, literature, and other academic areas to create meaningful problem solving and posing sessions.* Math, K12
Blackberry Lilly	**Research Session** Preparing Teachers to Incorporate Modeling Tasks into Instruction ***Mary Enderson and Ginger Watson*** *This session presents a study where pre-service secondary mathematics teachers' experiences in modeling are investigated using Excelets, interactive Excel spreadsheets. With the push for teachers to expose students to modeling (and simulation), researchers were interested to find out how teachers are prepared to engage high school students in such practices.* Math, Preservice
Crimson Clover	**~Special Session~** SSMA Past President's Session
Lilly of the Valley	**Regular Session** Promoting Math-Talk with Purposeful Actions ***Lynn Columba*** *Explore strategies that teachers and coaches can use in professional development and classrooms for structuring and guiding young learners in discourse with children's literature as the springboard. Participants will examine strategies such as, PEER, Wh-prompts, CROWD, and a Reader's Guide to engage young children in purposeful discussions.* Math, K12
Bluegrass Room Salon A	**Research Session** *****2017 SSMA Dissertation Award Winner***** STEM Out of School Time Programs: Examining the Impacts on Middle School Females' Science Identity Construction ***Elizabeth MacTavish*** *Using participants from a well-established STEM OST program, this project focused on the aspects that influence middle school females' science identity construction and the role of the program in impacting female students' decisions about science-related careers.* Science, K12
Bluegrass Room Salon B	**Regular Session** Reviewing for School Science and Mathematics Journal ***Carla Johnson and Shelly Harkness*** *This session will provide an orientation for how to become a reviewer for the School Science and Mathematics journal. We will also share characteristics of high quality reviews.* STEM

Friday, November 3, 2017 3:55 – 4:20 p.m.	
Triple Crown Salon A	**Research Session** Preservice Teachers Conceptualization of a Learning Progression and Their PCK ***Luke Lyons*** *Preservice teachers embarked on a 6-week instructional intervention designed around a learning progression on dinosaurs. Pre and post concept maps were collected for individuals and groups. Findings support how using learning progressions and concept mapping as part of preservice teacher education can increase their pedagogical content knowledge (PCK).* Science, Preservice
Triple Crown Salon B	**75-minute Workshop (continued)** The STEM Princess: Engaging Young Females in STEM ***Ashley Delaney*** *In this workshop presentation, we examine how princess-themed STEM day camp partners with female STEM professionals and student role models to increase STEM interests in early childhood girls. We will experience hands-on activities grounded in STEM concepts with a princess theme.* STEM, K12
Triple Crown Salon C	**Quick Fire – 15 minutes** Queer Perspectives on Math and Science Education ***Elizabeth Kersey*** *This session is intended to bring together scholars interested in applying queer theoretical approaches to research in mathematics education and science education, to facilitate the exchange of ideas for future research in this area, and foster potential collaborations.* STEM, Undergraduate
Crimson Clover	**Regular Session** Oilland ***Cacey Wells*** *In an increasingly global and rapidly changing world, it is essential that students build the skills to navigate the complexities of our most pressing 21st century dilemmas. This presentation chronicles an interdisciplinary course, Oilland, and the ongoing research surrounding it.* STEM, K12
Lilly of the Valley	**Research Session** Online versus Traditional Statistics Courses: Which do Students Prefer? ***Melanie Shores*** *Teaching online is a struggle for many students but add math to the equation and it seems to become even more difficult. More specifically, teaching statistics online is a daily challenge for most students. While the majority of universities are pushing online courses, do students prefer online or tradition classes?* Math, Undergraduate
Bluegrass Room Salon A	**Research Session** Hybrid Discourse Practices as Entry into Chemistry Research Community ***Molly Weinburgh, John Cordell, Heather Thompson, and Ummuhan Malkoc*** *This session will present research which investigated the degree to which students participating in an enrichment summer, laboratory-based program appropriated the Discourse of chemistry and entered the community of chemistry. Twenty students were enrolled in a four-week program that included authentic laboratory research. Data sources include video, journals, and researcher notes.* Science, Undergraduate
Bluegrass Room Salon B	**Research Session** Making Authentic Connections with Peers and Research: Investigating a Residential STEM Program ***Stephen Scogin and Cindy Alexander*** *In this study, researchers used a mixed methods approach to determine if a residential STEM program: (1) met the basic psychological needs of students, (2) contributed to increased understanding of science and scientific research and, (3) influenced students to report more interest in persisting in STEM fields (including secondary science teaching).* STEM, Undergraduate

Friday, November 3, 2017 COMMITTEE MEETINGS 4:30 – 5:30 p.m.	
Triple Crown Salon B	Awards and Endowment
Triple Crown Salon C	Publications
Crimson Clover	Finance
Lilly of the Valley	Membership
Bluegrass Room Salon A	Nomination and Election
Bluegrass Room Salon B	Policy

Saturday, November 4, 2017
8:00 – 9:30 a.m.
Breakfast and General Session
Grand Kentucky Ballroom AB

Science & Psychiatry: A journey towards understanding the mind

Sandra Batsel-Thomas, MD
Program Director, Psychiatry Residency Program
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American Board of Psychiatry and Neurology, Child Psychiatry
Diplomate of the American Board of Integrative Medicine
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In this presentation, I will describe my journey through sciences that are in different stages of development - from the more well-defined world of molecular biology to the still emerging science of psychiatry. Additionally, I will share how I use these experiences to connect neuroscience with the mind, and how to communicate these connections with families in a meaningful way. Particular focus will be given to the effects of trauma, the genetics of pharmacology, and why adolescence is such a high-risk period of development.

My name is Sandra D. Batsel-Thomas. I earned my medical degree at the University of Kentucky, College of Medicine, in Lexington. I then completed a Psychiatry residency at the University of Cincinnati, College of Medicine. I completed a fellowship in Child and Adolescent Psychiatry at Cincinnati Children's Hospital Medical Center. I am board certified by the American Board of Psychiatry & Neurology in Psychiatry and Child and Adolescent Psychiatry. I worked at Cincinnati Children's Hospital Medical Center before coming to the University of Kentucky. I have interests in Adoption, Attachment, ADHD and Anxiety disorders. I am currently an Associate Professor in Psychiatry and the Program Director for the Psychiatry Residency Training Program at the University of Kentucky.

Saturday, November 4, 2017 9:40 – 10:30 a.m.	
Triple Crown Salon B	**Syllabus Share** Elementary Math Methods for the Masters of Arts in Teaching ***Heidi Higgins*** *Many universities are offering the Masters of Arts in Teaching programs for students who already hold a bachelor's degree but have little or no background in education. Join a discussion on how to meet their needs and explore resources that help prepare them to be effective elementary math teachers.* How Much "Education" Fits in a Two-Semester Chemistry Sequence for Pre-service Teachers? ***Jonathan Breiner*** *This session will highlight content, pedagogy, and other education components embedded within a two-semester chemistry sequence required for middle-level and special education pre-service teachers. Components embedded include: Nature of Science, Socio-Scientific Issues, Universal Design for Learning, Social Justice, and STEM.* Fundamentals of Mathematics for K-8 Teachers ***Kristina Gill and Audrey Meador*** *Fundamentals of Mathematics for K-8 Teachers is a 2-semester course introducing undergraduates to the conceptual development of K-8 mathematic curriculum. Focus is placed on career and college readiness and Texas state standards. Highlights of the course include personal financial literacy, emphasis on algebraic reasoning, and a service learning component.* Van De Walle Text Contribution to Mathematics Methods Courses ***Linda Figgins*** *Dr. Figgins will share syllabi from her science methods course and her mathematics methods course.* NGSS and Science Methods Courses ***Carolyn Riley*** *Dr. Riley will share syllabus for English language learners in the content area. She will show how she differentiated the course for several different types of majors.* The Teaching of Mathematics ***Tracy Hargrove and Heidi Higgins*** *Participants will be introduced to the syllabus for EDN 542, a graduate math methods course in our Elementary M.Ed. program. This course, designed to build on learning acquired in undergraduate mathematics methods courses, assists the in-service teacher in becoming more familiar with research concerning materials and methods for teaching mathematics.*
Blackberry Lilly	**Research Session** Supporting Female Students in Mathematics for Alternative Certification Teachers ***Brian Evans*** *The focus for this presentation emphasizes support needed for female mathematics students. Alternative certification teachers in New York City Teaching Fellows (NYCTF) program, among others, were surveyed to determine their attitude toward teaching female students in mathematics.* Math, Inservice
Crimson Clover	**Regular Session** Tools for Teaching STEM to English-Learning and English-Speaking Students: Supporting Learning with Nonlinear Teaching ***Lisa Hoffman and Alan Zollman*** *STEM content includes specific concepts and vocabulary. For English Language Learners, learning STEM content is even more difficult. We will discuss an approach to teaching STEM content, concepts and vocabulary to both ELLs and native English speaking students using a nonlinear graphic organizer that students can replicate and use independently.* STEM, K12
Bluegrass Room Salon A	**Research Session** Experiential Learning to Examine the Environmental Impacts of Energy Production ***Sarah Quebec Fuentes*** *This research describes the results of a long-term professional development focused on energy production. Inservice science teachers explored six distinct sources of energy via tours, speakers, films, and curricular materials. The teachers utilized mathematical modeling to discover the complexity of energy production and evaluate the environmental impacts of each type.* Science, Inservice

Saturday, November 4, 2017 10:40 – 11:30 a.m.	
Triple Crown Salon B	**Innovation Showcase** Using Thermal Imaging Cameras in Middle School STEM ***Rebekah Hammack*** *Overview of a middle school STEM project making use of thermal imaging cameras to study heat transfer.* STEM, K12
Blackberry Lilly	**Regular Session** STEM Literacy through Engineering and Philosophy ***Jerrid Kruse*** *Participants will engage in an engineering activity through which science, engineering, and mathematical practices are addressed. Connections to philosophy of technology will be made to encourage more robust and applicable scientific and technological literacy. We'll share additional activities and lesson plans in all content areas and at all levels.* STEM, K12
Crimson Clover	**Regular Session** Assessing Impact of Two MSP Elementary Mathematics MSP Projects: Successes, Pitfalls & Recommendations ***Gregory Chamblee and Georgia Cobbs*** *Impact of two elementary grades mathematics United States Department of Education Mathematics and Science Partnership grants (Montana's STREAM Project and Georgia Southern University's Endorsement Project) will be discussed. Participant and content/pedagogy assessment data will be compared and contrasted. Ideas for future work with in-service elementary mathematics teachers will be noted.* Math, Inservice
Bluegrass Room Salon A	**Research Session** Generating Inferences During Science: The SMARTTIS Project ***Vanessa Morrison and Andrea R. Milner*** *Citizens' outcry for higher academic achievement among students have resulted in legislative mandates calling for more frequent testing including standardized assessments in content areas. This presentation discusses the science-literacy teaching practices of one teacher as she engaged her students in studying variation and relatedness in living organisms.* Science, K12

Saturday, November 4, 2017 11:10 – 12:00 p.m.	
Triple Crown Salon B	**Innovation Showcase** Implementing Generative Learning Strategies in Excelet-based Modeling Tasks ***Ginger Watson and Mary Enderson*** *Modeling and simulation environments in science and mathematics are often open-ended, requiring instructional supports in the form of worksheets for guidance. This session presents a comparison of traditional and generative instructional materials to promote deeper processing and higher retention when investigating models using Excelets, interactive Excel spreadsheets.* STEM, K12
Blackberry Lilly	**Regular Session** History of Mathematics in the Classroom: A Focus on Cultures ***Brian Evans*** *This presentation gives brief overview of the history of mathematics through the contributions from various cultures. It provides ideas for using mathematics history to motivate students. The presentation will be interactive and have teachers solve historical problems and we will discuss how mathematics history can be used in the classroom.* Math, K12
Crimson Clover	**Research Session** Early-career, Secondary Mathematics Teachers' Descriptions of their Professional Learning and Support ***Lisa Amick and James Martinez*** *This interactive session will highlight the results of a recent, national survey of 141 early-career mathematics teachers about the professional support they receive, the professional learning activities in which they engage, other factors that affect their effectiveness and growth, and their interest and likelihood in continuing to teach.* Math, Inservice
Bluegrass Room Salon A	**Research Session** Elementary Science Teacher Preparation: Exploring Attitudes, Self-Efficacy, and Content Pedagogical Needs and Impacts ***Suzanne Nesmith*** *Integrated Science (ISCI) lab courses were developed to meet the specific science needs of elementary education majors. Content, attitude, and self-efficacy data were gathered during the optional ISCI courses and a required science methods course. An overview of the study, results, and implications will be shared.* Science, Preservice

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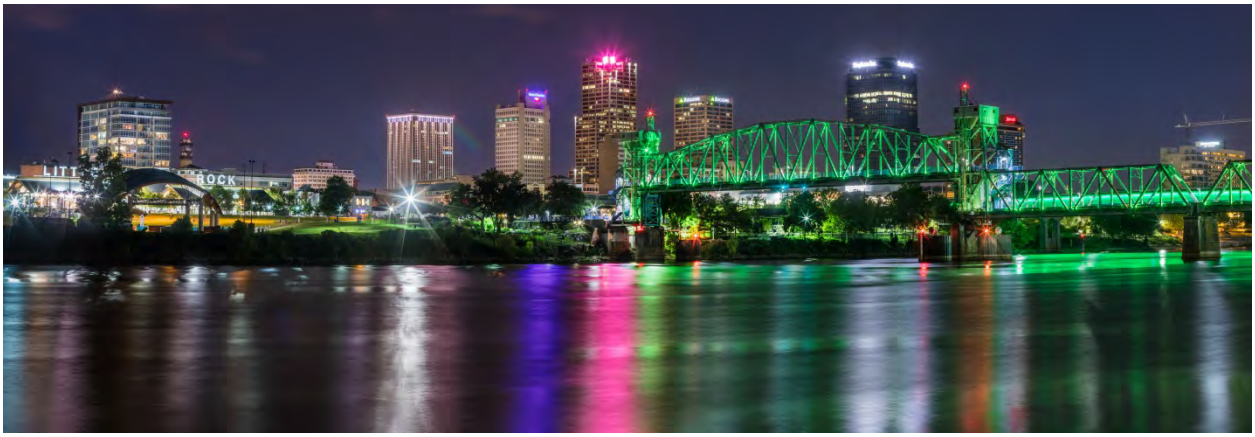

Join us for the 2018 Convention
Little Rock, Arkansas!
October 18-20, 2018

DoubleTree Little Rock
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TEL: 1-501-372-4371

Call for Proposals Available – January 8, 2018
Proposal Submission Deadline – March 16, 2018
Proposal Acceptance Decision – May 31, 2018
Conference Chair – Gil Naizer (gilbert.naizer@tamuc.edu)

Little Rock
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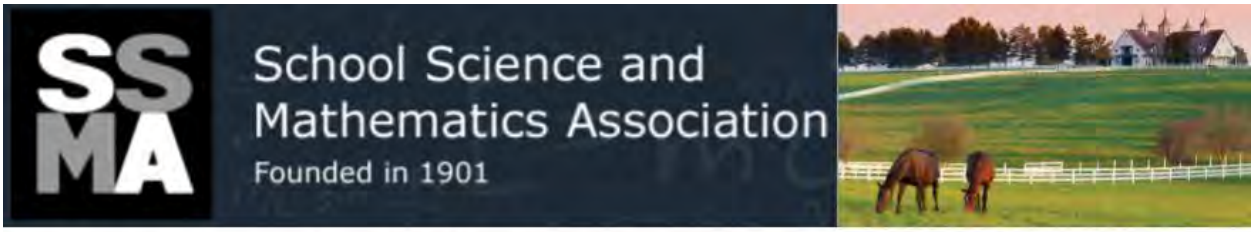

2017 SSMA Convention - Lexington, KY

November 2 - 4, 2017

Hilton Lexington/Downtown

http://ssma.org

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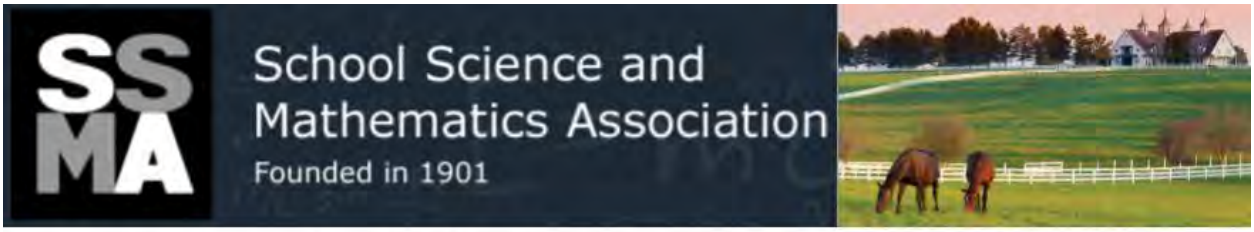

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NOTES

Top Ten Things to Do in Lexington

As you might expect in the Horse Capital of the World, we have horses! But in Lexington's Bluegrass Region, there are hundreds of exciting things to do, see and experience. Lexington is Kentucky's centerpiece, offering all the best Kentucky has to offer. Need a little guidance? Here's our Top 10 list to get you started...

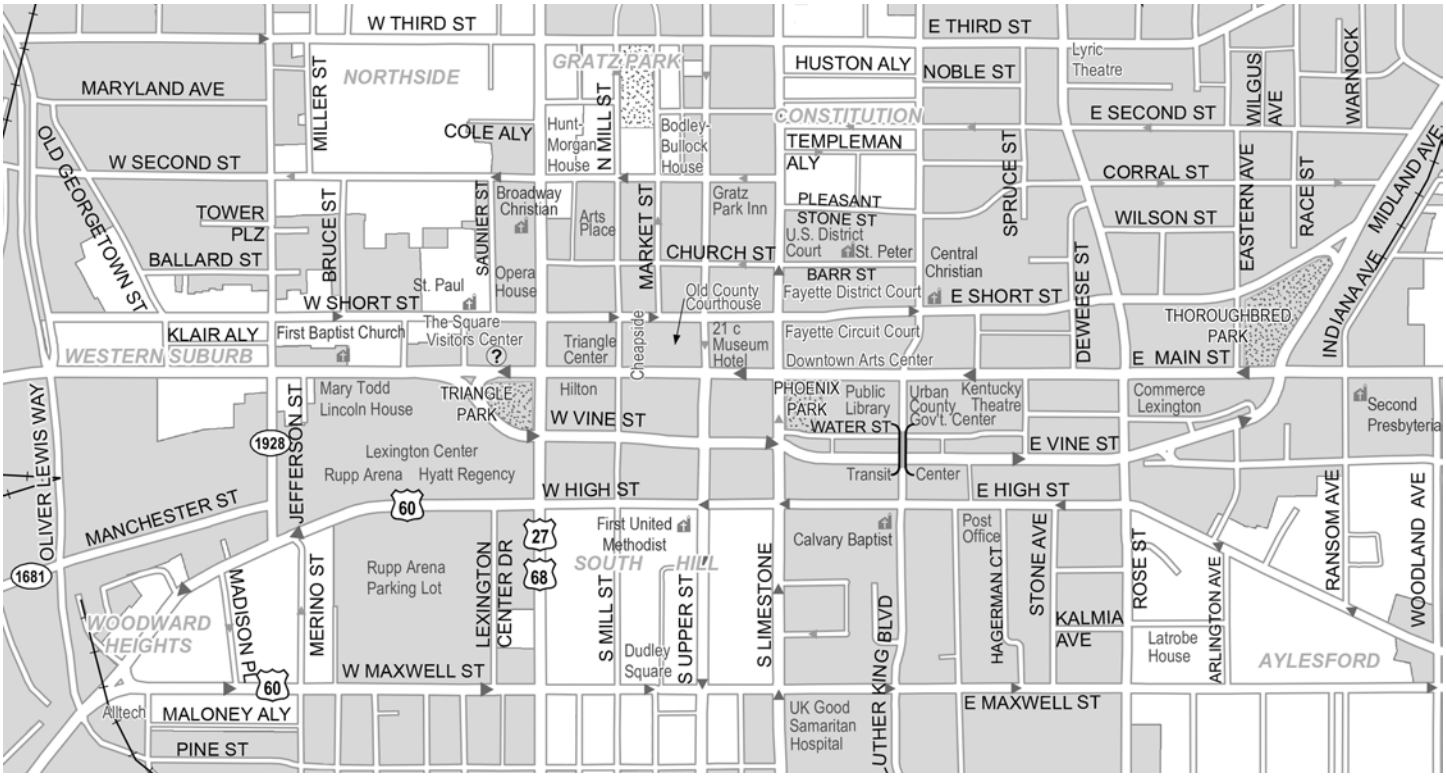
1. See nearly 50 breeds of horses, plus museums, art galleries, shows and demonstrations at the 1,200 acre **Kentucky Horse Park.**
2. Meet our four-footed celebrities in their own homes on a **Horse Farm Tour.** You won't believe the lifestyle of our most famous residents!
3. Visit four period **Historic Homes** of the area's most famous citizens: Mary Todd Lincoln, Henry Clay, John Hunt Morgan and Joseph Bryan, a grand-nephew of Daniel Boone.
4. Wander through **Shaker Village of Pleasant Hill**, the largest restored Shaker village in the world, with 34 original buildings on 3,000 acres.
5. Discover hand-crafted works from local artisans, unique boutiques, the largest mall in the state, plus the state's newest retail and dining destination: The Summit at Fritz Farm. A **Shopping** excursion in Lexington will not disappoint!
6. Try your luck at **Keeneland Race Course** during a race meet, or tour the grounds any time of year. Get up early to see horses working out on the track, then head over to the Track Kitchen for a hearty Southern breakfast.
7. Celebrate the living history of Kentucky Bourbon at four historic distilleries nearby: **The Woodford Reserve Distillery, Buffalo Trace, Four Roses,** and **Wild Turkey.** These aren't just "visitor experiences!" These are real working distilleries.
8. Explore the scenic beauty of horse farm country with our **Bluegrass Country Driving Tour**. Call 1-800-845-3959 and we'll mail you our most popular map.
9. Enjoy shops, galleries, restaurants, walking tours, parks, murals and historic sights in charming **Downtown Lexington**.
10. Indulge in delightful Dining at one of our world-class, **independently owned restaurants**. Yes, it's "the South" but our cuisine goes way beyond grits.

For More Ideas on what to do in Downtown Lexington visit:
https://www.visitlex.com/idea-guide/downtown-lexington/

VISITLEX

Copied from https://www.visitlex.com/things-to-do/top-ten/

Map of Downtown Lexington



Hilton
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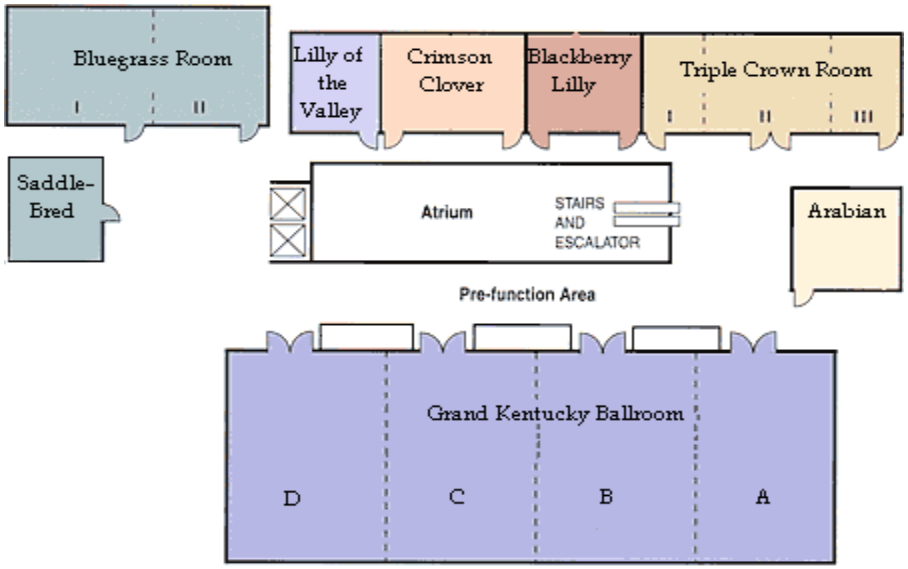
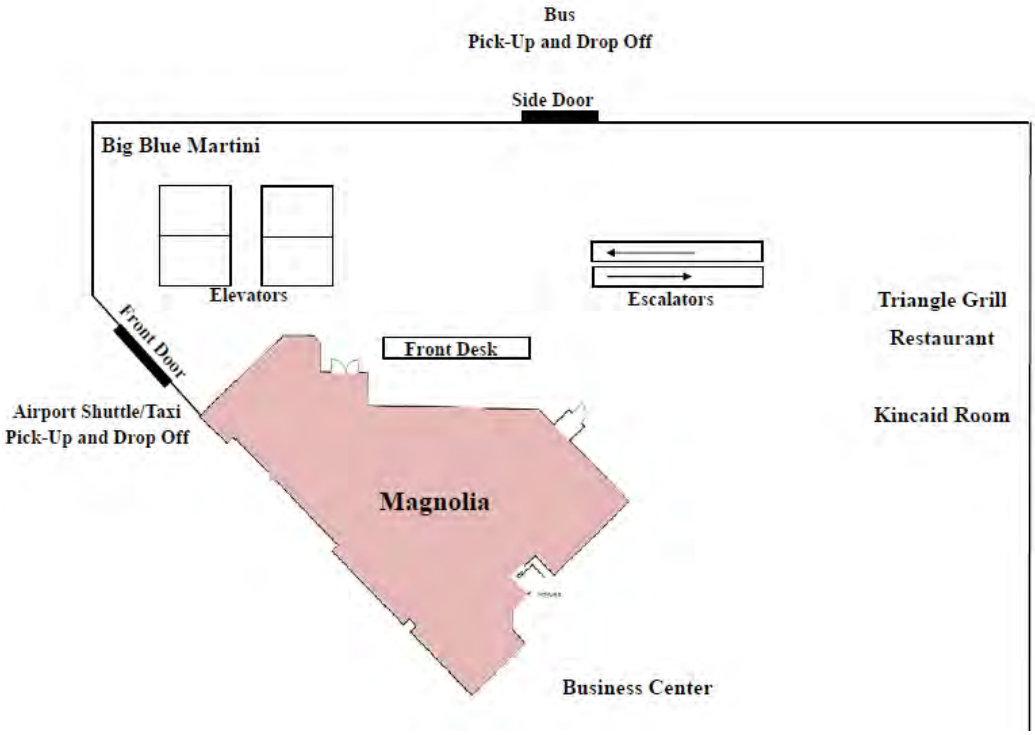
2nd Floor – Meeting Rooms



Lobby Level – Restaurants and Magnolia Meeting Room



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