18th Annual Southeastern STEM Education Research Conference
at Middle Tennessee State University
January 12-13, 2024

January 12, 2024
12:00 pm - 5:30 pm  Registration – Science Building Atrium
12:00 pm - 4:30 pm  Poster Session Setup – Science Building Atrium
1:00 pm - 2:30 pm  Early Career Panel – Science Building Room 1006
2:30 pm - 3:30 pm  Refreshments – Science Building Atrium
3:30 pm - 4:30 pm  STEM Education Oral Presentations Session 1
                    (Science Building 1003, 1006, 1190, 1191)
4:30 pm-6:00 pm  STEM Education Poster Session – Science Building Atrium
6:00 pm-8:00 pm  Banquet and Keynote Speaker – James Union Building Ballroom

January 13, 2024
7:30 am  Registration Opens – Science Building Atrium
8:00 am - 9:00 am  Breakfast – Science Building Atrium
9:00 am - 10:30 am  STEM Education Oral Presentations Session 2
                    (Science Building 1003, 1006, 1190, 1191)
10:30 am - 10:45 am  Break
10:45 am - 12:15 pm  STEM Education Oral Presentations Session 3
                    (Science Building 1003, 1006, 1190, 1191)
12:15 pm - 1:30 pm  Lunch – Science Building Atrium
1:30 pm - 3:00 pm  STEM Education Oral Presentations Session 4
                    (Science Building 1003, 1006, 1190, 1191)

Oral Presentations
A Quantitative Ethnography of Computer Scientist Identity..............................Tim Ransom
A Research-Based Dual Enrollment Statistics Class at ETSU.........................Maria Emilia Alfaro

Affordances of Self-Study Methodology for Understanding Researcher Positionality........................................................................................................................................Samantha Fletcher

Assessing Elementary Preservice Teachers’ Knowledge for Fraction Division........................................................................................................................................................................Kingsley Adamoah

Assessing the Programming Self-efficacy of Teachers through Professional Development Combining Drones and STEM Activities........................................Deborah McAllister

Beyond Gender and Race: The Representation of Concealable Identities Among College Science Instructors.................................................................Carly Busch

Developing a Holistic Prototype to Wicked Challenges: A Theoretical Exploration of Graduate Student’s Self-Efficacy within a Foundry-Guided Experience............................................................................Carey Wilson

Digital Agriculture Summer Camp and Non-formal Learning: A Comparative Analysis of the First and Second Year Camp Participant Knowledge and Postsecondary STEM Interests.................................................................Carly Altman

Enhancing STEM Learning Environments: Exploring Professional Development Opportunities in Workshops to Improve Students’ Critical Thinking Skills..........Gideon Eduah

Examining Relationships Between Secondary Teachers’ Content Knowledge and Attitudinal Traits.........................................................................................Christopher Bonnesen

Examining the Relationship between Classroom Assessment and Project Based Learning............................................................................................................Collin McDonald

IMAGES of STEM: Implications for Cohort Learning and Professional Development in Undergraduate STEM Education.........................................................Wanda Payne

Improving Undergraduate Success Through Effective Critical Thinking.........................................................................................................................Nathan Duran Ledezma

Locating Holes in the Leaky Pipeline: A Quantitative Investigation into Factors and Trends Within the STEM Attrition Crisis.........................Casandra Koevoets-Beach

Meta-Analysis of Teaching Professional Development for STEM Graduate Teaching Assistants..................................................................................................Alyssa Freeman

Pairing Sustainability with Innovation: Measuring Student Performance in a Foundry-Guided Intervention.................................................................Andrea Arce-Trigatti
Perceptions of Conflict Between Religion and Evolution are Higher Among Atheist Undergraduate Biology Students than Christian Biology Students. Katie Coscia

Retaining Underrepresented Students in Biology: Outcomes of a Culturally Responsive Intervention on Perceptions of Supports and Barriers. Elaine Martin

STEM for All: TVI Perspectives. Lisa Salvato

STEM, Literacy and Computation in Education for School Leaders (SLICE-SL). Chihche Tai

Strategic Planning Platform for Engaged Regional Research and Industry Development. Karen Boykin

Student Perceptions of Individual and Group Creativity in Proving. Amanda Heath

Systematic Literature Review Characterizing Students’ Operational Atomic Structure Knowledge. Emmanuel Echeverri-Jimenez

Technology-Based Programs for Preschoolers: How Does Technology-Based Interventions Close Gaps and Increase Kindergarten Readiness When Used in Pre-K Classrooms? Erica Jones

The Case-Based Active Science Education (CASE) Mentoring Network. Rebecca Seipelt-Thiemann

The Impact of Religious Identity on The Efficacy of Evolution Instruction with Cultural Competence. Rahmi Aini

The Influence of Cultural Perceptions in the Preference and Choice of STEM Programs. Priscilla Moffat

The Influence of Near-Peer Mentoring on Undergraduate Career Goal Development in a Community of Research Teams. Thomas Stiles

The Interplay of Housing Instability and Mathematics during Adolescence: A Retrospective Study of Black STEM Folx. Shareta Bufford

The Relationship between Autonomy, Pedagogical Discontentment, Self-Efficacy and the Teaching Practices of Graduate Teaching Assistants. Alyssa Freeman

Using Questions to Support Student Sensemaking in an Integrated STEM Investigation. Lori Klukowski

Who Wrote it Better? A Comparison of AI and Teacher Created Lessons for High School Mathematics. Emily McDonald
Poster Presentations

A Conversation with BlueBot: Promoting STEM Education via Chatbots..............Tisha Gaines

Analysis of Demographic and Experiential Interactions in Quantitative General Education USAFA Courses and their Impact on STEM Attrition...............................................................Wilson Gonzalez-Espada

Analysis of Performance on the Praxis Biology Content Knowledge Test at the Category-Level........................................................................................................Heather Green

Analyzing End-of-Chapter Questions and In-Chapter Sample Problems in General Chemistry Textbooks for Diversity of Real-World Applications and Cultural Perspectives........................................Kathryn Hosbein

Computing Education in Ghana: A Preliminary Investigation..............................Ryan Nivens

Examining Students' Epistemic Knowledge of Atomic Structure Models in Chemistry..............................................................................................................Salawat Lateef

Examining the Impact of Design-Based Research Methods on Project Implementation.................................................................Skylar Hubbarth

Exploring the Impact of a Science Communication Lesson on Undergraduate Biology Students’ Ability to Communicate about Culturally Controversial Science Topics.........................................................Casey Epting

Initial Impacts of a Community-Engaged Learning Focus on Pre-Service Teachers in an Early STEM Collaboration.................................................................Amie Perry

Interdisciplinary Assessment of Student Thinking About Variability....................Fonya Scott

Investigating Factors Influencing Science Student Retention................................Hayley Benson

Investigating Pre-Health Students’ Science Identity and the Factors that Influence them to Change Programs or Tracks..................................................Taylor Humphreys

Investigating the Utility of and Barriers to Educational Resources for Students in STEM.................................................................................................Claire Ward

Lessons Learned from the First Five Years of VolsTeach for Appalachia: Teacher Recruitment of Pre-Service STEM Community College Students.........................................................Nick Kim

Lessons Learned: TTU STEM Majors for Rural Teaching (SMaRT) Noyce Scholarship Program......................................................................................................Holly Anthony
Meaningful Mathematics with Coding - Teacher Training and Collaboration with incorporating Computer Science Principles in High School Mathematics...............................................................Emily McDonald

Measuring Goal Alignment within a Community of Research Teams.....................Thomas Stiles

Metacognition in Assessing Evolutionary Understanding: A Consideration..............Rahmi Aini

Parent’s Early Home Math Support Does Not Correlate between Survey and Interview Responses..........................................................Brooke Poston

Parental Mathematics Support Through Pattern Activities and Talk.....................Alexis Richmond

Partnership To Develop Fermentation Science as a Curricular Enhancement to Basic Undergraduate Stem Classes...........................................Terry Goodin

Preparing Area Pipeline Students: Evaluation of a STEM Summer Engineering Bridge Program..........................................................Karen Boykin

Psychometrics of a Researcher-made Worked Examples Assessment for Math Word Problem Solving......................................................Vishakha Agrawal

The Impact of Two Sequential CURES on Student Outcomes in an Introductory Biology Laboratory Course....................................................Emma Throneburg

U.S. Mathematics Major Retention and Attrition: A Survey Study.......................Amanda Heath

Use of Smartphone Sensors to Enhance Lab Activities in an Introductory Physics Course........................................................................David Meier