2024 International Conference

New Orleans, LA | January 10-13, 2024

Building an ethos of care and inclusion in science teacher education
Welcome to the 2024 ASTE International Conference!

The Southeast region and the conference planning committee welcome you to New Orleans! We hope that you forge lasting connections with your science education colleagues while visiting this historical southern city. Be sure to attend the opening reception on Thursday evening, which will feature a jazz band and great views on the hotel balcony. There also are many opportunities to explore all that New Orleans has to offer within a short distance from the conference hotel. Some of our favorites are The National World War II Museum, Audubon Aquarium and Insectarium, and The Sazerac House.

The conference theme is *Building an Ethos of Care and Inclusion in Science Teacher Education*. All students in our schools and universities deserve access to high-quality science education and safe and welcoming learning environments. Accordingly, we encourage you to consider new ways to teach and model how to demonstrate care and promote belonging in your interactions with preservice and inservice teachers as well as pursue equity-focused research and advocacy in science education.

This year's keynote is Eliot Schrefer whose book, *Queer Ducks (and Other Animals): The Natural World of Animal Sexuality*, along with countless others containing LGBTQ+ characters and content, is being banned or challenged in school libraries. Eliot's talk titled *Animal Sexuality: What is Natural and Who Defines It?* will engage us in a conversation about research on same-sex animal sexual behavior, the scientific process, and the importance of a diverse scientific community.

Thank you for attending this year's ASTE conference in New Orleans. We encourage you to attend as many sessions as possible, network with colleagues, interact with new members, and most importantly, enjoy yourself. Members of the Southeast region planning team are available at the registration table should you have questions or need assistance.

Jennifer Stark and John Pecore
2024 ASTE Conference Co-Chairs

Local Planning Team

- Stacey Britton
- Gina Childers
- Josh Ellis
- Rachel Gisewhite
- Melanie Kinskey
- Shana Lee
- Samantha Noble
- Maria Wallace
- Christi Whitworth
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<th>Day</th>
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<td>January 10th</td>
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<td>Coastal Education Research Facility</td>
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<td>Pre-Conference Workshops</td>
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<td>Opening Reception</td>
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<td>Lunch on your own</td>
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<td>12-Jan</td>
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<td>JSTE Editor Reception</td>
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**Saturday January 13th**

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<td>Breakfast on your own</td>
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<td>Oversight Committee</td>
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<td>Equity Committee 2</td>
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<td>Meet the ASTE Forum Chairs</td>
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<td>Awards Luncheon</td>
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<td>Board of Directors Meeting</td>
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Exhibitors:

- nsta
- NOAA
- NASA
- pennsylvania
- SeeMeTeach ®

Sponsors:

- UCF | School of Teacher Education
- University of Central Florida
- School of Education
- University of West Florida
- LSU
- Lutrill & Pearl Payne School of Education
University of West Florida
School of Education
uwf.edu/soe

TODAY’S CLASSROOMS NEED MORE THAN A TEACHER.
THEY NEED A KNIGHT.

Undergraduate and graduate degree programs available across the following program areas:
- Early Childhood Development and Education
- Elementary Education
- Exceptional Student Education
- Secondary Education

UCF School of Teacher Education
ccie.ucf.edu/teachered
Association for Science Teacher Education Annual Conference
Event Schedule

Wed, Jan 10, 2024

8:00 AM
Coastal Education Research Facility
⏰ 8:00 AM - 4:00 PM, Jan 10
📍 Main Lobby
Pre Registration Req...
Authors: Jennifer Stark; John Pecore
Participants will travel to the coastal wetlands to the east of the city of New Orleans to learn about the effects of coastal land loss and the importance of healthy wetlands in protecting the city from hurricane storm surges. They will take a canoe excursion to collect data and make observations to understand the ecosystem. They will also participate in an educational game that brings into focus the pressing issue of coastal land loss and the importance of maintaining a healthy wetland ecosystem to protect the community and infrastructure of New Orleans. In the afternoon we will travel to Bayou Sauvage National Urban Wildlife Refuge – the second largest urban refuge in the country, to walk on a forested trail and meet U.S. Fish and Wildlife Service refuge managers to learn more about how the community benefits from the natural resources of the refuge.

Speaker
Jennifer Stark
University of West Florida

9:30 AM
Board of Directors Meeting
⏰ 9:30 AM - 3:00 PM, Jan 10
📍 Rex
Board of Directors...
Authors: Andrea Borowczak

Speaker
Andrea Borowczak

12:00 PM
Uncovering Preservice Teachers' CKT with Formative Assessment Classroom Tasks
⏰ 12:00 PM - 3:00 PM, Jan 10
📍 Edgewood AB
College and University Science E...
Authors: Deborah Hanuscin; Josie Melton; Jamie Mikeska
In this workshop, we’ll help science teacher educators navigate the tension between addressing content and pedagogy in their courses. Participants in this session will work in teams with mentors to develop scenario-based tasks to help them elicit and respond to preservice teachers' content knowledge for teaching in an area of their choosing.
12:30 PM
Honey Island Swamp Tour

12:30 PM - 5:00 PM, Jan 10
Main Lobby

Pre Registration Req...

Authors: Jennifer Stark, John Pecore

Picture the moss hanging on gnarled cypress trees as you travel into one of the wildest and most pristine river swamps in America. With the swamp tales of pirates and sightings of Big Foot in the back of your mind, you may be just a little bit nervous at first, but after your first boat ride you’ll want to go back again and again! You’ll be overcome by the primitive beauty of the cypress trees rising from the water…the sweet smell of wild azaleas in the air….Take a personalized narrated nature tour into the 250-square-mile Honey Island Swamp.

3:30 PM
Executive Committee Meeting

3:30 PM - 5:00 PM, Jan 10
Rex

Board of Directors...

Authors: Andrea Borowczak

5:00 PM
Registration

5:00 PM - 9:00 PM, Jan 10
Bayside Foyer

Thu, Jan 11, 2024

6:30 AM
Fun Run

6:30 AM - 7:30 AM, Jan 11
Main Lobby

On the To...
Authors: Erin Peters-Burton

As you are in the thick of this academic year and start thinking ahead to ASTE? Remember there’s a great way to start off the conference. Yes, it’s the Science Teacher Shuffle! Join us for a 3 mile fun run or a 2 mile walk. We’ll again be meeting in the conference hotel lobby (Sheraton on Canal St.) on Thursday, January 11th at 6:30 AM to kick off the conference. Start the day with a little exercise in a non-threatening atmosphere, with terrific company! The race is free! So all you need do is complete the waiver and email to Erin Peters-Burton at epeters1@gmu.edu.

ASTE New Orleans 2 mile walk: [https://www.mapmyrun.com/routes/view/5451127012](https://www.mapmyrun.com/routes/view/5451127012)

ASTE New Orleans Fun Run 5K: [https://www.mapmyrun.com/routes/view/5450715592](https://www.mapmyrun.com/routes/view/5450715592)

Speaker

Erin Peters-Burton
Sterling Endowed Professor
George Mason University

7:00 AM

Breakfast

- 7:00 AM - 8:00 AM, Jan 11
- Armstrong Ballroom

8:00 AM

President's Welcome

- 8:00 AM - 8:30 AM, Jan 11
- Armstrong Ballroom

Authors: Andrea Borowczak

Speaker

Andrea Borowczak
8:30 AM

*Poster Session 1*

- **Inclusive Excellence Professional Development Program for Postsecondary STEM Faculty Developing Course-based Undergraduate Research Experiences**
  - 8:30 AM - 9:30 AM, Jan 11
  - Armstrong Ballroom
- **Evolutionary Relevance in an Introductory Biology Class: Impact of an Expectancy Value Theory Intervention**
  - 8:30 AM - 9:30 AM, Jan 11
  - Armstrong Ballroom
- **Development of a Flexible and Structured Model of Supplemental Instruction**
  - 8:30 AM - 9:30 AM, Jan 11
  - Armstrong Ballroom
- **Case Study: Faculty Application of Environmental Literacy to the Teacher Education Classroom**
  - 8:30 AM - 9:30 AM, Jan 11
  - Armstrong Ballroom
- **Teachers as Co-Creators of Rural Biomedical & STEM Curriculum**
  - 8:30 AM - 9:30 AM, Jan 11
  - Armstrong Ballroom
- **Research in Progress: A Secondary Social Analysis of the Typologies of Teachers' Episodes of Pedagogical Reasoning with Curricular Reform**
  - 8:30 AM - 9:30 AM, Jan 11
  - Armstrong Ballroom
- **Thinking integrally about environmental education: Examining science teachers' sensemaking**
  - 8:30 AM - 9:30 AM, Jan 11
  - Armstrong Ballroom
- **"Nature is Our Economy:" A Climate Challenge Case Study of Power Dynamics**
  - 8:30 AM - 9:30 AM, Jan 11
  - Armstrong Ballroom
- **Evangelical Students' Perspectives on Socio-scientific Issues**
  - 8:30 AM - 9:30 AM, Jan 11
  - Armstrong Ballroom
- **Toward a Framework for Critical Environmental Justice for Teaching and Learning**
  - 8:30 AM - 9:30 AM, Jan 11
  - Armstrong Ballroom
Layers of Louisiana Natural History: Teacher Professional Development for Environmental Collections Detail Coastal Change
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

STEM in Elementary: Exploring Effective Practices
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

Is this a Science Lesson, or is it Engineering? Helping Pre-Service Teachers Differentiate
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

Benefits of Partnerships between Teacher Preparation STEM Methods Courses and External STEM Organizations
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

Conceptualizations of STEM integration across the STEM domains
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

Chinese Pioneering Educators' Understanding and Practice of STEM Education
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

Using Concept Maps to Analyze Educators' Conceptions of STEM Education
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

Integrated teacher professional development's impacts on elementary teacher perceptions of teaching computing and science.
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

Examining NGSS and CCSS Adaptation in US Primary Schools: A Study of the Science and Children Magazine's Lessons with a Focus on Disciplinary Literacy
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

Increasing STEM Teacher Motivation Through Professional Development
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

Using Makerspaces in Preservice Elementary Teacher Preparation to Improve Self-efficacy for Technology Integration
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

Cambodian Late-Career Secondary Teachers' Perceptions of Technology Use in Instruction
8:30 AM - 9:30 AM, Jan 11
Armstrong Ballroom

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9:45 AM

Poster Session 2
9:45 AM - 10:45 AM, Jan 11
Armstrong Ballroom

Equity and Diversity  Preservice Science Teacher Preparation - Elementary
Science Teacher Professional Development - Middle and Secondary
Preservice Science Teacher Preparation - Middle and Secondary  Policy, Advocacy, and Reform
Informal and Out of School Science Education  Ethnoscience and Environmental Education
Curriculum, Pedagogy, and Assessment

Individual Poster Presentation: Each presenter will prepare and display a visual representation of research (completed or in-progress), issue, or practice related to science teacher preparation. Appropriate displays include posters or other creative formats. Presenters will participate in one-on-one conversations about their displays during the formal poster session.

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20 Subsessions

Middle-grade STEM opportunities and teacher instructional practices in Oklahoma's rural schools
9:45 AM - 10:45 AM, Jan 11
Armstrong Ballroom

● Supporting New STEM Teachers in High Need Schools
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Improving Perceptions and Beliefs About Aging Through An Interdisciplinary Toolkit
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Revisioning the Draw A Science Teacher Test Checklist and Continuum to Better Capture Equitable, Ambitious Science Teaching
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Differentiated Instruction in primary science education: Preservice teachers' professional development
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Using "Science Friday" to Promote Pre-Service Elementary Teachers' Science Teaching Self-Efficacy
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Examining equitable science sensemaking in preservice teacher education via self-study research
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Supporting Elementary Preservice Teachers' Instructional Use of Drawing-to-Reason as a Science Practice
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Using Curriculum Writing as a Professional Learning Approach to Develop Teacher Agency for STEM Educators: Continued Development
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Effect of a Long-Term Professional Development on Science Teacher Attitudes, Practice, and Connections
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Self-Care in Newly Hired Science Teachers: Needs and Practices
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Investigating Teachers' Pedagogical Content Knowledge (PCK) of Argumentation
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Quantitative Reasoning in Context: Engaging Teachers, Education Researchers, And Scientists In Authentic Investigations With Forestry Data
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Curriculum Integration and Kieran Egan's Theory of Imagination in Science Education: The Story of the York Boat
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Using University Science Courses for Preservice Teacher Internship Experience
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● The Integration of Equity Portfolios in a Science Teacher Preparation Program to Deepen Science Candidate Learning and Teaching
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Parents' Perspectives on Climate Change Education
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● Developing Student Identities in STEM: Details of a 2-Week Summer STEM Intensive for Secondary Students
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom

● School Garden Economy Program
  ○ 9:45 AM - 10:45 AM, Jan 11
  Armstrong Ballroom
Embedding Black Cultural Heritage In Science Methods Courses

Concurrent Session 1

Special Session

Moderators

How is our ASTE Community Working to Address Equity?

Workshop

Preserve Science Teacher Preparation - ...

Moderators

Engaging in Wonder through Nature Journaling

Justice Oriented Science Education

Equity and Dive...
Moderators

Mutiara Syifa

3 Subsessions

- Exploring a Recursive Approach to Justice-Oriented Science Education
  - 11:00 AM - 12:00 PM, Jan 11
  - Bayside A

- STEM Teacher Leadership in the Context of Teaching Science for Social Justice
  - 11:00 AM - 12:00 PM, Jan 11
  - Bayside A

- Preservice Teachers' Lesson Planning for Justice-Oriented Elementary Science
  - 11:00 AM - 12:00 PM, Jan 11
  - Bayside A

Forum Meeting

- 11:00 AM - 12:00 PM, Jan 11
- Southdown

Science Teacher Residencies

Forums are committees dedicated to supporting ASTE member interests and commitments. Forums serve the interests of the membership by influencing the policy, procedures, and activities of the Association with the assistance of the Board of Directors. Forums are responsible for the recruitment and maintenance of their own membership; for communication among members; and for selecting their own projects, goals, and activities. Each Forum chair will be expected to provide a written report to the Board of Directors (Winter and Summer). Established Forums may access all ASTE support structures by following the policies and procedures that exist for the Association. For instance, Forums may suggest keynote speakers or conference strands by working through the Conference Program Committee, may recommend publications by working with the Publications Committee, or may work to enhance membership by working with the Membership and Participation Committee.

Moderators

Julie Contino

American Museum of Natural History

1 Subsessions

- Science Teacher Residencies Forum Meeting
  - 11:00 AM - 12:00 PM, Jan 11
  - Southdown

Teaching Efficacy

- 11:00 AM - 12:00 PM, Jan 11
- Bayside B

Preservice Science Teacher Preparation

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)
Moderators

Tamara Peffer

3 Subsessions

● Elementary Teachers' Science Teaching Self-Efficacy: A Synthesis of the Literature
  ○ 11:00 AM - 12:00 PM, Jan 11
  ● Investigating the Relationships between Teacher Self-Efficacy and RTOP Teaching Scores for Secondary Science Student Teachers
  ○ 11:00 AM - 12:00 PM, Jan 11
  ● Effects of Physical Science Content Course on Preservice Elementary Teachers' Self-Efficacy Beliefs for Teaching Science Delivered in Three Different Modalities
  ○ 11:00 AM - 12:00 PM, Jan 11

Field Experience

Field Experience
○ 11:00 AM - 12:00 PM, Jan 11
  ● Preservice Science Teacher Preparation - Middle a.

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Junah Firestone
Asst. Professor Science Education
Washington State University

3 Subsessions

● Designing a core practices based observation tool to improve the early field experience in secondary science classrooms
  ○ 11:00 AM - 12:00 PM, Jan 11
  ● Self-Study for Increased Efficacy of Social Justice in Secondary Science Supervision
  ○ 11:00 AM - 12:00 PM, Jan 11
  ● OPEN
  ○ 11:00 AM - 12:00 PM, Jan 11

International Perspectives in Science Teacher PD

International Perspectives in Science Teacher PD
○ 11:00 AM - 12:00 PM, Jan 11
  ● Proteus
  ● Science Teacher Professional Development - Middle and Secondary
  ● Equity and Diversity

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)
### Moderators

**Drew Gossen**  
University of South Alabama

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3 Subsessions

- **Saudi Economic Vision 2030 on Science Instruction: An Investigation of Saudi Arabian In-Service Science Teachers' Beliefs about Flipped Classroom Strategy**  
  11:00 AM - 12:00 PM, Jan 11  
  ‌Proteus

- **Case Study on the Alignment Problems of Indonesian Preservice Science Teacher Identity toward STEM Teacher Identity**  
  11:00 AM - 12:00 PM, Jan 11  
  ‌Proteus

- **Creation of Hybrid Spaces in Thai Science Education**  
  11:00 AM - 12:00 PM, Jan 11  
  ‌Proteus

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**NSTA Workshop**  
11:00 AM - 12:00 PM, Jan 11  
‌Endymion

Professional Development for Science Teacher Educators (Workshops): Opportunities are embedded within the conference schedule (same time as concurrent sessions) for one-hour engagement in sessions designed to provide professional development for science teacher educators on a variety of topics related to teaching, research, and career growth/development.

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**Moderators**

**Flavio Mendez**

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1 Subsession

- **Together, We Are NSTA: How You and Your Students Can Engage with the National Science Teaching Association**  
  11:00 AM - 12:00 PM, Jan 11  
  ‌Endymion

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**General Topics in College and University Science**  
11:00 AM - 12:00 PM, Jan 11  
‌Zulu

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

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**Moderators**

**Robbie Higdon**  
Associate Professor of Middle, Secondary, and Mathematics Education  
James Madison University
2 Subsessions

- Understanding Case of Sugars: A study about knowledge and perception about carbohydrates in non-science major nutrition students.
  - 11:00 AM - 12:00 PM, Jan 11
  - Zulu

- Students' Perspectives of Care-Focused, Peer-Led Team Learning in Introductory STEM Courses
  - 11:00 AM - 12:00 PM, Jan 11
  - Zulu

Developing and Using Models

- 11:00 AM - 12:00 PM, Jan 11
- MidCity

Moderators

- Qiu Zhong
  - Indiana University

3 Subsessions

- Modeling as a Formative Assessment Tool in the Science Classroom
  - 11:00 AM - 12:00 PM, Jan 11
  - MidCity

- More than Meets the Map: Using PCK Maps to Discern Nuanced Barriers to Adopting Model-Based Science Teaching
  - 11:00 AM - 12:00 PM, Jan 11
  - MidCity

- Understanding how 3rd grade students self-evaluate their water cycle models
  - 11:00 AM - 12:00 PM, Jan 11
  - MidCity

Science Teacher PD Elementary

- 11:00 AM - 12:00 PM, Jan 11
- Gallier AB

Moderators

- James Nyachwaya
3 Subsessions

- **How Do You Feel About Teaching Science? Investigating Science Teaching Emotions of Elementary Teachers in North Dakota and Texas**
  - 11:00 AM - 12:00 PM, Jan 11
  - Gallier AB

- **Culturally Responsive Energy Engineering Education: Campus-based Research Experience for Reservation and Rural Elementary Educators**
  - 11:00 AM - 12:00 PM, Jan 11
  - Gallier AB

- **How Elementary Science Teachers of Varied Epistemic Cognition Prioritize Intellectual Virtues During Instruction**
  - 11:00 AM - 12:00 PM, Jan 11
  - Gallier AB

Explorations

- 11:00 AM - 12:00 PM, Jan 11
- Nottoway

  **Ethnoscience and Environmental ...**

Exploratory Session: This session type is intended to elicit the creativity of our membership to share innovative ideas in innovative ways.

1 Subsessions

- **Mycorrhizal pedagogy: developing networks to rethink teacher education with humility, discomfort, and wonder**
  - 11:00 AM - 12:00 PM, Jan 11
  - Nottoway

12:00 PM

**Lunch on your own**

- 12:00 PM - 1:00 PM, Jan 11

  **On the To...**

**ASTE Graduate Student Forum (GSF) Business Luncheon**

- 12:00 PM - 1:00 PM, Jan 11
- Oak Alley

  **Graduate Student F ...**

Authors: Sabrina Avila; Jenna Gist; Meredith Schwendemann

Join the ASTE GSF for lunch! ASTE GSF officers will be providing an overview of the conference, promoting participation in ASTE forums, and discussing the following GSF conference events: (a) Work-in-progress roundtable; (b) 3-Minute-Thesis; (c) Officer elections; and (d) Graduate student social. We look forward to hosting you in New Orleans!

**Speaker**

**Sabrina Avila**
Senior Manager, STEM Research Academy
CUNY (City University of New York)
**Equity Committee 1**

1:00 PM - 2:00 PM, Jan 11  
Proteus

Authors: Erin Peters-Burton

The Equity Committee works to ensure that the Association, in all forms and representations, addresses equity issues, including representation, access, and compliance with ASTE SOPs and By-Laws. It is led by a chair who is a member of the Board of the Directors and has nine voting members. Three members of the committee are appointed by the President-Elect to the committee each year for a three-year term period. One graduate student member shall be appointed by the President-Elect every other year to serve a two-year term. The chair of the Inclusive Science Education Forum serves as an ad hoc, non-voting member. Individual voting members of the equity committee serve as ex officio, non-voting members of each of the organization’s operating committees.

**Speaker**

Erin Peters-Burton  
Sterling Endowed Professor  
George Mason University

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**Explore NOLA**

1:00 PM - 2:00 PM, Jan 11  
On the To...

It’s time to explore New Orleans! Get out of the hotel and choose your own adventure:

1 min walk: The Sazerac House – visit website to schedule a free self-guided tour  
5 min walk: Bourbon Street – closed-toed shoes recommended  
8 min walk: New Orleans Jazz National Historical Park  
10 min walk: Audubon Aquarium and Insectarium  
10 min walk: Jackson Square  
15 min walk: The National World War II Museum

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**Work in Progress Showcase 1**

2:00 PM - 3:00 PM, Jan 11  
Armstrong Ballroom

Individual Poster Presentation: Each presenter will prepare and display a visual representation of research (completed or in-progress), issue, or practice related to science teacher preparation. Appropriate displays include posters or other creative formats. Presenters will participate in one-on-one conversations about their displays during the formal poster session.
<table>
<thead>
<tr>
<th>16 Subsessions</th>
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<tbody>
<tr>
<td>• The Impact of Various Types of Reading Materials on Environmental Conceptions of Undergraduate Students: Prose and/or Poetry</td>
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<tr>
<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<tr>
<td>• A Scoping Review of the What is Happening in this Classroom? (WHIC) Questionnaire</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<tr>
<td>• Portrait of JR as a University Science Tutor</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<tr>
<td>• Exploring the Instructional Decisions of Elementary and Middle Grades Teachers Using a High Quality Science Curriculum</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<tr>
<td>• Forging Futures: Applying a Project-Based STEM Forensic Science Unit to Promote Student Science Identity Development and Career Exploration</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<td>• Supporting Place-based Curricula Adaptation in Rural Communities (SPARC): A Climate Change Initiative in Louisiana</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<td>• Beyond Mendel: Exploring phenomena to support secondary science teachers to teach complex genetics</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<td>• Leveraging 3D Printing to Engage Preservice Teachers in Engineering Design to Teach Science</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<td>• An examination of MT secondary science students’ dispositions toward culturally responsive education</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<td>• Biology Teachers Establishing Rightful Presence in STEM for Students in Rural Southern Secondary Biology Classrooms</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<td>• Fostering Equity-Mindedness in K-2 Pre-Service Science Teachers</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<tr>
<td>• Exploring the Intersection of Equity and Teaching in a Secondary Science Teaching Methods Course</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<tr>
<td>• Nature-Based Elementary Science Teacher Preparation</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<tr>
<td>• Blending MWEE &amp; GIS: Development, Pilot, and Iterative Modification of a Professional Development Sequence</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<td>• Green Lighting Environmental Literacy into a All-Track Secondary Residency Program</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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<tr>
<td>• Development of Teaching and Learning Program for Scientific Symmetry</td>
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<td>- 2:00 PM - 2:30 PM, Jan 11</td>
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<td>- Armstrong Ballroom</td>
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**2:45 PM**

**Work in Progress Showcase 2**

- 2:45 PM - 3:15 PM, Jan 11
- Armstrong Ballroom
20 Subsessions

- **Hispanic Heritage Month: An Opportunity for Informal STEM (and Humanities) Education and Ethnoscience**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Leveraging Community Engagement to Promote Cultural Shifts in Postsecondary Science Education within an Informal Science Partnership**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Centering Students’ Racially Diverse Voices, Knowledge, and Experiences to Advance Equitable Relevant Science Teaching**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Prospective Elementary Teachers’ Application of Science Content Ideas to Explain Novel Phenomena**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Exploring elementary activities on TeachersPayTeachers.com: Implications for preservice science teacher education**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Improving Preservice Teachers’ Science Teaching Anxiety (STA) through deliberate engagement in hands-on and content-rich learning experiences**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **A Longitudinal Mixed Methods Study Examining Elementary Pre-Service Teachers’ Science Teaching Efficacy Beliefs and Science Teaching Anxiety**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Promoting Climate Literacy through Climate Fiction (Cli-fi) in the Teacher Education Classroom**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Teaching PSTs to Analyze Classroom Discourse - Is AI Helpful?**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Getting Earth & Space Science into Elementary Classrooms through Literacy**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Offering Rural Elementary Teachers Modest Supports to Sustain Professional Development Outcomes in Science and Engineering**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Teacher Leadership for School Change through K-8 STEM Professional Development**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Exploration of Planning for 3Dimensional Discourse through Lesson Study**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Hot Topics in Earth Science: Supporting Climate Science Education**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Science Teacher Perspectives on Professional Development**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Constraints & Affordances of theoretical frameworks for supporting student science identities**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom

- **Gig City CS4All: An RPP supporting classroom computational thinking**
  - 2:45 PM - 3:15 PM, Jan 11
  - Armstrong Ballroom


**Preservice Teacher's Perceptions of STEM Before and After an Integrated Science Course**
- **Time:** 2:45 PM - 3:15 PM, Jan 11
- **Location:** Armstrong Ballroom

**Impact of Varied Learning Modalities During COVID-19 on STEM Teachers’ Effectiveness and Retention**
- **Time:** 2:45 PM - 3:15 PM, Jan 11
- **Location:** Armstrong Ballroom

**Teacher Self-Efficacy and Elementary Science Instruction**
- **Time:** 2:45 PM - 3:15 PM, Jan 11
- **Location:** Armstrong Ballroom

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**3:00 PM**

**Mentor/Mentee Nexus**
- **Time:** 3:00 PM - 4:00 PM, Jan 11
- **Location:** Orpheus

Authors: Xavier Fazio; Molly Staggs

New or veteran ASTE member? Come connect with folks! Pre-Bayside Foyer required. Pre-Bayside Foyer link coming in the fall.

**Speaker**

Xavier Fazio
Brock University

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**3:15 PM**

**Meet the Board**
- **Time:** 3:15 PM - 3:45 PM, Jan 11
- **Location:** Armstrong Ballroom

Authors: Andrea Borowczak; William McComas; Rommel Miranda; Xavier Fazio; Vanashri Nargund-Joshi; Mark Bloom; Lisa Borgedig; Erin Peters-Burton; Rita Hagevik; Molly Staggs; Corinne Lardy; Amanda Gunning; Stephen Burgin; Lisa Brown

**Speaker**

Andrea Borowczak

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**Coffee Break**
- **Time:** 3:15 PM - 3:45 PM, Jan 11
- **Location:** Armstrong Ballroom

Refreshments available

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**4:00 PM**

**Concurrent Session 2**
- **Time:** 4:00 PM - 5:00 PM, Jan 11

**Workshop**
- **Time:** 4:00 PM - 5:00 PM, Jan 11
- **Location:** Oak Alley

**Equity and Diver...**
Professional Development for Science Teacher Educators (Workshops): Opportunities are embedded within the conference schedule (same time as concurrent sessions) for one-hour engagement in sessions designed to provide professional development for science teacher educators on a variety of topics related to teaching, research, and career growth/development.

Moderators

Vishodana Thamotharan
Director of STEM Initiatives/Asst Professor
National Louis University

1 Subsessions

● Supporting Teacher Candidates in Leveraging Justice-Centered Visuals to Engage Multilingual Learners in STEM
  ⏰ 4:00 PM - 5:00 PM, Jan 11
  📍 Oak Alley

Teacher Identity
  ⏰ 4:00 PM - 5:00 PM, Jan 11
  📍 Bayside A

Equity and Infinite...

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Benny Hiwatig
University of Minnesota

3 Subsessions

● Sometimes I still don't see myself as a computer scientist: Negotiating a computer science identity as a Latina undergraduate and youth mentor
  ⏰ 4:00 PM - 5:00 PM, Jan 11
  📍 Bayside A

● To STEM or Not to STEM, That is the Question: Building a Clearer Understanding of STEM Definitions Through the Voices of Female Faculty and Students
  ⏰ 4:00 PM - 5:00 PM, Jan 11
  📍 Bayside A

● Voices at the Table: Racial Literacy for Women of Color in Science Teacher Educator Preparation
  ⏰ 4:00 PM - 5:00 PM, Jan 11
  📍 Bayside A

Forum Meeting
  ⏰ 4:00 PM - 5:00 PM, Jan 11
  📍 Southdown
Forums are committees dedicated to supporting ASTE member interests and commitments. Forums serve the interests of the membership by influencing the policy, procedures, and activities of the Association with the assistance of the Board of Directors. Forums are responsible for the recruitment and maintenance of their own membership; for communication among members; and for selecting their own projects, goals, and activities. Each Forum chair will be expected to provide a written report to the Board of Directors (Winter and Summer). Established Forums may access all ASTE support structures by following the policies and procedures that exist for the Association. For instance, Forums may suggest keynote speakers or conference strands by working through the Conference Program Committee, may recommend publications by working with the Publications Committee, or may work to enhance membership by working with the Membership and Participation and Committee.

Moderators

Melanie Reap

1 Subsessions

- **Elementary Science Methods Forum**
  - 4:00 PM - 5:00 PM, Jan 11
  - Bayside

**Identity and Confidence**

- 4:00 PM - 5:00 PM, Jan 11
- Bayside B

  - Preservice Science Teacher Preparation...

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Teresa Leavens

Research Assistant
NC State University, Friday Institute

3 Subsessions

- **Examining shifts in elementary preservice science teachers' reform-minded identity trajectories**
  - 4:00 PM - 5:00 PM, Jan 11
  - Bayside B

- **A Phenomenological Exploration on the Development of Preservice Elementary Teachers' Science Teacher Identity through the Lens of their Positionality**
  - 4:00 PM - 5:00 PM, Jan 11
  - Bayside B

- **Exploring the Influence of Online and In-person Learning Communities on Elementary Pre-Service Teachers' Confidence and Understanding of science teaching**
  - 4:00 PM - 5:00 PM, Jan 11
  - Bayside B

**Virtual Simulation**

- 4:00 PM - 5:00 PM, Jan 11
- Bayside C

  - Preservice Science Teacher Preparation - Middle a..
Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Vicente Handa
Associate Professor
Appalachian State University

3 Subsessions

- Developing secondary preservice teachers' questioning and discussion skills through mixed-reality simulations
  - 4:00 PM - 5:00 PM, Jan 11
  - Bayside C
- Pre-Service Teachers' Responsive Teaching in Leading Discussions with Virtual "Avatars," in a Science Teaching Methods Course
  - 4:00 PM - 5:00 PM, Jan 11
  - Bayside C
- Learning study and socially responsible science education (SRSE): Leveraging teaching professional development for more sustainable futures
  - 4:00 PM - 5:00 PM, Jan 11
  - Bayside C

Communities of Practice

- 4:00 PM - 5:00 PM, Jan 11
- Proteus

Science Teacher Professional Development - Middle...

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Rebekah Hammack
Assistant Professor Science Education
Purdue University

3 Subsessions

- Comparing District Science Coordinator Communities of Practice
  - 4:00 PM - 5:00 PM, Jan 11
  - Proteus
- Community building in Geoscience Education while Using Local Geologic Phenomena to Foster STEM Career Pathways
  - 4:00 PM - 5:00 PM, Jan 11
  - Proteus
- How a community of practice generated value for science teacher leaders as boundary spanners
  - 4:00 PM - 5:00 PM, Jan 11
  - Proteus

Incorporating Lived Experiences of youth in STEM

- 4:00 PM - 5:00 PM, Jan 11
- Endymion

Informal and Out of School Science...
Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Heather Shaffery
Lead Science Curriculum Specialist
K20 Center

3 Subsessions

- Navigating young Black Girls Towards Including their Lived Experiences into Science at an Out-of-School Time Space
  - 4:00 PM - 5:00 PM, Jan 11
  - Endymion

- "We do exist in these spaces": Humanizing science education through community and care.
  - 4:00 PM - 5:00 PM, Jan 11
  - Endymion

- "All In": Exploring How Families Support Children's Interest, Engagement, and Aspirations in Science
  - 4:00 PM - 5:00 PM, Jan 11
  - Endymion

Place and Sustainability with Educational Technology

- 4:00 PM - 5:00 PM, Jan 11
- Zulu

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Alexis Rutt
Assistant Professor of Science and TESOL Education
University of Mary Washington

3 Subsessions

- Comparing Two Iterations of a Place-Based Socioscientific Issues Course Embedded with Different Augmented Reality Applications
  - 4:00 PM - 5:00 PM, Jan 11
  - Zulu

- Using ArcGIS Online to Investigate the UN's Sustainable Development Goals (SDGs) in an Environmental Science Classroom?
  - 4:00 PM - 5:00 PM, Jan 11
  - Zulu

- OPEN
  - 4:00 PM - 5:00 PM, Jan 11
  - Zulu

Pedagogy and Curriculum Planning

- 4:00 PM - 5:00 PM, Jan 11
- MidCity

Curriculum, Pedagogy, and A...
Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Esther Kataate Namuka
AI
Indiana University

3 Subsessions

- **Modeling Practice Tools for Science Teacher Educators**
  - 4:00 PM - 5:00 PM, Jan 11
  - MidCity

- **Investigating the Impact of Standards-based Grading Based on the Experiences and Perceptions of Undergraduate Students in General Biology.**
  - 4:00 PM - 5:00 PM, Jan 11
  - MidCity

- **Validating the survey to collect teachers' experience in becoming a science teacher**
  - 4:00 PM - 5:00 PM, Jan 11
  - MidCity

Reform in standards and publications

- 4:00 PM - 5:00 PM, Jan 11
- Gallier AB

Policy, Advocacy, and R...
5:00 PM

Regional Meetings

- **Free STEM Education Tools from Federal Agencies: Opportunities and Resources for Teachers and Teacher Leaders**
  - 4:00 PM - 5:00 PM, Jan 11
  - Nottoway

- **North-East Regional Meeting**
  - 5:00 PM - 6:00 PM, Jan 11
  - Oak Alley

- **South-East Regional Meeting**
  - 5:00 PM - 6:00 PM, Jan 11
  - Nottoway

- **Mid-Atlantic Regional Meeting**
  - 5:00 PM - 6:00 PM, Jan 11
  - Bayside B

- **North Central**
  - 5:00 PM - 6:00 PM, Jan 11
  - Bayside A

- **North-West Regional Meeting**
  - 5:00 PM - 6:00 PM, Jan 11
  - Procrustes

- **South-West Regional Meeting**
  - 5:00 PM - 6:00 PM, Jan 11
  - Bayside C

- **Far West Regional Meeting**
  - 5:00 PM - 6:00 PM, Jan 11
  - Endymion

- **International Regional Meeting**
  - 5:00 PM - 6:00 PM, Jan 11
  - Zulu

6:00 PM

Opening Reception

- 6:00 PM - 8:00 PM, Jan 11
- Waterbury Ballroom

Fri, Jan 12, 2024

7:00 AM

Breakfast on your own

- 7:00 AM - 8:00 AM, Jan 12
- On the To...
In this meeting, we will discuss ways to further strengthen ASTE forums, such as increasing membership awareness and engagement, affordances of the ASTE website, onboarding of new Forum Chairs/Co-Chairs, and other topics of interest to current Forum Chairs/Co-Chairs.

Speaker

Teresa Shume
Assistant Professor
North Dakota State University

Collaboration Space
8:00 AM - 5:30 PM, Jan 12
Edgewood AB

Registration
8:00 AM - 5:00 PM, Jan 12
Bayside Foyer

Lactation Room
8:00 AM - 8:00 PM, Jan 12
Rex

Concurrent Session 3
8:30 AM - 9:30 AM, Jan 12

Workshop
8:30 AM - 9:30 AM, Jan 12
Oak Alley

Professional Development for Science Teacher Educators (Workshops): Opportunities are embedded within the conference schedule (same time as concurrent sessions) for one-hour engagement in sessions designed to provide professional development for science teacher educators on a variety of topics related to teaching, research, and career growth/development.

Moderators

Mary Curtis

GIS ACES: GIS Active Classroom Exploration for Science
8:30 AM - 9:30 AM, Jan 12
Oak Alley

Syllabus Sharing Session
8:30 AM - 9:30 AM, Jan 12
In roundtable format, participants will share and discuss syllabi for the university courses they teach related to science teacher education. Whether you’re teaching a course for the first time or are looking for some new ideas for your existing course, this is the session for you!

Speaker

Corinne Lardy
California State University Sacramento

5 Subsessions

- **Designing Elementary Science Methods for Equitable Science Sensemaking**
  - 8:30 AM - 9:30 AM, Jan 12
  - Nottoway

- **Studying Global Climate Change and Human Impact through Study Abroad Experiences**
  - 8:30 AM - 9:30 AM, Jan 12
  - Nottoway

- **Higher Education Environmental Literacy Curricula for Teacher Education Faculty**
  - 8:30 AM - 9:30 AM, Jan 12
  - Nottoway

- **Teaching and Learning in STEM through Environmental Justice: A science teaching methods course**
  - 8:30 AM - 9:30 AM, Jan 12
  - Nottoway

- **Design Thinking for STEM Methods Students**
  - 8:30 AM - 9:30 AM, Jan 12
  - Nottoway

Diversity, Equity, & Inclusion in Preservice Teacher Preparation

- 8:30 AM - 9:30 AM, Jan 12
- Bayside B

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Heather Lavender
3 Subsessions

- **Anti-deficit noticing in teacher education: Using design-based research approaches to expand pre-service teachers' noticing**
  - 8:30 AM - 9:30 AM, Jan 12
  - Bayside B

- **Now I'm Interested in Things That I Wasn't Before: Justice-oriented Curricula as an Entry Point to Effective Science Teaching**
  - 8:30 AM - 9:30 AM, Jan 12
  - Bayside B

- **Improving pre-service elementary teachers' confidence using the science and engineering practices and bias toward multilingual learners during a STEM enrichment program**
  - 8:30 AM - 9:30 AM, Jan 12
  - Bayside B

### Science and Engineering Practices

8:30 AM - 9:30 AM, Jan 12  
Bayside C

**Preservice Science Teacher Preparation - Middle a.**

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

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**Moderators**

Young Shin Park  
Professor  
Chosun University

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3 Subsessions

- **Integrating Mindfulness and Inquiry: A Program Prototype for Pre-Service Science Teachers**
  - 8:30 AM - 9:30 AM, Jan 12
  - Bayside C

- **"I didn't know incorporating engineering practices into biology courses was a thing" and the Development of Preservice Secondary Science Engineering Design Teaching Efficacy**
  - 8:30 AM - 9:30 AM, Jan 12
  - Bayside C

- **OPEN**
  - 8:30 AM - 9:30 AM, Jan 12
  - Bayside C

### Sponsored Workshop

8:30 AM - 9:30 AM, Jan 12  
Proteus

Professional Development for Science Teacher Educators (Workshops): Opportunities are embedded within the conference schedule (same time as concurrent sessions) for one-hour engagement in sessions designed to provide professional development for science teacher educators on a variety of topics related to teaching, research, and career growth/development.

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**Moderators**

Craig Berg
1 Subsessions

● A New Powerful Teacher Observation Tool For Research, Grant Evaluation, or Classroom Observation
  ⌁ 8:30 AM - 9:30 AM, Jan 12
  ⌦ Proteus

Climate Change
  ⌁ 8:30 AM - 9:30 AM, Jan 12
  ⌦ Endymion

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

xFE Moderators

M Meredith Schwendemann
  Clemson University

3 Subsessions

● Exploring the weather-climate misconception: A review of literature
  ⌁ 8:30 AM - 9:30 AM, Jan 12
  ⌦ Endymion

● Exploring teachers’ knowledge and confidence in teaching about climate change and marine science in NGSS-aligned lessons
  ⌁ 8:30 AM - 9:30 AM, Jan 12
  ⌦ Endymion

● Secondary Science Teachers' Experiences and Approaches for Teaching Climate Change as a Potentially Controversial Topic
  ⌁ 8:30 AM - 9:30 AM, Jan 12
  ⌦ Endymion

Educational Technology Workshop
  ⌁ 8:30 AM - 9:30 AM, Jan 12
  ⌦ Zulu

Educational Techn…

Professional Development for Science Teacher Educators (Workshops): Opportunities are embedded within the conference schedule (same time as concurrent sessions) for one-hour engagement in sessions designed to provide professional development for science teacher educators on a variety of topics related to teaching, research, and career growth/development.

xFE Moderators

M Molly Weinburgh
  TX Christian University

1 Subsessions

● Using Geographic Information Systems (GIS) in high school chemistry: Three case studies of socio-environmental science instruction
  ⌁ 8:30 AM - 9:30 AM, Jan 12
  ⌦ Zulu
Connecting to NGSS
8:30 AM - 9:30 AM, Jan 12
MidCity

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Patricia Morrell
The University of Queensland

3 Subsessions

- Teacher observations of student engagement in data practices: A comparative case study
  8:30 AM - 9:30 AM, Jan 12
  MidCity

- Document Analysis of NGSS Hub Climate Change Resources for Representation of Nature of Science Aspects
  8:30 AM - 9:30 AM, Jan 12
  MidCity

- OPEN
  8:30 AM - 9:30 AM, Jan 12

Sponsored Workshop
8:30 AM - 9:30 AM, Jan 12
Gallier AB

1 Subsessions

- Cancelled
  8:30 AM - 9:30 AM, Jan 12
  Gallier AB

Explorations
8:30 AM - 9:30 AM, Jan 12
Southdown

Exploratory Session: This session type is intended to elicit the creativity of our membership to share innovative ideas in innovative ways.

Moderators

Dr. Felicia M Mensah
Department Chair & Professor of Science Education
Teachers College, Columbia University

1 Subsessions

- Works in Progress: Our Community Doctoral Student Scholars
  8:30 AM - 9:30 AM, Jan 12
  Southdown
9:30 AM

**Coffee Break**
- 9:30 AM - 9:45 AM, Jan 12
- Armstrong Ballroom
- Refreshments available

9:45 AM

**Concurrent Session 4**
- 9:45 AM - 10:45 AM, Jan 12

**Workshop**
- 9:45 AM - 10:45 AM, Jan 12
- Oak Alley

Educational Techn...[Read More]

Professional Development for Science Teacher Educators (Workshops): Opportunities are embedded within the conference schedule (same time as concurrent sessions) for one-hour engagement in sessions designed to provide professional development for science teacher educators on a variety of topics related to teaching, research, and career growth/development.

Moderators

Mike Borowczak

1 Subsessions

- **A Micro:Bit of Exposure to Computing (Science and Engineering) - Building and Understanding of Connections between Computing and Science**
  - 9:45 AM - 10:45 AM, Jan 12
  - Oak Alley

**Language in Science Classrooms**
- 9:45 AM - 10:45 AM, Jan 12
- Bayside A

Equity and Dive...[Read More]

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Ryan Summers
- Associate Professor of Science Education
- University of North Dakota
3 Subsessions

- **Developing pre-service teachers' culturally and linguistically sustaining science pedagogies**
  - 9:45 AM - 10:45 AM, Jan 12
  - Bayside A

- **Translanguaging as Pedagogy and Culturally Relevant Science Instruction: Teaching and learning science in Bilingual 8th grade science classroom**
  - 9:45 AM - 10:45 AM, Jan 12
  - Bayside A

- **Preparing Teachers for Linguistically Diverse Classrooms: Retention and Self-Efficacy into the First Year of Teaching**
  - 9:45 AM - 10:45 AM, Jan 12
  - Bayside A

**Roundtable Session 1**

- 9:45 AM - 10:45 AM, Jan 12
- Nottoway

Small Group Roundtables: Each (one-hour) session offers the opportunity for participants to share and discuss creative pedagogy, issues and trends, culture, history, and research in an intimate and informal manner. Presenters will be paired with two to five presenters with papers on a similar topic. A presider will allow each presenter to provide a brief synopsis (5-7 minutes) and then allow time for table group discussion to share perspectives on the issues presented. Audience members may circulate among tables throughout the session.

**Moderators**

Melanie Reap

6 Subsessions

- **Longitudinal Value of Research Experience for Preservice Science Teachers**
  - 9:45 AM - 10:45 AM, Jan 12
  - Nottoway

- **Breaking the Stereotypical Looking Glass: Encouraging Students to Imagine Selves as Scientists Through the Use of Content-Rich, Counter-Stereotypical Science Trade Books**
  - 9:45 AM - 10:45 AM, Jan 12
  - Nottoway

- **Faculty-driven Communities of Practice: Implications for inclusive mentoring**
  - 9:45 AM - 10:45 AM, Jan 12
  - Nottoway

- **Polishing the Gems, Professional Development for Project WILD Facilitators through Lesson Study**
  - 9:45 AM - 10:45 AM, Jan 12
  - Nottoway

- **Cultivating Excellence: Fostering Student and Teacher Development through Collaborative Experiences in an Integrated STEM Enrichment Program at an HBCU**
  - 9:45 AM - 10:45 AM, Jan 12
  - Nottoway

- **Grit and Mindset: Potential indicators of engineering student retention**
  - 9:45 AM - 10:45 AM, Jan 12
  - Nottoway

**Teaching Enactment**

- 9:45 AM - 10:45 AM, Jan 12
- Bayside B
Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Rachel Johnson

3 Subsessions

"Put on your teacher hats!": Using pedagogical role cards in elementary science methods courses
⏰ 9:45 AM - 10:45 AM, Jan 12
📍 Bayside B

Preparing to Teach Science in a Literacy-Focused School Day: Elementary Pre-service Teachers' Reflections of the Touch-Talk-Text Science Instructional Model
⏰ 9:45 AM - 10:45 AM, Jan 12
📍 Bayside B

Uncovering the disconnect between planning and enactment: An examination of learning goals in science lessons taught by elementary student teachers
⏰ 9:45 AM - 10:45 AM, Jan 12
📍 Bayside B

Equity in Secondary Science
⏰ 9:45 AM - 10:45 AM, Jan 12
📍 Bayside C

Moderators

Kate Walker
University of Arkansas

3 Subsessions

Teacher Candidate's Equitable Science Sense-Making through Learning to Notice
⏰ 9:45 AM - 10:45 AM, Jan 12
📍 Bayside C

Reconstructing Science Teacher Preparation Through Abolitionist Teaching: A Narrative Inquiry Study
⏰ 9:45 AM - 10:45 AM, Jan 12
📍 Bayside C

"But when I was a student..." and other reasons pre-service teachers struggle to learn how to plan and implement equity-centered science lessons
⏰ 9:45 AM - 10:45 AM, Jan 12
📍 Bayside C

Cultivating Teachers
Science Teacher Professional Development - Middle...

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Jeni Davis
Associate Professor
Salisbury University

3 Subsessions

- **Cultivating Secondary Teachers' Indigenous Knowledge through Professional Development in Explorations of Milkweed and Phenology**
  - 9:45 AM - 10:45 AM, Jan 12
  - Proteus
- **Caring for the Carer: A Reconsideration of Professional Learning and Support for Noyce Scholars and Teachers as We Move Onward from COVID**
  - 9:45 AM - 10:45 AM, Jan 12
  - Proteus
- **Self as Praxis: Centering Teacher Identity in Instructional Choices**
  - 9:45 AM - 10:45 AM, Jan 12
  - Proteus

Social Justice and Environmental Education

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Jessica Stephenson Reaves

3 Subsessions

- **Science Through a seRA Lens: Teaching socioenvironmental respect & appreciation**
  - 9:45 AM - 10:45 AM, Jan 12
  - Endymion
- **Using an ecojustice education framework in science teacher education**
  - 9:45 AM - 10:45 AM, Jan 12
  - Endymion
- **Rooting Students in their Botanical History: Addressing Plant Awareness Disparity and Promoting Natural History Collections**
  - 9:45 AM - 10:45 AM, Jan 12
  - Endymion

Strategies to Support Teacher Learning

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)
Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Franklin Allaire
Associate Professor - Science Education
University of Houston-Downtown

3 Subsessions

- Developing Science Teacher-Authors in the New York State Master Teacher Program
  ⊗ 9:45 AM - 10:45 AM, Jan 12
  ⊗ Zulu

  ⊗ 9:45 AM - 10:45 AM, Jan 12
  ⊗ Zulu

- Understanding Undergraduate Perspectives: A Collaborative Science Education Outreach Program
  ⊗ 9:45 AM - 10:45 AM, Jan 12
  ⊗ Zulu

Nature of Science

⊗ 9:45 AM - 10:45 AM, Jan 12
⊗ MidCity

Moderators

Preethi Titu
Assistant Professor of Science education
Kennesaw State University

3 Subsessions

- Essence of Science Vision 1.5
  ⊗ 9:45 AM - 10:45 AM, Jan 12
  ⊗ MidCity

- Using the NGSS to Educate for Sustainable Development: Co-construction of Socio-scientific Issues in the Elementary Classroom
  ⊗ 9:45 AM - 10:45 AM, Jan 12
  ⊗ MidCity

- Enhancing Elementary Preservice teachers' Understanding of the Nature of Science, Scientific Inquiry and Argumentation through Peer Critiquing: Innovative Teaching Strategies in an Undergraduate Science Content Course
  ⊗ 9:45 AM - 10:45 AM, Jan 12
  ⊗ MidCity

Advocates for science teacher and science education
Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Emily Dare
LSU

3 Subsessions

- Elementary Science Specialists' Beliefs About Teaching and Learning Science
  - 9:45 AM - 10:45 AM, Jan 12
  - Gallier AB

- Identifying the Prevalence of High-Resolution Analyses of Teacher Behavioral Patterns in Recent Science Education Publications
  - 9:45 AM - 10:45 AM, Jan 12
  - Gallier AB

- Science Teacher Educators developing professional roles: recruitment and institutional demands
  - 9:45 AM - 10:45 AM, Jan 12
  - Gallier AB

Forum Meeting

- 9:45 AM - 10:45 AM, Jan 12
- Southdown

Forums are committees dedicated to supporting ASTE member interests and commitments. Forums serve the interests of the membership by influencing the policy, procedures, and activities of the Association with the assistance of the Board of Directors. Forums are responsible for the recruitment and maintenance of their own membership; for communication among members; and for selecting their own projects, goals, and activities. Each Forum chair will be expected to provide a written report to the Board of Directors (Winter and Summer).

Established Forums may access all ASTE support structures by following the policies and procedures that exist for the Association. For instance, Forums may suggest keynote speakers or conference strands by working through the Conference Program Committee, may recommend publications by working with the Publications Committee, or may work to enhance membership by working with the Membership and Participation Committee.

Moderators

Jessica Riccio
Senior Lecturer, Program in Science Education
Teachers College of Columbia University

1 Subsession

- WISE Forum
  - 9:45 AM - 10:45 AM, Jan 12
  - Southdown

Keynote

- 11:00 AM - 12:30 PM, Jan 12
- Armstrong Ballroom
Eliot Schrefer

Author of Queer Ducks (and Other Animals): The Natural World of Animal Sexuality, 2023 NSTA Outstanding Science Trade Book

Title: Animal Sexuality: What is natural, and who defines it?

Abstract: Limited awareness of the diversity of sexual expression in the animal kingdom has led to longstanding assumptions about what constitutes natural behavior in human beings—with real world consequences that are playing out in schools today. Drawing from his own life experiences as a gay man who drew comfort as a high-schooler through the lessons of evolutionary biology, and his extensive research as the author of 2023 Printz honor book Queer Ducks (and Other Animals): The Natural World of Animal Sexuality, Eliot Schrefer introduces us to the explosion of research over the last three decades into same-sex sexual behavior in animals, and examines what it means for our students’ conceptions of what the scientific process looks like, and the importance of having a diversity of scientists in the field.

Moderators

Jennifer Stark
University of West Florida

12:30 PM

Lunch on your own

1:00 PM

ASTE Graduate Student Forum (GSF) Work-in-Progress Roundtable

Authors: Sabrina Avila; Jenna Gist; Meredith Schwendemann

The work-in-progress roundtable is an opportunity for graduate students to share a 1-page summary of their in-progress research in a safe environment with other graduate students. Graduate students will be asked to bring 10 copies of their 1-page summary and any questions they have about their research. They will receive feedback on their work.

Speaker

Sabrina Avila
Senior Manager, STEM Research Academy
CUNY (City University of New York)

2:00 PM

Concurrent Session 5

Workshop

Professional Development for Science Teacher Educators (Workshops): Opportunities are embedded within the conference schedule (same time as concurrent sessions) for one-hour engagement in sessions designed to provide professional development for science teacher educators on a variety of topics related to teaching, research, and career growth/development.
Moderators

Benjamin Herman
Associate Professor of Science Education
Texas A & M

1 Subsessions

● Using Novel Instructional Materials to Improve Students' Detection of Pseudoscience and Socioscientific Decision-making
  ⏰ 2:00 PM - 3:00 PM, Jan 12
  📍 Oak Alley

Science Teacher Experiences
  ⏰ 2:00 PM - 3:00 PM, Jan 12
  📍 Bayside A
  🆓 Equity and Diver...

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Jennifer Bateman
Graduate Student
Clemson University

2 Subsessions

● Reevaluating Priorities During a Triple Pandemic: 'Adjusting myself to best the students in front of me.'
  ⏰ 2:00 PM - 3:00 PM, Jan 12
  📍 Bayside A
● Secondary Teacher Experiences Engaging in Disruptive STEM Practices
  ⏰ 2:00 PM - 3:00 PM, Jan 12
  📍 Bayside A

Roundtable Special Session
  ⏰ 2:00 PM - 3:00 PM, Jan 12
  📍 Nottoway

Moderators

Teresa Shume
Assistant Professor
North Dakota State University

1 Subsessions

● Idea Sharing Session: Resources to Prepare Preservice Teachers to Work with Students with Disabilities
  ⏰ 2:00 PM - 3:00 PM, Jan 12
  📍 Nottoway

NSTA Workshop
Professional Development for Science Teacher Educators (Workshops): Opportunities are embedded within the conference schedule (same time as concurrent sessions) for one-hour engagement in sessions designed to provide professional development for science teacher educators on a variety of topics related to teaching, research, and career growth/development.

Moderators

Flavio Mendez

1 Subsessions

NSTA Preservice Teacher Chapter Program and the Solar Eclipse of April 2024: The Perfect Way to Engage Your Pre-service Teachers

Secondary Science Methods Course

Moderators

Demetrice Smith-Mutegi
Assistant Professor
Old Dominion University

3 Subsessions

The Methods of Science Methods: The Function and Pattern of Methods
Professor Questioning

Braiding Sweetgrass into a Science Methods Course

Summer Teaching Programs for Undergraduates: Exploring Science Teacher Learning and Enactment

Developing Teacher Leaders

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)
## 3 Subsessions

<table>
<thead>
<tr>
<th>Session</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>Exploring the Mindsets of Science Teachers of Their Professional Learning Program</td>
<td>2:00 PM - 3:00 PM, Jan 12</td>
<td>Proteus</td>
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<tr>
<td>Empowering Informal Science Teacher Leaders</td>
<td>2:00 PM - 3:00 PM, Jan 12</td>
<td>Proteus</td>
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<tr>
<td>Teacher Leadership Conceptions Across a Multiyear Professional Development Program</td>
<td>2:00 PM - 3:00 PM, Jan 12</td>
<td>Proteus</td>
</tr>
<tr>
<td>Presidential Chat</td>
<td>2:00 PM - 3:00 PM, Jan 12</td>
<td>Orpheus</td>
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**Authors:** Andrea Borowczak; William McComas

Join us! You are invited to talk with the ASTE president, Andrea Borowczak, at this session. Participants will engage with Q&A after a brief introduction of the ASTE year. All members are welcome and encouraged to attend. Your ideas and your views on next steps for ASTE are welcomed.

## 1 Subsession

<table>
<thead>
<tr>
<th>Session</th>
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<tbody>
<tr>
<td>Making Equity Explicit: Integrating Equitable Science Practices in Video Analysis across a Research Collaborative of Seven Teacher Preparation Programs</td>
<td>2:00 PM - 3:00 PM, Jan 12</td>
<td>Gallier AB</td>
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## Equity & Diversity Themed Paper Set

<table>
<thead>
<tr>
<th>Time</th>
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<tr>
<td>2:00 PM - 3:00 PM, Jan 12</td>
<td>Gallier AB</td>
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</table>

**Themed Paper or Poster Set:** Each one-hour session consists of a group of presentations related to a common theme as determined by the authors. The proposals must be submitted as a group to be considered as a single themed session. Each presenter will discuss research, a philosophical viewpoint, position, or innovative idea. A discussant may be chosen by the group submitting the themed paper set, but will not be provided by ASTE. Authors will need to determine how to use the allotted time.

## Student Learning in and about the Environment

<table>
<thead>
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<th>Time</th>
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<tr>
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Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

William Thornburgh

3 Subsessions

- **Empowering Youth: Exploring the Influence of Data Science and Environmental Justice Integration on Occupational Identity Development**
  - 2:00 PM - 3:00 PM, Jan 12
  - Gallier AB
- **Exploring the value in birding with third grade students**
  - 2:00 PM - 3:00 PM, Jan 12
  - Gallier AB
- **OPEN**
  - 2:00 PM - 3:00 PM, Jan 12
  - Gallier AB

Augmented and Virtual Reality Teaching

- 2:00 PM - 3:00 PM, Jan 12
- Zulu

Moderators

Holly Miller

3 Subsessions

- **Elementary Teacher Educators' Use of Feedback to Support Preservice Teachers' Learning with Simulated Teaching Experiences**
  - 2:00 PM - 3:00 PM, Jan 12
  - Zulu
- **Performance of VR charter school with immersive instructor-guided experiences to other charter schools**
  - 2:00 PM - 3:00 PM, Jan 12
  - Zulu
- **What does Cybersecurity Mean to K-12 Teachers? Examining Teachers' Definitions and Perceptions of Cybersecurity**
  - 2:00 PM - 3:00 PM, Jan 12
  - Zulu

Identity

- 2:00 PM - 3:00 PM, Jan 12
- MidCity

Curriculum, Pedagogy, and A...
Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

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<tr>
<td>Establishing a rightful presence through intragenerational wealth</td>
<td>2:00 PM - 3:00 PM, Jan 12</td>
<td>MidCity</td>
</tr>
<tr>
<td>What does it mean to be good at physics? Non-science performances in small group positioning</td>
<td>2:00 PM - 3:00 PM, Jan 12</td>
<td>MidCity</td>
</tr>
<tr>
<td>Development and Validation of a Uncertainty Management Survey in Problem-Based Learning</td>
<td>2:00 PM - 3:00 PM, Jan 12</td>
<td>MidCity</td>
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<table>
<thead>
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<th>Forum Meeting</th>
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<tr>
<td></td>
<td>2:00 PM - 3:00 PM, Jan 12</td>
<td>Southdown</td>
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<tbody>
<tr>
<td>Environmental Education Forum</td>
<td>2:00 PM - 3:00 PM, Jan 12</td>
<td>Southdown</td>
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3:00 PM

Coffee Break

<table>
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<tbody>
<tr>
<td>3:00 PM - 3:15 PM, Jan 12</td>
<td>Armstrong Ballroom</td>
</tr>
</tbody>
</table>

Refreshments available

3:15 PM

Concurrent Session 6

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>3:15 PM - 4:15 PM, Jan 12</td>
<td>Oak Alley</td>
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</table>

Workshop

<table>
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<tr>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>3:15 PM - 4:15 PM, Jan 12</td>
<td>Oak Alley</td>
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</table>

Curriculum, Pedagogy, and A...
Professional Development for Science Teacher Educators (Workshops): Opportunities are embedded within the conference schedule (same time as concurrent sessions) for one-hour engagement in sessions designed to provide professional development for science teacher educators on a variety of topics related to teaching, research, and career growth/development.

***Moderators***

**Sara Porter**  
Associate Professor  
University of North Carolina Greensboro

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1 Subsessions

**Science education journey mapping as a tool to build empathy for diverse experiences in science education**  
⏰ 3:15 PM - 4:15 PM, Jan 12  
📍 Oak Alley

---

**Equity & Diversity Themed Paper Set**  
⏰ 3:15 PM - 4:15 PM, Jan 12  
📍 Bayside A

Equity and Dive...  

Themed Paper or Poster Set: Each one-hour session consists of a group of presentations related to a common theme as determined by the authors. The proposals must be submitted as a group to be considered as a single themed session. Each presenter will discuss research, a philosophical viewpoint, position, or innovative idea. A discussant may be chosen by the group submitting the themed paper set, but will not be provided by ASTE. Authors will need to determine how to use the allotted time.

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1 Subsessions

**Helping our Pre- and In-service Teachers Indigenise their Science Instruction**  
⏰ 3:15 PM - 4:15 PM, Jan 12  
📍 Bayside A

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**Roundtable Session 2**  
⏰ 3:15 PM - 4:15 PM, Jan 12  
📍 Nottoway

History, Philosophy, and Nature of Science  
Curriculum, Pedagogy, and Assessment  
Preservice Science Teacher Preparation: Middle and Secondary

Small Group Roundtables: Each (one-hour) session offers the opportunity for participants to share and discuss creative pedagogy, issues and trends, culture, history, and research in an intimate and informal manner. Presenters will be paired with two to five presenters with papers on a similar topic. A presider will allow each presenter to provide a brief synopsis (5-7 minutes) and then allow time for table group discussion to share perspectives on the issues presented. Audience members may circulate among tables throughout the session.

---

***Moderators***

**Meredith Park Rogers**  
Professor  
Indiana University-Bloomington
6 Subsessions

- **Distinctions Between S/T/E/M: Do They Matter for Science Teachers?**
  - 3:15 PM - 4:15 PM, Jan 12
  - Nottoway

- **Education Doctoral Students' Nature of Science Stories of Change and Action Plans**
  - 3:15 PM - 4:15 PM, Jan 12
  - Nottoway

- **A Proposed Integrated Framework for Analyzing Student Discourse in Science Classrooms**
  - 3:15 PM - 4:15 PM, Jan 12
  - Nottoway

- **Survive and Thrive: Providing Caring Support Mechanisms for Newly Hired Teachers**
  - 3:15 PM - 4:15 PM, Jan 12
  - Nottoway

- **Core Concept Deep Dive: A process for facilitating initial development of pedagogical content knowledge with preservice teachers.**
  - 3:15 PM - 4:15 PM, Jan 12
  - Nottoway

- **A Study of Noyce Scholars Sense of Self-Efficacy**
  - 3:15 PM - 4:15 PM, Jan 12
  - Nottoway

Special Session
- 3:15 PM - 4:15 PM, Jan 12
- Southdown

1 Subsessions

- **Getting involved with an ASTE publication**
  - 3:15 PM - 4:15 PM, Jan 12
  - Southdown

Preservice Science Teacher Preparation - Elementary
- 3:15 PM - 4:15 PM, Jan 12
- Bayside B

  Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

3 Moderators

- **Stephen Thompson**
  - Professor of Science Education
  - University of South Carolina

2 Subsessions

- **PSET Learning Through Storyline Curriculum Development**
  - 3:15 PM - 4:15 PM, Jan 12
  - Bayside B

- **The influence of religion on elementary preservice teachers' perceptions of science**
  - 3:15 PM - 4:15 PM, Jan 12
  - Bayside B
Inclusive Secondary Science Instruction

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Alvera McMillan
Louisiana Sea Grant College Program

3 Subsessions

- Preservice teachers analyzing their discourse for inclusive instruction: A report on process
  - 3:15 PM - 4:15 PM, Jan 12
  - Bayside C

- Mentoring Student Teachers for Ambitious and Inclusive Science Teaching
  - 3:15 PM - 4:15 PM, Jan 12
  - Bayside C

- CANCELLED
  - 3:15 PM - 4:15 PM, Jan 12
  - Bayside C

Special Session

- 3:15 PM - 4:15 PM, Jan 12
  - Proteus

Moderators

Lisa Borgerding
Professor
Kent State University

1 Subsessions

- ASTE Remembers
  - 3:15 PM - 4:15 PM, Jan 12
  - Proteus

Climate Science and Integrated STEM

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)
3 Subsessions

- **Exploring oceanography and meteorology themed science museum exhibitions from the view of democratic citizenship and science communication**
  - 3:15 PM - 4:15 PM, Jan 12
  - Endymion

- **Fostering Teachers' and Students' Climate Change Awareness**
  - 3:15 PM - 4:15 PM, Jan 12
  - Endymion

- **Integrated STEM and Partnerships: What to Do for More Effective Teams in Informal Settings**
  - 3:15 PM - 4:15 PM, Jan 12
  - Endymion

### STEM perspectives of teachers and future educators

- 3:15 PM - 4:15 PM, Jan 12
- Zulu

**STEM Educa...**

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

### 3 Subsessions

- **Exploring Secondary Science Teachers' Reflections on Integrated STEM Practice Using an Observation Protocol**
  - 3:15 PM - 4:15 PM, Jan 12
  - Zulu

- **Extending the Draw a Scientist Tool**
  - 3:15 PM - 4:15 PM, Jan 12
  - Zulu

- **A Process for Understanding the STEM Landscape within a School District in Order to Design Relevant Summer STEM Programming**
  - 3:15 PM - 4:15 PM, Jan 12
  - Zulu

### OPEN

- 3:15 PM - 4:15 PM, Jan 12
- MidCity
3 Subsessions

- **OPEN**
  - 3:15 PM - 4:15 PM, Jan 12
  - MidCity

- **OPEN**
  - 3:15 PM - 4:15 PM, Jan 12
  - MidCity

- **OPEN**
  - 3:15 PM - 4:15 PM, Jan 12
  - MidCity

**Multimodal Student Learning**

- 3:15 PM - 4:15 PM, Jan 12
- Gallier AB
- **Student Learning P-12**  **Curriculum, Pedagogy, and Assessment**

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

**Moderators**

- **Judy Morrison**
  - Professor
  - Washington State University

3 Subsessions

- **Exploring Elementary Student Meaning-Making in a Multimodal Science Unit**
  - 3:15 PM - 4:15 PM, Jan 12
  - Gallier AB

- **Identification of Student's Alternate Conceptions through Modeling of the Earth-Moon-Sun System**
  - 3:15 PM - 4:15 PM, Jan 12
  - Gallier AB

- **Examining students' peer-to-peer questions during an in-class collaborative activity: Trends and outcomes**
  - 3:15 PM - 4:15 PM, Jan 12
  - Gallier AB

**Committee Meetings**

- 4:30 PM - 5:30 PM, Jan 12

Committee Meetings are open to all members. If you are interested in learning more about a committee or becoming more involved, please join any of the committee meetings offered.

Committee membership begins in January after the close of the annual conference. Committee membership ends during the business meeting of the last year of the committee term. For example, a three-year committee appointment beginning in January 2021 would end in January 2024 at the business meeting thus allowing members three full conference cycles. All committees will meet at least once at the annual conference and as needed through alternative formats throughout the year. To ensure that committees operate efficiently, each committee will have a chair appointed by the President-elect. Chairs of Operating Committees are members of the Board of Directors.
9 Subsessions

- **Awards Committee Meeting**
  - 4:30 PM - 5:30 PM, Jan 12
  - Oak Alley

- **Communications Committee Meeting**
  - 4:30 PM - 5:30 PM, Jan 12
  - Bayside A

- **COPC Committee Meeting**
  - 4:30 PM - 5:30 PM, Jan 12
  - Notoway

- **Publications Committee Meeting**
  - 4:30 PM - 5:30 PM, Jan 12
  - Bayside B

- **Membership and Participation Committee Meeting**
  - 4:30 PM - 5:30 PM, Jan 12
  - Bayside C

- **NSTA Partnership Committee Meeting**
  - 4:30 PM - 5:30 PM, Jan 12
  - Proteus

- **Elections Committee**
  - 4:30 PM - 5:30 PM, Jan 12
  - Endymion

- **Professional Development Committee Meeting**
  - 4:30 PM - 5:30 PM, Jan 12
  - Zulu

- **Committee of Regional Units**
  - 4:30 PM - 5:30 PM, Jan 12
  - Bayside A

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**5:30 PM**

**ASTE Elections Committee Presents: The Roadmap to ASTE Leadership**
- 5:30 PM - 6:30 PM, Jan 12
- Notoway

Authors: Ronald Herman; Emily Dare

Do you love ASTE and want to do more for the ASTE community? Join the Elections Committee to learn how to become an ASTE leader. Learn about the elections process, which includes: available positions, the nomination process (self nominations are encouraged), the elections committee rubric, timeline, and how to organize materials for submission.

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**Walk the Main Lobby**
- 5:30 PM - 6:15 PM, Jan 12
- Lagniappe

Authors: Xavier Fazio

Looking for folks to join for dinner? Come walk the Main Lobby with the M&P committee!

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**Speaker**

**Xavier Fazio**
Brock University

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**6:00 PM**

**ASTE Graduate Student Forum (GSF) 3-Minute Thesis (3MT) and Graduate Student Social**
- 6:00 PM - 9:00 PM, Jan 12
- Notoway

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Authors: Sabrina Avila; Jenna Gist; Meredith Schwendemann

The 3MT is a competitive and social opportunity for graduate students to share their research. Graduate students will be asked to create 1 PowerPoint slide and present their research in 3 minutes. The winning graduate student will get free conference Bayside Foyer for the 2025 ASTE Conference. The Graduate Student Social will follow—please join us!

The 3MT will be held on Friday, January 12, 2024 from 6-7 PM at the Sheraton New Orleans Hotel. The GSF's social will be held on Friday, January 12, 2024, following the 3MT competition at an offsite location from 7-9 PM.

Link to Google Sign up Form for 3MT and GSF Social: https://forms.gle/Wq4QJAqVuCv0weR6

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**Speaker**

**Sabrina Avila**
Senior Manager, STEM Research Academy
CUNY (City University of New York)

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**7:30 PM**

**JSTE Editor Reception**

🕒 7:30 PM - 9:00 PM, Jan 12
📍 Oak Alley

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**Sat, Jan 13, 2024**

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**7:00 AM**

**Breakfast on your own**

🕒 7:00 AM - 8:00 AM, Jan 13
📍 Armstrong Ballroom

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**Oversight Committee**

🕒 7:00 AM - 7:30 AM, Jan 13
📍 Zulu

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**Speaker**

**Rommel Miranda**
Professor
Towson University

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**7:30 AM**

**Equity Committee 2**

🕒 7:30 AM - 8:15 AM, Jan 13
📍 Proteus
The Equity Committee works to ensure that the Association, in all forms and representations, addresses equity issues, including representation, access, and compliance with ASTE SOPs and By-Laws. It is led by a chair who is a member of the Board of the Directors and has nine voting members. Three members of the committee are appointed by the President-Elect to the committee each year for a three-year term period. One graduate student member shall be appointed by the President-Elect every other year to serve a two-year term. The chair of the Inclusive Science Education Forum serves as an ad hoc, non-voting member. Individual voting members of the equity committee serve as ex officio, non-voting members of each of the organization’s operating committees.

**Speaker**

**Erin Peters-Burton**
Sterling Endowed Professor
George Mason University

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**8:00 AM**

**Collaboration Space**
8:00 AM - 11:00 AM, Jan 13
Edgewood AB

**Registration**
8:00 AM - 11:00 AM, Jan 13
Bayside Foyer

**Lactation Room**
8:00 AM - 2:00 PM, Jan 13
Rex

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**8:15 AM**

**Concurrent Session 7**
8:15 AM - 9:15 AM, Jan 13

**Sponsored Workshop**
8:15 AM - 9:15 AM, Jan 13
Oak Alley

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**Moderators**

**Scarlett Lyon**
NC BioNetwork

1 Subsessions

**STEM on a dime! Resources & labs for 6-12**
8:15 AM - 9:15 AM, Jan 13
Oak Alley

**OPEN**
8:15 AM - 9:15 AM, Jan 13
Bayside A
Roundtable Session 3

8:15 AM - 9:15 AM, Jan 13
Notoway

Preservice Science Teacher Preparation -... -
Small Group Roundtables: Each (one-hour) session offers the opportunity for participants to share and discuss creative pedagogy, issues and trends, culture, history, and research in an intimate and informal manner. Presenters will be paired with two to five presenters with papers on a similar topic. A presider will allow each presenter to provide a brief synopsis (5-7 minutes) and then allow time for table group discussion to share perspectives on the issues presented. Audience members may circulate among tables throughout the session.

Moderators

Stacey Britton
Associate Professor of Science Education
University of West Georgia

5 Subsessions

Science Talk: Cultivating the Scientific Discourse Practices of Elementary Teacher Candidates and Elementary Students
8:15 AM - 9:15 AM, Jan 13
Notoway

Problem-Based Learning and the Development of Elementary Education Teacher Candidates
8:15 AM - 9:15 AM, Jan 13
Notoway

Collaboration of STEM Education Faculty to Plan Integrated STEM Workshops for Students
8:15 AM - 9:15 AM, Jan 13
Notoway

"Do I even wonder?:" Facilitating undergraduate preservice elementary teachers find belonging, connection, and joy in science.
8:15 AM - 9:15 AM, Jan 13
Notoway

Impact of a STEM-Centered Study Abroad Experience on Elementary Pre-Service Teachers' STEM Efficacy.
8:15 AM - 9:15 AM, Jan 13
Notoway

Forum Meeting
8:15 AM - 9:15 AM, Jan 13
Southdown

Forums are committees dedicated to supporting ASTE member interests and commitments. Forums serve the interests of the membership by influencing the policy, procedures, and activities of the Association with the assistance of the Board of Directors. Forums are responsible for the recruitment and maintenance of their own membership; for communication among members; and for selecting their own projects, goals, and activities. Each Forum chair will be expected to provide a written report to the Board of Directors (Winter and Summer). Established Forums may access all ASTE support structures by following the policies and procedures that exist for the Association. For instance, Forums may suggest keynote speakers or conference strands by working through the Conference Program Committee, may recommend publications by working with the Publications Committee, or may work to enhance membership by working with the Membership and Participation Committee.
Moderators

Teresa Shume
Assistant Professor
North Dakota State University

1 Subsessions

- **Inclusive Science Education Forum Meeting**
  - 8:15 AM - 9:15 AM, Jan 13
  - Southdown

Technology and Science Teacher PD

- 8:15 AM - 9:15 AM, Jan 13
- Bayside B

**Science Teacher Professional Development - Middle...**

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Syahrul Amin
Graduate Researcher
Texas A&M University

3 Subsessions

- **Exploring science teachers' implementation of Science and Engineering Practices during the pandemic**
  - 8:15 AM - 9:15 AM, Jan 13
  - Bayside B

- **Implications of Technology Mediated Lesson Study on Teacher Practice**
  - 8:15 AM - 9:15 AM, Jan 13
  - Bayside B

- **OPEN**
  - 8:15 AM - 9:15 AM, Jan 13
  - Bayside B

3D and NOS in Secondary Science

- 8:15 AM - 9:15 AM, Jan 13
- Bayside C

**Preservice Science Teacher Preparation - Middle a...**

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Amelia Cook
3 Subsessions

- **Promoting Understanding of Three Dimensions of Science Learning plus Nature of Science Using Phenomenon-Based Learning**
  - 8:15 AM - 9:15 AM, Jan 13
  - Bayside C

- **Multi-Dimensionality of Learning Objectives Generated by Preservice Secondary Teachers**
  - 8:15 AM - 9:15 AM, Jan 13
  - Bayside C

- **Preserve Secondary Science Teachers' NOS Views and Beliefs' Changes, and their NOS Lesson Plans During a Science Methods Course Based on RFN**
  - 8:15 AM - 9:15 AM, Jan 13
  - Bayside C

Science Fiction and Virtual Reality
- 8:15 AM - 9:15 AM, Jan 13
- Proteus
  - [Informal and Out of School Science...](#)

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Sofia Alvarez Briglie

3 Subsessions

- **Communities of Practice: Exploring Socially-Constructed STEM Learning within Science Fiction Convention Spaces**
  - 8:15 AM - 9:15 AM, Jan 13
  - Proteus

- **Learning with a Desktop Virtual Reality Field Trip in Public Outreach Settings**
  - 8:15 AM - 9:15 AM, Jan 13
  - Proteus

- **OPEN**
  - 8:15 AM - 9:15 AM, Jan 13
  - Proteus

Teachers and Ethnoscience and Environmental Education
- 8:15 AM - 9:15 AM, Jan 13
- Endymion
  - [Ethnoscience and Environmental ...](#)

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Sarah Carrier
Associate Professor
North Carolina State University
3 Subsessions

Online Environmental Literacy Hub: Supporting Faculty Within Pre-service Teacher Preparation Programs
8:15 AM - 9:15 AM, Jan 13
Endymion

Building Professional Development from teacher motivation, knowledge, experiences, and interests: Watershed Education
8:15 AM - 9:15 AM, Jan 13
Endymion

Are We Ready to Teach? : Teaching Competence of Environmental Educator Candidate for Level 3 National Certification in South Korea
8:15 AM - 9:15 AM, Jan 13
Endymion

College Students' Science Learning
8:15 AM - 9:15 AM, Jan 13
Zulu

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

3 Subsessions

Promoting College Students' Resistance to Misinformation Through SSI Instruction
8:15 AM - 9:15 AM, Jan 13
Zulu

Investigating Responsive Pedagogical Approaches to Promote University Students' Trust in Well-Established Science
8:15 AM - 9:15 AM, Jan 13
Zulu

We don't have time for that! An engineering professor's shift toward active student learning in undergraduate STEM courses through engagement in lesson study
8:15 AM - 9:15 AM, Jan 13
Zulu

Curriculum, Pedagogy, and Assessment
8:15 AM - 9:15 AM, Jan 13
MidCity

Exploratory Session: This session type is intended to elicit the creativity of our membership to share innovative ideas in innovative ways.

3 Moderators

Patrick Kirby

Curriculum, Pedagogy, and Assessment

Jamie Mikeska
Sr Research Scientist
ETS
1 Subsessions

- Exploring the Use of an Online Assessment to Measure Elementary Teachers' Content Knowledge for Teaching about Matter and Its Interactions
  
  8:15 AM - 9:15 AM, Jan 13
  
  MidCity

Science Teacher PD - Elementary

- Science Teacher Professional Development ...

  Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

- Steph Dean
  - Clemson

3 Subsessions

- Teachers' Conceptions of Disciplinary Literacy in Elementary Science Instruction
  
  8:15 AM - 9:15 AM, Jan 13
  
  Gallier AB

- Learning, Implementation, and Outcome: A Case Study of An Elementary Teacher's Integration of Scratch Programming in Science Instruction
  
  8:15 AM - 9:15 AM, Jan 13
  
  Gallier AB

- OPEN
  
  8:15 AM - 9:15 AM, Jan 13
  
  Gallier AB

9:30 AM

Concurrent Session 8

- Concurrent Session 8
  
  9:30 AM - 10:30 AM, Jan 13

Workshop

- Workshop
  
  9:30 AM - 10:30 AM, Jan 13
  
  Oak Alley

  Educational Techn...

  Professional Development for Science Teacher Educators (Workshops): Opportunities are embedded within the conference schedule (same time as concurrent sessions) for one-hour engagement in sessions designed to provide professional development for science teacher educators on a variety of topics related to teaching, research, and career growth/development.

Moderators

- Brittany Pike
1 Subsessions

- **Integrating Cyber into K-8 Science**
  - 9:30 AM - 10:30 AM, Jan 13
  - Oak Alley

**Equity & Diversity**
- 9:30 AM - 10:30 AM, Jan 13
- Bayside A

  Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

- Dr. Felicia M Mensah
  - Department Chair & Professor of Science Education
  - Teachers College, Columbia University

3 Subsessions

- **Uncertainty and ambiguity in efforts to diversify the K-12 STEM teaching workforce**
  - 9:30 AM - 10:30 AM, Jan 13
  - Bayside A

- **Exploring the Interplay of Structure and Agency: Uncovering Student Negotiations in the Science Classroom**
  - 9:30 AM - 10:30 AM, Jan 13
  - Bayside A

- **Building an ethos of care and inclusion in science teacher education**
  - 9:30 AM - 10:30 AM, Jan 13
  - Bayside A

**Roundtable Special Session**
- 9:30 AM - 10:30 AM, Jan 13
- Nottoway

Moderators

- Jennifer Stark
  - University of West Florida

1 Subsessions

- **Practice-sharing session: LGBTQ inclusion in science teacher education**
  - 9:30 AM - 10:30 AM, Jan 13
  - Nottoway

**Forum Meeting**
- 9:30 AM - 10:30 AM, Jan 13
- Southdown
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Moderators

Nick Lux

1 Subsessions

- Technology Forum Meeting
  - 9:30 AM - 10:30 AM, Jan 13
  - Southdown

Computational Thinking and Systems Thinking

- 9:30 AM - 10:30 AM, Jan 13
- Bayside B
  - Preservice Science Teacher Preparation...

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

David Sparks
  - University of Texas Permian Basin

3 Subsessions

- Exploring Computational Thinking with Pre-service Elementary Teachers Through Integrated Computer Science and Outdoor Education
  - 9:30 AM - 10:30 AM, Jan 13
  - Bayside B
- Pre-Service Teachers Systems' Thinking about the Nervous System
  - 9:30 AM - 10:30 AM, Jan 13
  - Bayside B
- OPEN
  - 9:30 AM - 10:30 AM, Jan 13
  - Bayside B

NOYCE

- 9:30 AM - 10:30 AM, Jan 13
- Bayside C
  - Preservice Science Teacher Preparation - Middle a.
3 Subsessions

- **The Perceptions of the Value of Participation in a Noyce Program for Pre-service Secondary STEM Teachers**
  - Time: 9:30 AM - 10:30 AM, Jan 13
  - Location: Bayside C

- **Impact of Community-Based and Culturally Responsive Teacher Preparation Experience on Noyce Scholars**
  - Time: 9:30 AM - 10:30 AM, Jan 13
  - Location: Bayside C

- **Longitudinal Analysis of Novice Physics Teacher Growth and Student Performance**
  - Time: 9:30 AM - 10:30 AM, Jan 13
  - Location: Bayside C

Sponsored Workshop

- **Time:** 9:30 AM - 10:30 AM, Jan 13
- **Location:** Proteus

1 Subsessions

- **NOAA**
  - Time: 9:30 AM - 10:30 AM, Jan 13
  - Location: Proteus

**Informal and Out-of-School Science Education**

- **Time:** 9:30 AM - 10:30 AM, Jan 13
- **Location:** Endymion

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

**Moderators**

**Jacob Pleasants**
Assistant Professor
University of Oklahoma

**Holly Plank**
Graduate Student Researcher
University of Pittsburgh
3 Subsessions

• STEM, Sports, and Service-Learning: Exploring Undergraduates' Service-Learning Experiences at a STEM Sports Camp
  9:30 AM - 10:30 AM, Jan 13
  Endymion

• Testing the Effectiveness of Inquiry Guidance in Science Club Activities as Informal Education: Relationship with Students' Attitudes Toward Science
  9:30 AM - 10:30 AM, Jan 13
  Endymion

• OPEN
  9:30 AM - 10:30 AM, Jan 13
  Endymion

AI
  9:30 AM - 10:30 AM, Jan 13
  Zulu

Educational Technology

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Patricia Arnold
Assistant Professor
Minnesota State University, Mankato

3 Subsessions

• Application of AI in Developing Automated Discourse Analysis System (ADAS) for K-12 Science Classrooms - Part I
  9:30 AM - 10:30 AM, Jan 13
  Zulu

• Artificial Intelligence (AI). So much more than cheating, it's science teaching
  9:30 AM - 10:30 AM, Jan 13
  Zulu

• Using Lessons from History to Guide the Implementation of AI in Science Education
  9:30 AM - 10:30 AM, Jan 13
  Zulu

Curriculum, Pedagogy, and Assessment
  9:30 AM - 10:30 AM, Jan 13
  MidCity

Curriculum, Pedagogy, and A...

Themed Paper or Poster Set: Each one-hour session consists of a group of presentations related to a common theme as determined by the authors. The proposals must be submitted as a group to be considered as a single themed session. Each presenter will discuss research, a philosophical viewpoint, position, or innovative idea. A discussant may be chosen by the group submitting the themed paper set, but will not be provided by ASTE. Authors will need to determine how to use the allotted time.

Moderators

Stephanie Philipp
1 Subsessions

● **Evolution of a preservice teacher assignment: NGSS crosscutting concepts hall project**
  - **9:30 AM - 10:30 AM, Jan 13**
  - MidCity

Explorations

- **9:30 AM - 10:30 AM, Jan 13**
- Gallier AB
- [Educational Technology]({#})

1 Subsessions

● **Open Science Hardware: Developing a Peer-Reviewed Repository for Schools**
  - **9:30 AM - 10:30 AM, Jan 13**
  - Gallier AB

10:30 AM

**Coffee Break**

- **10:30 AM - 11:00 AM, Jan 13**
- Armstrong Ballroom
- Refreshments available

Meet ASTE Forum Chairs

- **10:30 AM - 11:00 AM, Jan 13**
- Orpheus

  Authors: Matthew Clay; Tammie Peffer; Sabrina Avila; Jenna Gist; Sahrish Panjwani; Teresa Shume; Heather Lavender; Julie Contino; Nathan Dolenc; Nicholas Lux; Jessica Riccio

Forums are committees dedicated to supporting ASTE member interests and commitments. Forums serve the interests of the membership by influencing the policy, procedures, and activities of the Association with the assistance of the Board of Directors. Forums are responsible for the recruitment and maintenance of their own membership; for communication among members; and for selecting their own projects, goals, and activities. Each Forum chair will be expected to provide a written report to the Board of Directors (Winter and Summer). Established Forums may access all ASTE support structures by following the policies and procedures that exist for the Association. For instance, Forums may suggest keynote speakers or conference strands by working through the Conference Program Committee, may recommend publications by working with the Publications Committee, or may work to enhance membership by working with the Membership and Participation Committee.

11:00 AM

**Concurrent Session 9**

- **11:00 AM - 12:00 PM, Jan 13**
### Workshop

**Preservice Science Teacher Preparation (Workshops): Opportunities are embedded within the conference schedule (same time as concurrent sessions) for one-hour engagement in sessions designed to provide professional development for science teacher educators on a variety of topics related to teaching, research, and career growth/development.**

#### Moderators

<table>
<thead>
<tr>
<th>Moderator</th>
<th>University of Oklahoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katie Lynn</td>
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#### 1 Subsessions

- **Embedding SEL Practices in Elementary Science Content for a More Inclusive Classroom**
  - **11:00 AM - 12:00 PM, Jan 13**
  - Oak Alley

---

### Culturally Relevant/Responsive Science Education

**Equity and Dive...**

**Individual Paper Presentation:** Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

#### Moderator

<table>
<thead>
<tr>
<th>Moderator</th>
<th>University of Oklahoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mackenzie Flynn</td>
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#### 3 Subsessions

- **Science Teachers' Perceptions of Culturally Responsive Teaching in Majority Native American Schools in Oklahoma**
  - **11:00 AM - 12:00 PM, Jan 13**
  - Bayside A

- **Developing and Understanding Elementary Culturally Relevant Math and Science Teachers**
  - **11:00 AM - 12:00 PM, Jan 13**
  - Bayside A

- **CANCELLED**
  - **11:00 AM - 12:00 PM, Jan 13**
  - Bayside A

---

### Explorations

**Equity and Dive...**

**Exploratory Session:** This session type is intended to elicit the creativity of our membership to share innovative ideas in innovative ways.
Moderators

Marcelle Siegel
University of Missouri-Columbia

1 Subsessions

- **Hallmarks of Inclusive Teaching: Representation, Engagement, Belonging, and Equitable Assessment**
  - 11:00 AM - 12:00 PM, Jan 13
  - Nottoway

Explorations

- 11:00 AM - 12:00 PM, Jan 13
- Bayside B

Preserve Science Teacher Preparation - ...

Exploratory Session: This session type is intended to elicit the creativity of our membership to share innovative ideas in innovative ways.

Moderators

Jesse Wilcox
University of Northern Iowa

1 Subsessions

- **Innovating the Science Content Courses for Elementary Teachers**
  - 11:00 AM - 12:00 PM, Jan 13
  - Bayside B

Explorations

- 11:00 AM - 12:00 PM, Jan 13
- Bayside C

Preserve Science Teacher Preparation - ...

Exploratory Session: This session type is intended to elicit the creativity of our membership to share innovative ideas in innovative ways.

Moderators

Preethi Titu
Assistant Professor of Science education
Kennesaw State University

1 Subsessions

- **Using Web tools for Pre-service Teachers in Planning and Conducting Scientific Investigations**
  - 11:00 AM - 12:00 PM, Jan 13
  - Bayside B

Inquiry and Design

- 11:00 AM - 12:00 PM, Jan 13
Science Teacher Professional Development - Middle...

Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderator

Olayinka Mohorn
Assistant Professor
University of Memphis

3 Subsessions

- Leveraging Co-Design to Facilitate NGSS Curricular Development and Implementation
  - 11:00 AM - 12:00 PM, Jan 13
  - Proteus

- Affordances and constraints for curriculum-based teacher development and local school communities
  - 11:00 AM - 12:00 PM, Jan 13
  - Proteus

- Co-constructing Argument-driven Inquiry (ADI) with secondary science teachers
  - 11:00 AM - 12:00 PM, Jan 13
  - Proteus

Elementary Ethnosciences and Environmental Education

Moderators

Amelia Cook

3 Subsessions

- Growing a Solution: Affordances, Challenges, and Support Structures for Integrating School Gardens in Elementary Environmental Education
  - 11:00 AM - 12:00 PM, Jan 13
  - Endymion

- Effect of a Bee Camp Experience on Elementary Students’ Knowledge and Attitudes Toward Pollinator Conservation
  - 11:00 AM - 12:00 PM, Jan 13
  - Endymion

- Elementary Teachers' Implementation of Citizen Science in their Classrooms using Educative Support Materials
  - 11:00 AM - 12:00 PM, Jan 13
  - Endymion

Computer Science and Engineering
Individual Paper Presentation: Each one-hour session consists of three individual papers related to the same thread as determined by the conference chairs. Each presenter will discuss a research study, philosophical viewpoint, position, or innovative idea. The session presider will manage the time and facilitate the transition from one presenter to the next. (20 minutes per presenter)

Moderators

Iliana De La Cruz
Postdoctoral Research Technician
Texas A&M University

3 Subsessions

- Examining middle school students' epistemic practices of engineering during small group work
  - 11:00 AM - 12:00 PM, Jan 13
  - Zulu

- Access Through Action: How English Language Arts Educators are Incorporating Computer Science Through Curriculum Integration
  - 11:00 AM - 12:00 PM, Jan 13
  - Zulu

- CANCELLED
  - 11:00 AM - 12:00 PM, Jan 13
  - Zulu

History, Philosophy, and Nature of Science Themed Paper Set

History, Philosophy, and Nature of Science Themed Paper Set

Moderators

David Steele
Alder Graduate School of Education

1 Subsessions

- Addressing Science Misinformation: Research, practice, and opportunities for K-16 science educators
  - 11:00 AM - 12:00 PM, Jan 13
  - MidCity

Equity & Diversity Themed Paper Set

Equity & Diversity Themed Paper Set
Themed Paper or Poster Set: Each one-hour session consists of a group of presentations related to a common theme as determined by the authors. The proposals must be submitted as a group to be considered as a single themed session. Each presenter will discuss research, a philosophical viewpoint, position, or innovative idea. A discussant may be chosen by the group submitting the themed paper set, but will not be provided by ASTE. Authors will need to determine how to use the allotted time.

Moderators

Allison Esparza

1 Subsessions

- Building an Ethos of Inclusivity through Research on Science for Students with Disabilities
  - 11:00 AM - 12:00 PM, Jan 13
  - Gallier AB

PST Preparation Secondary Themed Paper Set

- 11:00 AM - 12:00 PM, Jan 13
- Southdown

Moderators

Eva Nelson

University of Minnesota

1 Subsessions

- A practitioner's perspective on engaging in cross-stakeholder collaborations to enhance secondary science preservice preparation programs
  - 11:00 AM - 12:00 PM, Jan 13
  - Southdown

12:00 PM

Awards Luncheon

- 12:00 PM - 2:30 PM, Jan 13
- Armstrong Ballroom
Authors: Andrea Borowczak

**Award I:** Level 1: Kelly Feille, University of Oklahoma, feille@ou.edu

**Award II:** Felicia Moore Mensah, Teachers College- Columbia University, fm2140@tc.columbia.edu

**Award IV:** Daniel Alston, University of North Carolina at Charlotte, dalsto13@uncc.edu, Lenora Crabtree. Paper 10340: Employing Justice-Oriented Curricula and Pedagogy to Support Elementary Teacher Candidates’ Future Science Teaching

**Award V:** Mark Newton, East Carolina University, newtonm19@ecu.edu, Len Annetta, Denise Bressler. Paper 10234: Climate Change on the Outer Banks: Embedding Low-Cost Mobile Technology in Socioscientific Issues Instruction

**Award V (graduate student):** Jennifer Bateman, Clemson, batema5@clemson.edu, Brooke Whitworth, Julie Luft, Meredith Schwendemann. Paper 10310: District Coordinator Communities of Practice as a Professional Learning Model

---

### Speakers

#### Andrea Borowczak

#### William (Bill) McComas
University of Arkansas

---

**3:00 PM**

**Executive Committee Meeting**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Name</th>
<th>Authors</th>
</tr>
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<tbody>
<tr>
<td>3:00 PM - 3:30 PM, Jan 13</td>
<td>3:00 PM - 3:30 PM, Jan 13</td>
<td>Andrea Borowczak</td>
</tr>
</tbody>
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### Speaker

#### Andrea Borowczak

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**3:30 PM**

**Board of Directors Meeting**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Name</th>
<th>Authors</th>
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<tbody>
<tr>
<td>3:30 PM - 9:00 PM, Jan 13</td>
<td>3:30 PM - 9:00 PM, Jan 13</td>
<td>William McComas</td>
</tr>
</tbody>
</table>

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### Speaker

#### William (Bill) McComas
University of Arkansas
ASTE 2024 Volunteers

Thank you all for your efforts to ensure that ASTE 2024 is a successful conference. We could not do it without you!

ASTE 2024 Conference Planning Committee
Lisa Borgerding, Kelly Feille, Jennifer Stark, John Pecore, Andrea Borowczak, Kate Popejoy, Drew Gossen, Rommel Miranda, Corinne Lardy, & Elizabeth McMillan

Thread Coordinators

<table>
<thead>
<tr>
<th>Thread</th>
<th>Term ends 2024</th>
<th>Term ends 2025</th>
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<tbody>
<tr>
<td>College &amp; University Science Education</td>
<td>Lu Wang</td>
<td>Amanda Townley</td>
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<td>Curriculum, Pedagogy, and Assessment</td>
<td>Yohanis De La Fuente</td>
<td>Danielle Scharen</td>
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<td>Educational Technology</td>
<td>Joshua Ellis</td>
<td>Jonah Firestone</td>
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<td>Equity &amp; Diversity</td>
<td>David Steele</td>
<td>Seema Rivera</td>
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<td>Ethnoscience and Environmental Education</td>
<td>Sarah Carrier</td>
<td>Michelle Forsythe</td>
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<td>History, Philosophy, and Nature of Science</td>
<td>Alex Sobotka</td>
<td>John Pecore</td>
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<td>Informal/Out-of-School Science Education</td>
<td>Sara Heredia</td>
<td>Michael Dentzau</td>
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<td>Policy, Advocacy, and Reform</td>
<td>Carrie-Ann Sherwood</td>
<td>Iliana De La Cruz</td>
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<td>Preservice Science Teacher Preparation-ELEMENTARY</td>
<td>Rebekah Hammack</td>
<td>Karthigeyan Subramaniam</td>
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<td>Preservice Science Teacher Preparation-MIDDLE/ SECONDARY</td>
<td>Su Gao</td>
<td>Elizabeth Edmonson</td>
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<td>Professional Development for Science Teacher Educators (Workshops)</td>
<td>Bev Devore-Wedding &amp; Michelle Schpakow</td>
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<td>Science Teacher Professional Development-ELEMENTARY</td>
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<td>STEM Education</td>
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<td>Student Learning P-12</td>
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## Proposal Reviewers

<table>
<thead>
<tr>
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<th>Jessica Stephenson Reaves</th>
<th>Jenna Gist</th>
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<td>Holly Miller</td>
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Presiders

Franklin Allaire
Sofia Alvarez Briglie
Syahrul Amin
Trish Arnold
Jennifer Bateman
Stacey Britton
Stacey Britton
Kristen Brown
Sarah Carrier
Amelia Cook
Emily Dare
Jeni Davis
Iliana De La Cruz
Steph Dean
Allison Esparza
Jonah Firestone
Mackenzie Flynn
Drew Gossen
Becky Hammack
Vicente Handa
Robbie Higdon
Robbie Higdon
Benny Hiwatig
Rachelle Johnson
Patrick Kirby
Heather Lavender
Teresa Leavens
Daniel Levin
Lindsay Lightner
Alvera McMillan
Felicia Mensah
Holly Miller
Olayinka Mohorn
Patricia Morrell
Judith Morrison
Esther Kataate Namakula
Eva Nelson
James Nyachwaya
Young Shin Park
Meredith Park Rogers
Tamara Peffer
Stephanie Philipp
Holly Plank
Jacob Pleasants
Melanie Reap
Alexis Rutt
Meredith Schwendemann
Heather Shaffery
Demetrice Smith-Mutegi
David Sparks
David Steele
Jessica Stephenson
Reaves
Ryan Summers
Mutiara Syifa
Stephen Thompson
William Thornburgh
Preethi Titu
Kate Walker
Mariah Warren
Qiu Zhong
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<td>Gilbert Naizer</td>
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<td>Peter A. Rubba</td>
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<td>Debi Hanuscin</td>
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<td>Sylvan Mickelson</td>
<td>1995-96</td>
<td>Jim Ellis</td>
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</table>
Past Award Winners

Outstanding Science Educator of the Year (Award I)

- 1973 Gerald Krockover, Purdue University
- 1974 No Award Given
- 1975 Vincent Lunetta, University of Iowa
- 1976 No Award Given
- 1977 No Award Given
- 1978 Harold Jaus, University of Illinois-Chicago
- 1979 Roger W. Bybee, BSCS
- 1980 Anton Lawson, Arizona State University
- 1983 William R. Capie, University of Georgia
- 1985 James Dudley Herron, Purdue University
- 1986 Charles R. Coble, East Carolina University
- 1987 John Penick, University of Iowa
- 1988 James Barufaldi, University of Texas
- 1989 Lawrence F. Lowery, University of California
- 1990 William C. Kyle, Jr., Purdue University
- 1991 Barry Fraser, Curtin University of Technology, Australia
- 1993 Cheryl Mason, San Diego State University
- 1994 Patricia Simmons, University of Georgia
- 1995 J. Preston Prather, University of Virginia
- 1996 Sandra Abell, Purdue University
- 1997 Bonnie Shapiro, University of Calgary
- 1998 William F. McComas, University of Southern California
- 1999 Patricia Simpson, St. Cloud State University
- 2000 Wolf-Michael Roth, University of Victoria
- 2001 John Settlage, Cleveland State University
- 2002 No Award Given
- 2003 (10+ yrs): Ronald Bonnstetter, University of Nebraska; (<10 yrs): Michael Clough, Iowa State University
- 2004 No Award Given
- 2005 (10+ yrs): Larry Yore, University of Victoria, Canada (<10 yrs): Joanne Olson, Iowa State University
- 2006 (10+ yrs): Penny J. Gilmer, Florida State University (<10 yrs): John W. Tillotson, Syracuse University
- 2007 (10+ yrs): James A. Shymansky, University of Missouri-St. Louis (<10 yrs): G. Nathan Carnes, University of South Carolina
- 2008 (10+ yrs): Kathryn Scantlebury, University of Delaware (<10 yrs): Kathy Cabe Trundle, The Ohio State University
- 2009 (10+ yrs): Deborah Tippins, University of Georgia (<10 yrs): Catherine Milne, New York University
• 2010 (10+ yrs): Julie A. Luft, *Arizona State University* (<10 yrs): Randy L. Bell, *University of Virginia*

• 2011 (10+ yrs): Julie Gess-Newsome, *Northern Arizona University*

• 2012 (<10 yrs): Rebecca Schneider, *University of Toledo*

• 2013 (10+ yrs): Lynn Bryan, *Purdue University* (<10 yrs): Carla Johnson, *University of Cincinnati*

• 2014 Alec Bodzin, Lehigh University (10+ yrs)

• 2015 Gail Jones, North Carolina State Univ. (10+ yrs); Deborah Hanuscin, Univ. of Missouri (<10 yrs)

• 2016 Rose Pringle, University of Florida (10+ yrs); Erin Peters-Burton, George Mason University (<10 years)

• 2017 Felicia Moore Mensah, Columbia University, (10+ yrs)

• 2018 Ron Hermann, Towson University (<10 yrs)

• 2019 Lisa Martin-Hansen, California State University, Long Beach (10+yrs); Jerrid Kruse, Drake University (<10yrs)

• 2020 Colby Tofel-Grehl, Utah State University (<10 yrs); Gillian Roehrig, University of Minnesota (>10yrs)

• 2021 Lauren Madden, The College of New Jersey (<10yrs); Andrea Burrows, University of Wyoming (<10yrs)

• 2022 Julie Contino, American Museum of Natural History (<10yrs)

• 2023 Brooke Whitworth, Clemson University (10+ yrs)

**Outstanding Mentor (Award II)**

• 1997 John Penick, *University of Iowa*

• 1998 Hans Anderson, *Indiana University*

• 1999 Norman Lederman, *Oregon State University*

• 2000 Robert K. James, *Texas A & M University*

• 2001 Robert E. Yager, *University of Iowa*

• 2002 Walter S. Smith, *Ball State University*

• 2003 Larry Enochs, *Oregon State University*

• 2004 Catherine Yeotis, *Wichita State University*

• 2005 Sandra Abell, *University of Missouri-Columbia*

• 2006 Tom Koballa, University of Georgia

• 2007 Kenneth Tobin, *Graduate Center of the City University of New York*

• 2008 Dana Zeidler, *University of South Florida*

• 2009 Lloyd Barrow, *University of Missouri, Columbia*

• 2010 Kathryn Scantlebury, *University of Delaware*

• 2011 Gerry Saunders, *Unity College*

• 2012 Alec Bodzin, *Lehigh University*

• 2013 Julie Luft, *University of Georgia*

• 2014 Gillian Roehrig, *University of Minnesota*

• 2015 Pat Obenauf, *West Virginia University*

• 2016 Randy Bell, *Oregon State University*
• 2017 Kent Crippen, University of Florida
• 2018 William McComas, University of Arkansas
• 2019 Deborah Hanuscin, Western Washington University
• 2020 Michael P. Clough, Texas A&M University
• 2022 Len Annetta, East Carolina University
• 2023 Jim McDonald, Central Michigan University
• 2023 Rebecca Hite, Texas Tech University

Emeritus Awards/Outstanding Longtime Service to ASTE (Award III)

• N. Eldred Bingham, University of Florida
• Milton O. Pella, University of Wisconsin
• Pinchas Tamir, Hebrew University
• Clarence Boeck, University of Minnesota
• Fletcher Watson, Harvard University
• Marvin Druger, Syracuse University
• R. Will Burnett, University of Illinois
• Fred Fox, Oregon State University
• Nasrine Adibe, Dowling College
• Gerald Craig, Teachers College Columbia University
• Herbert Smith, Colorado State University
• Roger Olstad, University of Washington
• Alfred De Vito, Purdue University
• Hans Anderson, Indiana University
• Paul Dehart Hurd, Stanford University
• Robert W. Howe, Ohio State University
• Ronald K. Atwood, Univ. of Kentucky
• Dorothy Gabel, Indiana University
• Addison Lee, University of Texas
• Willard Jacobson, Teachers College Columbia University
• Donald W. McCurdy, University of Nebraska- Lincoln
• Ralph Lefler, Purdue University
• Harold Tannenbaum, Hunter College
• Steven Winter, Tufts University
• William C. Ritz, California State University, Long Beach
• Edward Victor, Northwestern University
• Stanley Helgeson, Ohio State University
• Floyd E. Mattheis, East Carolina University
• Kenneth J. Appleton, Central Queensland University
• William E. Baird, Auburn University
• Michael Cohen, Indiana University-Purdue University
• Vincent Lunetta, Pennsylvania State University
• Gerald Craig, Teachers College Columbia University
• Herbert Smith, Colorado State University
• Roger Olstad, *University of Washington*
• Dana Zeidler, *University of South Florida*
• Jon Pedersen, *University of Nebraska-Lincoln*
• Kevin Finson, *Bradley University*
• Molly Weinburgh, *Texas Christian University*
• Malcolm Butler, *University of Central Florida*
• Kathy Cabe Trundle, *Utah State University*
• Patricia Morrell, *The University of Queensland*
• Julie Luft, *University of Georgia*

**Innovations in Teaching Science Teachers (Award IV)**

• 1990 *A Reflective Approach to Science Methods Courses for Preservice Elementary Teachers*, Dorothy Rosenthal, California State University-Long Beach
• 1991 *Enhancing Science and Mathematics Teaching*, Kenneth Tobin, Nancy Davis, Kenneth Shaw, and Elizabeth Jakubowski, Florida State University
• 1992 *The Learning Cycle as a Model for the Design of Science Teacher Preservice and Inservice Education*, Peter Rubba, Pennsylvania State University
• 1993 *Reconstructing Science Teacher Education Within Communities of Learners*, Deborah Tippins, University of Georgia, Sharon Nichols, Florida State University, and Kenneth Tobin, Florida State University
• 1994 No Award Given
• 1995 *Science for Early Adolescence Teachers (Science FEAT): A Program for Research and Learning*, Samuel Spiegel, Angelo Collins, and Penny J. Gilmer, Florida State University
• 1996 *An Innovative Model for Collaboration Reform in Elementary School Science Teaching*, M. Gail Shroyer, Emmett Wright, and Linda Ramey-Gassert, Kansas State University
• 1997 *Reconceptualizing the Elementary Science Methods Course Using Reflective Orientation*, Sandra Abell and Lynn Bryan, Purdue University
• 1998 *What Science Education Standards Say: Implications for Teacher Education*, Penny Hammrich, Temple University
• 1999 No Award Given
• 2000 *Professional Development Programs for Elementary Science Teachers: An Analysis of Teacher Self-Efficacy Beliefs and The Professional Development Model*, Tracy J. Posnanski, University of Wisconsin-Milwaukee
• 2001 *Empowering Teachers as Researchers and Inquirers*, Anne M. (Amy) Cox-Petersen, California State University, Fullerton
• 2002 *Being There and Not Being “There” The Experience of Teaching an Elementary Science Education Course on the Internet*, Janice Koch and Michael Barriere, Hofstra University
• 2003 *Using a Card-sorting Task to Elicit and Clarify Science Teaching Orientations*, Patricia Friedrichsen, University of Missouri-Columbia and Thomas Dana, Pennsylvania University
- 2004 An Inquiry-based Laboratory Lesson to Construct an Understanding of Earth’s Seasons, Paul Ashcraft, Clarion University and Susan Courson, Clarion University
- 2005 No Award given
- 2006 No Award given
- 2007 Using Historical Non-fiction and Literature Circles to Develop Elementary Teachers’ Nature of Science Understanding, Sharon E. Nichols, The University of Alabama & William Straits, California State University Long Beach
- 2008 A Case Study of Fifth Grade Teachers’ Changes in Methodology During a Two-Year Timeframe, Anita Martin and Brian Hand, University of Iowa
- 2009 Flexibly adaptive professional development in support of teaching science with geospatial technology, Nancy M. Trautmann, Cornell University & James G. MaKinster Hobart & William Smith Colleges
- 2010 Learning to Teach Science Through Collaboration: Coteaching and Cogenerative Dialogue in Elementary Science Methods Courses, Christina Siry, University of Luxembourg, Nicole Lowell, Elizabeth Zawatski, Manhattanville College
- 2011 Exploring Multiple Outcomes: Using Cogenerative Dialogues and Coteaching in a Middle School Science Classroom, Nicole K. Grimes, The Graduate Center, The City University of New York What about those left behind? A template for developing quality science lessons for English language learners, Susan Gomez-Zwiep and William J. Straits, California State University, Long Beach
- 2012 Descriptive Inquiry in the Throes of Learning to Teach: Can Prospective Teachers Learn to Teach and Study their Teaching Closely? Michele Koomen and Jamie Mitchell, Gustavus Adolphus College,
- 2013 No Award Given
- 2014 Connecting to Our Community: Utilizing Photovoice as a Pedagogical Tool to Connect College Students to Science, Kristin Cook, Bellarmine University & Cassie Quigley, Clemson University
- 2015, If You Can’t Say Something Nice: A Design-Based Research Approach Investigating the Social Interactions of New Science and Math Teachers Using a Video Annotation Tool, Joshua Ellis, Tasneem Anwar, Justin McFadden, & Gillian Roehrig from the University of Minnesota STEM Education Center
- 2016, The Use of Journal Clubs in Science Teacher Education. Dr. Karen A. Tallman, Springfield College and Dr. Allan Feldman, University of South Florida
- 2017, Teachers’ classroom practices 2-5 years after having completed an intensive secondary science teacher education program. Michael Clough, Iowa State University; Joanne Olson, Iowa State University
- 2018, Collaborating to teach elementary science methods in the field with K-6 classroom teachers: Benefits for in-service and pre-service teachers. Matthew Vick, University of Wisconsin, Whitewater; Patricia Falk Mukwonago Area School District
- 2019, A Curriculum-linked Professional Development Approach to Support Teachers’ Adoption of Socio-Environmental Science Investigation Alec Bodzin, Lehigh University; Thomas Hammond, Lehigh University; Kate Popejoy, Popejoy STEM LLC; William Farina, Lehigh University, David Anastasia, Breena Holland, James Carrigan, Scott Rutzmoser, Dork Sahagian
• 2020, CyberSecurity and Technology: How do they Fit into a Science Classroom? Andrea C. Burrows and Mike Borowczak, University of Wyoming.
• 2022, Strategies for Science Teacher Educators: Preparing Elementary Preservice Teachers to Integrate Engineering Skills and Practices by Kristie Gutierrez, Orlando Ayala, Jennifer J. Kidd, Stacie I. Ringleb, Krishnanand Kaipa, and Pilar Pazos (Old Dominion University)
• 2023, Promoting Teachers’ Understanding of the Relationship and Difference Between Science and Engineering: A Novel Set of Instructional Materials, Jacob Pleasants, University of Oklahoma, Jennifer Parrish, University of Northern Colorado, Sofia Alvarez-Briglie, University of Oklahoma, and Claudia Colonnello-Olivares, University of Oklahoma

Implications of Research for Educational Practice (Award V)

• 1978 Teacher Behavior Does Make a Difference in Hands-On Science Classrooms, James A. Shymansky, University of Iowa, and John E. Penick, University of Iowa
• 1981 Wait-time and Learning in Science, Kenneth Tobin, Western Australia Institute of Technology and William Capie, University of Georgia
• 1983 The Disadvantaged Majority: Science Education for Women, Jane Butler Kahle, Purdue University
• 1984 Training Science Teachers to Use Better Teaching Strategies, Russell H. Yeany and Michael J. Padilla, University of Georgia
• 1985 Using Research to Improve Science Teaching Practice, Kenneth Tobin, Western Australian Institute of Technology
• 1986 Active Technology for Higher Cognitive Level Learning in Science, Kenneth Tobin, William Capie, and Antonio Bettencourt, University of Georgia
• 1987 Training Teachers to Teach Effectively in the Laboratory, Pinchas Tamir, The Hebrew University
• 1988 What Can Be Learned From Investigations of Exemplary Teaching Practice, Kenneth Tobin, Florida State University
• 1990 Helping Students Learn How to Learn: A View from a Teacher-Researcher, Joe Novak, Cornell University
• 1992 Teacher Development in Microcomputer Usage in K-12 Science, James D. Ellis, BSCS
• 1993 Understanding and Assessing Hands-On Science, Lawrence Flick, Washington State University
• 1994 Teaching Evolution: Designing Successful Instruction, Lawrence Scharmann, Kansas State University
• 1995 Using Visits to Interactive Science and Technology Centers, Museums, Aquaria and Zoos to Promote Learning in Science, Leonie Rennie and Terrence McClafferty
• 1996 General Biology: Creating a Positive Learning Environment for Elementary Education Majors, Larry Scharmann and Ann Stanheim-Smith, Kansas State University
• 1997 Empowering Science Teachers: A Model for Professional Development, Ann Howe, University of North Carolina at Raleigh and Harriet Stubbs, North Carolina State University
• 1999 A Dynamical Systems Based Model of Conceptual Change, Andrew Hurford, Haskell Indian Nations University
• 2000 Teachers and Technology: A Case Study From an Implementation Project, Myra Halpin and Ann Howe, North Carolina School of Science and Mathematics, and North Carolina State University
• 2001 Visual/Spatial Thinking: A Forgotten Fundamental for School Science Programs, Alan J. McCormack and Cheryl L. Mason, San Diego State University
• 2002 What Knowledge is of Most Worth for Lateral Entry Secondary Science Teachers? William R. Veal, University of North Carolina at Chapel Hill
• 2003 Teacher Student Con-Construction in Middle School Life Science, Maria Nunez-Oviedo, University of Massachusetts-Amherst, Mary Ann Rea-Ramirez, Hampshire College, John Clement and Mary Jane Else, both of, University of Massachusetts-Amherst
• 2004 I Be Bangin’! Understanding How Urban African American Youth Can Sustain Agency Across Social Field, Rowhea Elmesky, Washington University in St. Louis
• 2005 Culturalized Science Instruction: Exploring Its Influence upon Black and White Students’ Achievement, Eileen Parsons, North Carolina State University
• 2006 No Award given
• 2007 Narrative of Community: Visualizing Culturally Relevant Science Pedagogy Through the Identities of Black Middle School Teachers, M. Jenice Goldston and Sharon E. Nichols, The University of Alabama
  Co-Winner: Paper 2 – Expanding the Ways in Which Urban Students Participate in Science Education: Rituals, Transactions, and Fundamental Interactions, Christopher Emdin, Teachers College, Columbia University
• 2009 Pathways to success in science: A phenomenological study examining the life experiences of African-American women in higher education, Claudette L. Giscombe
• 2010 Exploring Multiple Outcomes: Using Cogenerative Dialogues and Coteaching in a Middle School Science Classroom, Nicole K. Grimes, The Graduate Center, The City University of New York
• 2011 Synergistic Teaching of Science to English Language Learners: Comparative Analysis of the Strategies, Daniel J. Bergman, Wichita State University
• 2012 A Mixed Methods Study of Mid-Career Science Teachers: The Growth of Professional Empowerment, Amy Moreland and Mary Hobbs, both of University of Texas at Austin
• 2013 Teachers’ NOS Practices Two to Five Years after Having Completed an Intensive Science Education Program, Benjamin Herman, University of South Florida, Michael Clough, and Joanne Olson, both of Iowa State University
• 2014 Educational Turbulence: The Influence of Macro and Micro Policy on Science Education Reform, Carla Johnson, Purdue University
• 2015 Using our Heads and HARTSS (Humanities, ARTs, and Social Sciences): Developing Perspective-Taking Skills for Socioscientific Reasoning, Sami Kahn & Dana Zeidler, University of South Florida.
• 2016, No Award Given
• 2017, Prevalence and predictors of out-of-field in the first five years. Ryan Nixon, Brigham Young University; Richard J. Ross, University of Georgia; Julie A. Luft, University of Georgia
• 2018, No Award Given
• 2019, Supporting Elementary Teachers’ Enactment of Nature of Science Instruction: A Randomized Controlled Trial. Jennifer Maeng, University of Virginia; Randy Bell, Oregon State University; Tyler St. Clair, SUNY Potsdam; Amanda Gonczi, Michigan Technological University; Brooke Whitworth, University of Mississippi
• 2020, American Sign Language Resources for Communicating about the Nature of Science Patrick J. Enderle, Scott Cohen, Jessica Scott, Claudia Hagan, and Renee Schwartz, Georgia State University.
• 2021, A Reform without Time: NGSS and Time for Sense-Making in Elementary Classrooms Joanne Olson, Texas A & M University; Jacob Pleasants, Keene State College; and Kristina Tank, Iowa State University
• 2021 (graduate student), Challenges of Elementary Preservice Teachers as they Implement Socioscientific Issues in the Elementary Classroom Melanie Kinskey, Sam Houston State University
• 2022 Developing and Empirically Grounding the Draw-An-Engineering-Teacher Test (DAETT) Tina Vo, University of Nevada, Las Vegas; and Rebekah Hammack, Montana State University
• 2022 (graduate student), Supporting Secondary Science Preservice Teachers by Exploring Their Science Teaching Identities Regina McCurdy, now a new faculty member at Georgia Southern University.
• 2023 (Re)Learning to Teach Science with a Hearing Impairment: An Auto-ethnographic Study, Deborah Hanuscin and Spencer Green, Western Washington University.
• 2023 (graduate student): Case studies: Promoting STEM teacher candidates’ understanding and implementation of differentiated instruction, Mohammed Estaiteyeh

Past winners of the John C. Park National Technology Leadership Initiative Fellowship

Park, J. C. (2003). Now that we have new technology tools, what is being built? Association for the Education of Teachers in Science (AETS), St. Louis MO. (North Carolina State University)
Irving, K. and Bell, R. (2004). *Educational technology use during secondary science student teaching: Three case studies*. Association for the Education of Teachers in Science (AETS), Nashville TN. (The Ohio State University, University of Virginia)


Schneider, R. M. (2007). *Examining the instructional design of a technology enhanced course for new mentor teachers*. Association of Science Teacher Education, Clearwater Beach, FL. (University of Toledo)


Hagevik, R., & Stinger-Barnes, P. (2011). *The effects of geospatial informational technologies on preservice science teachers’ technological pedagogical content knowledge*. Association for Science Teacher Education, Minneapolis, MN (The University of Tennessee, Carson-Newman University)

Young, T., Farnsworth, B., Grabe, C., & Guy, M. (2012). *Exploring new technology tools to enhance astronomy teaching & learning in grades 3-8 classrooms: Year one implementation*. Association for Science Teacher Education, Clearwater Beach FL. (University of North Dakota)


*CyberSecurity and Technology: How do they Fit into a Science Classroom?* (2019). Andrea C. Burrows and Mike Borowczak, University of Wyoming.

*Using Virtual Reality with Pre-Service Elementary Science Teachers to Promote Valid Conceptions of the Reason for the Seasons*, Darby Drageset, Kent Crippen, Jeungtae Eom, Richard Bex, all from the University of Florida.
2025 ASTE Conference

Fearless Science Education

The Far West ASTE region and conference planning committee invite you to join us in Long Beach, California at the Westin in downtown Long Beach next January! Pre-conference adventures begin on Wednesday, January 15th and conclude with the ASTE awards and business luncheon on Saturday, January 18th.

We look forward to seeing you all in sunny Southern California!