President’s Message

Contributed by Gillian Roehrig

These past weeks, I have been reflecting on the often neglected advocacy roles we should play as science teacher educators. And of course as an association, our mission statement could not be clearer that we should be advancing policy in science teacher education.

As an association, we are currently engaged in policy work in partnership with the National Science Teacher Association to review the SPA (Specialized Professional Associations) standards for science used for CAEP accreditation. The SPA standards define content-area standards for licensure programs, and as such, impact many people working across the country in K-12 science teacher preparation. The current standards are from 2012 and revisions are needed in light of the Next Generation...
Science Standards and related initiatives. An ad-hoc committee has been working hard over the past 12 months to develop the new SPA standards. The current committee includes Tisha Morrell, William Veal, Eric Pyle, Gillian Roehrig, and Meredith Park Rogers. You will be hearing more from the committee soon about opportunities to provide feedback. We know that many of your programs are governed by CAEP, so this is your chance as an ASTE member to weigh in and influence policy.

As many of you know, I did not grow up in the United States. In England, there is a national education system that governs all aspects of K-12 schooling – this is the case for most of our international members. In the United States, the national impact on our schools is small – state governments make decisions about standards for students and teachers, districts and school boards make decisions about how to implement standards in classrooms. This means that there are many factors that influence the content and pedagogies experienced by our students each year.

As science educators, we need to be advocates for science and science education at the state and local level. As an official affiliate of the March for Science, ASTE continues to dialog with the national March for Science group about ways to continue to advocate nationally, not just for science but also for science education. On our phone call last week, I learned about a new group sponsored by the March for Science – Students for Science. This is a group of high school students working to develop Students for Science clubs across the country and to help these groups advocate for science at school board meetings and with elected officials. Take a moment to check out their webpage, they have developed documents and advocacy guidelines, as well as an open letter to school boards.

We, as science teacher educators, can learn from the work of these students. I am excited to start conversations with our ASTE policy forum about developing some advocacy guidelines for us as science teacher educators so we can join the students’ voices in demanding a quality science education for all students. I challenge each of you to “show up and tell your story” over the course of this academic year. And let us know your stories on Facebook and Twitter.

Gillian Roehrig, Ph.D.

ASTE President
2018 ASTE International Conference
Contributed by Ron Hermann and Rommel Miranda

Jan 3rd-6th
Hyatt Regency Baltimore Inner Harbor
Amazing Room Rates & Amenities
Centrally Located to Arts, Culture, Fine Cuisine, Historic Sights, & Nightlife
Learn More at the Business Luncheon
Please join us in Baltimore, Maryland for the 2018 Association for Science Teacher Education International Conference. The conference will be held at the Hyatt Regency Hotel from January 3rd through 6th.

The recently renovated Hyatt Regency Hotel is offering ASTE members the low rate of $79 per night so be sure to save the date and look for upcoming information about room reservations.

The Hyatt Regency Hotel is located in the heart of Baltimore’s Inner Harbor and is within walking distance to numerous attractions. Plan to take advantage of the location and enjoy the sights and maybe even go ice skating at the outdoor Pandora ice rink just a block from the hotel. Little Italy, Harbor Place, Fells Point, and Federal Hill are all areas you will want to visit for their history, cultural attractions, restaurants, and night life.

Baltimore is easily accessed by planes, trains, and automobiles. The Hyatt is a short drive from BWI airport and direct flights from many airports are possible. For those interested in driving, Baltimore is conveniently located just off of Interstate 95 and equally accessible from Interstate 70 for those travelling from the west.
The Association for Science Teacher Education (ASTE) promotes leadership and support for professionals involved in the education and development of teachers of science at all levels. ASTE advances practice and policy through scholarship, collaboration, and innovation in science teacher education. Our members include science teacher educators, science content faculty, curriculum developers, informal science educators, and others involved with the education of science teachers.

Keynote speaker Dr. Kacy Redd is the Assistant Vice President of science and mathematics education policy at the Association of Public and Land-grant Universities. She co-directs the Network of STEM Education Centers, which currently links 149 STEM Education Centers at 126 institutions. Dr. Redd also manages APLU’s Science and Mathematics Teaching Imperative, a commitment by 132 public research universities to improve science and mathematics teacher preparation. Dr. Redd received her PhD in neuroscience from Columbia University.

2018 ASTE Conference – Reflection Pool
Contributed by Meredith Park Rogers and Debi Hanuscin

This year, ASTE is pilot testing a number of alternative session formats that can expand opportunities for meaningful interactions among conference attendees.

The "Reflection Pool" session, to be held Thursday afternoon, is intended to bring together ASTE members around similar questions and problems of practice. This opportunity for dialogue allows members to share different perspectives and learn from one another. Feedback from peers may be used to rework or advance projects that might not yet be ready for presentation at the conference.

Advance sign-up is required for the Reflection Pool. Participants will be pre-assigned to tables based on responses to an online form and each table will have a facilitator.

Please complete the form found here by November 10th to participate. Contact Meredith Park Rogers (mparkrog@indiana.edu) or Debi Hanuscin (debi.hanuscin@wwu.edu) if you have any questions.
2018 ASTE Preconference Field Trip: National Aquarium and Maryland Sea Grant Aquaculture Facilities Tours

Contributed by Ron Hermann and Rommel Miranda

ASTE’s preconference field trip with take place at the National Aquarium and the Institute of Marine & Environmental Technology’s Aquaculture facility on Wednesday, January 3, from 9:15 am to 5:00 pm. Both locations are a short walk from the hotel.

National Aquarium

At the National Aquarium, we will meet with the educators and have a custom tour through the exhibits. Our guide will share fascinating stories about the animals and the habitats they call home, lead you to exclusive staff-only areas, and take you up-close with some animal residents. The tour will be two hours and attendees will have additional time during the day to explore the aquarium.

Aquaculture Research Center

Participants will also tour the Maryland Sea Grant Aquaculture Research Center (ARC) at the Institute of Marine and Environmental Technology in Baltimore, MD. The ARC is an extensive fish-holding facility located in the basement of the Columbus Center. ARC is a 1,800-square-meter, state-of-the-art, environmentally responsible marine core facility that provides excellent experimental capacity for research with marine organisms. Tour length is 2 hours.

Participants will be split into two groups. One group will tour the aquaculture facility first, the other will tour the aquarium first. For the second half, participants will switch venues.

The ASTE Preconference field trip is sponsored by Towson University and the Institute of Marine & Environmental Technology and Maryland Sea Grant.

Participant cost is $49 (NOTE: Lunch is not included).

For questions, contact Eric Pyle at pyleej@jmu.edu or Al Bodzin at amb4@lehigh.edu.
2018 ASTE Professional Development Opportunities
Contributed by Debi Hanuscin

The Professional Development Committee is pleased to share with you the listing of Professional Development Opportunities vetted through the PD Committee that will be offered at the 2018 ASTE Conference in Baltimore. We have a great selection of preconference workshops (keep this in mind as you make travel plans) and workshops embedded throughout the conference. **Note that three workshops (**indicated below) require preregistration to attend.** You will find these on the conference registration menu. All other workshops are first come, first served attendance.

### Preconference Workshops

**Wednesday, January 3**

**Using Tools and Practice-based Teacher Education to Support Ambitious, NGSS-aligned Science Teaching within K-8 Methods Courses (1:30-3:30)**

This workshop aims to prepare teacher educators to implement innovative strategies and tools for facilitating K-8 preservice teachers’ engagement in ambitious, NGSS-aligned science teaching. Drawing on the teacher education research around pedagogies of practice, we will introduce a learning cycle for practice-based teacher education that has been used in diverse K-8 science methods courses.

**Brainstorm Cluster Mapping: A Tool for Supporting Phenomenon-based, Three-dimensional Story-lines (1:30-3:30)**

The Brainstorm Cluster Mapping process develops 3 dimensional storylines (NGSS) for the K-12 classroom. The process uses phenomenon to plan an instructional sequence that links disciplinary core ideas, science and engineering practices and cross-cutting concepts into integrated storylines. Concepts are nested as big ideas, sub-concepts and lesson concepts to provide linear storylines for instruction.

**Developing Appropriate Assessment and Evaluation Practices for the Next Generation Science Standards (1:30-3:30)**

Workshop participants will develop theoretical and practical tools for preparing teachers to design and carry out NGSS assessments and to use the resulting information for program improvement. The workshop includes participation in an assessment activity aligned to NGSS and a practical exercise in assessment building. The workshop is built around twelve essential teacher education learning goals.
**Exploring Invention Kits (1:30-3:30)**
Participants will learn how to incorporate engineering principles into their science methods courses by completing the construction of invention kits. These kits will be free of charge and participants can keep them following the workshop.

**PREREGISTRATION IS REQUIRED**

**Integrating Engineering Design with Science and Language Arts within Context of the Next Generation Science Standards (4:00-6:00)**
This workshop will engage participants in an engineering design activity that lends itself to integration of science content with reading and writing activities. It will provide a framework for integrating science, engineering, and language arts at the elementary level while addressing the Next Generation Science Standards.

**Exploring the Use of Simulated Classroom Environments to Develop Elementary Science Teachers’ Ability to Facilitate High Quality Discussions Focused on Argumentation (4:00-6:00)**
Attendees will review one performance-based science task, interact with student avatars in the simulated classroom around this science task, observe an example of a teacher’s performance in the simulated classroom, and discuss how these types of tasks can be used within elementary science method courses and professional development settings.

**PREREGISTRATION IS REQUIRED**

**Eureka! Grade 3–5 Science Activities and Stories (4:00-6:00)**
Invite scientists and engineers into your classroom without the hassle of searching for and scheduling guest speakers. At this workshop you will participate in some of the 27 lessons linking non-fiction historical trade books and science content that uniquely enable you to model scientific thinking by connecting stories of scientists with your elementary (3-5) science lessons.

**Working towards NGSS-aligned Instruction through Development of Multi-dimensional Formative Assessments (4:00-6:00)**
This workshop will focus on the use of a process to develop multi-dimensional formative assessments in partnership with K-8 teachers as a way to support a trajectory of teachers’ increased knowledge and comfort in aligning instruction according to the vision of the NGSS. Student work samples from teacher-developed assessments and teacher will be examined.
Embedded Workshops

Thursday, January 4

Multimodality, Culturally Relevant Teaching, and STEM (9:30-11:30)
Multimodality and CRT are two important considerations in science education. A growing national emphasis on STEM lends importance to the implementation of multimodal approaches in STEM learning environments that will allow teachers to adopt a CRT stance. A hands-on engineering activity (designing a robotic arm) will provide the basis for discussion of multimodality and CRT and their usefulness for teaching.

NSTA/CAEP Preservice Standards: Preparing Your Program Report (9:30-11:30)
This workshop provides support for science teacher educators who lead candidate and program assessment efforts at their respective institutions. Through analysis of sample program data, participants will gain a clear understanding of NSTA-CAEP Standards for Science Teacher Preparation. Suggestions for program report preparation and sample assessments are included.

Introducing Preservice Teachers to the NGSS (3:15-4:45)
Preservice teachers need to be familiar with the NGSS, its goals and assumptions, and how it applies to practice. Therefore, the purpose of this workshop is to help teacher educators, and specifically elementary science methods instructors, explore ways to introduce the NGSS to preservice elementary teachers, and support preservice teachers’ understanding of the NGSS and its pedagogical implications.

Using the NSTA Learning Center as an Online Textbook for Teaching Science Pre-service Teachers (3:15-4:45)
Use the NSTA Learning Center to create a customized online textbook to enhance your science pre-service teachers’ content and pedagogical knowledge. The portal has a plethora of resources (many NGSS-aligned), a suite of tools, and an online community. Professors using the Center will be present to answer questions. http://learningcenter.nsta.org/etextbook
Friday, January 5

Making People of African Origins Visible in the STEM Curriculum: An Exploration into the Science and History of African Rock Art and Reverse Engineer and History of Benjamin Banneker – Catherine Quinlan (8:00-10:00)
This workshop places the content and pedagogy of science into the culture of people of African origins by exploring the science and history of African rock art and the history and reverse engineer of Benjamin Banneker’s life and work.

Preparing Secondary Science Teacher Candidates for the edTPA: Supporting Students in Understanding and Using Feedback (8:00-10:00)
Participants will develop an understanding of how to support teacher candidates in providing feedback and helping their students use feedback which are necessary skills for successful completion of Rubric 13: Student Understanding and Use of Feedback in Task 3: Assessing Student Learning for the edTPA, a performance-based assessment required for teacher certification in NY and other states.

**Using Hands-on Performance Assessment in K-12 Classrooms: An Effective Formative Assessment Strategy for 3D Learning (3:45-5:45)**

**PREREGISTRATION IS REQUIRED**

Engaging Teachers in Engineering and Science Curriculum Development (3:45-5:45)
This workshop will focus on how to engage preservice and inservice teachers in developing curricula that integrate engineering with the existing science curriculum. We will engage participants in engineering design challenges, share our professional development model, and provide K-12 classroom examples of engineering design units developed by preservice and inservice teacher teams.
2018 ASTE Conference – Getting Involved
Contributed by Tisha Morrell

Get Involved—Volunteer for a Committee!

ASTE is your organization! It relies on you, its membership, to keep it revving! Consider volunteering for a Committee. We have something for everyone’s talents and interests—and there are just three prerequisites: (1) you want to serve; (2) you are an ASTE member (so, yes, grad students and not yet tenured folks and those not in higher ed., that does include you); and (3) you complete an application. Descriptions of the committees are found here. The sweet and simple application is here. Questions? Contact Tisha Morrell (morrell@up.edu)

2018 ASTE Conference – Science Teacher Shuffle
Contributed by Tisha Morrell

Join us for the annual Science Teacher Shuffle, a scenic 3 mile run or 2 mile walk along Baltimore Harbor near the conference hotel. Participants will meet in the lobby of the Hyatt on Thursday, January 4, 2018, at 6:45 AM to kick off the conference on the “right foot” and make it back in time for breakfast and the first session! There is no better way to start the day—and certainly no better company! The race is free. All you need to do is complete the application and send via email, fax or snail mail OR bring a completed application to the hotel lobby the morning of the race. The application with numbers/addresses can found here. Hope you will join us!
Dear ASTE Members,

Greetings from the Graduate Student Forum! We are looking forward to seeing everyone at the upcoming conference and wanted to announce two exciting events the Graduate Student Forum will be hosting during the conference.

- **Three Minute Thesis® Competition**: This year the Graduate Student Forum is excited to hold the first annual ASTE Three Minute Thesis® Competition. At this competition, ASTE graduate student members who are preparing to defend will have 3 minutes and one PowerPoint slide to share their research. We hope you consider attending this session to see the exciting work that our ASTE graduate student members are doing! This year’s competitors include:
  - Mila Rosa Carden, Kent State University
  - Jacob Pleasants, Iowa State University
  - Lesley Shapiro, Northeastern University
  - Jonathan Hall, University of Central Florida
  - Diego Rojas-Perilla, Teachers College, Columbia University
  - Peter Hillman, Teachers College, Columbia University
  - Kristina Hopkins, Teachers College, Columbia University

- **Graduate Student Luncheon**: This year the GSF will hold its annual business meeting and election during a special luncheon on the first day of the conference. At this luncheon graduate student members will have the opportunity to connect with each other, hear about the exciting ways that students can become involved in the organization, and vote on new GSF leadership. Graduate student members can sign up for this luncheon when registering for the conference. The luncheon includes pizza, salad and soft drinks and costs $10 to participate. We hope to see many of our student members in attendance!
Finally, we are excited to announce the call for self-nominations for the ASTE Graduate Student Forum officer positions. Election of new officers will occur during the graduate student luncheon at the upcoming ASTE conference. There are two opportunities to serve as a GSF officer:

- **President-elect**: Two-year commitment; help the President plan and lead conference sessions; maintain regular communication with graduate student members of ASTE; serve as President in second year of term.

- **Vice President**: One-year commitment; support the President and President-elect in planning and leading conference sessions and communication efforts.

Detailed position descriptions and eligibility information can be found [here](#). The deadline for self-nominations is December 1, 2017. Nominate yourself online [here](#).

Graduate student members, please consider signing up for this luncheon while completing your conference registration!

Faculty members, please encourage your graduate students to attend!

Contact Andrea, Karl, or Jeanna if you have any questions about the upcoming events or the GSF officer positions. Thank you and see you in Baltimore!

Andrea Rediske - Co-President, Graduate Student Forum ([andrea.rediske@ucf.edu](mailto:andrea.rediske@ucf.edu))
Karl Jung - Co-President, Graduate Student Forum ([kgjung@umn.edu](mailto:kgjung@umn.edu))
Jeanna Wieselmann - President-Elect, Graduate Student Forum ([jeanna@umn.edu](mailto:jeanna@umn.edu))
JSTE New Editors!

Contributed by Meredith Park Rogers & David Haury, Publications Committee, Co-chairs

On behalf of the ASTE Leadership Team and the Publications Committee, we are pleased to announce the new Editorial Team for the Journal of Science Teacher Education

Dr. Todd Campbell
University of Connecticut, USA

Dr. Geeta Verma
University of Colorado, Denver, USA

Dr. Wayne Melville
Lakehead University, Canada

Their tenure as editors will begin January 1, 2019.

We look forward to this next chapter in JSTE’s history and the innovative ideas and expertise this team will bring to the journal.

Sincerely,

Meredith Park Rogers

David Haury
We are pleased to announce that Volume 2, Issue 4 of the *Innovations in Science Teacher Education* journal is now available at:

http://innovations.theaste.org/publication/volume-2/issue-4-17/

This issue features an article that describes the design and use of multimedia modules to support teacher learning of the practice of scientific argumentation. This issue also contains an article that describes a project which immerses preservice teachers in the process of scientific inquiry and provides them with an opportunity to utilize scientific practices. This issue further has an article which describes an innovative professional learning workshop on climate change for secondary science teachers, designed by teacher educators and scientists.

We are also extremely thankful for our dedicated editorial review board members who always provide insightful comments and suggestions to authors.

Special thanks to John Rhea, Director of Electronic Services, for his tireless work developing the *Innovations* journal website. In addition to being able to read articles online, John has included an option to view, print, or save articles as a PDF.

Please help us to spread the news about the *Innovations* journal by sharing the website with your colleagues who may not be ASTE members!

Please join our Facebook Group so you can receive announcements regarding the *Innovations* journal.

If you have any questions regarding the *Innovations* journal, please contact the editors: Rommel Miranda (Rmiranda@towson.edu) or Ron Hermann (Rhermann@towson.edu).
Call for Manuscripts!

The editors of the science section welcome your manuscripts that showcase a type of technology and teacher education at any level. The Science Section of Contemporary Issues in Technology and Teacher Education (CITE) is sponsored by the Association for Science Teacher Education (ASTE). The unique purpose of this journal is to publish peer-reviewed research reports and theoretical articles on the use of innovative technologies in science teacher education. The editors encourage manuscripts that deal with the education of preservice or inservice science teachers as well as college level science faculty. This free, Eric indexed, online journal allows authors to include interactive technologies as part of the manuscript for readers’ direct access to the example technologies. The technologies can include video, audio, animation, and external links. In addition, an extended virtual dialogue is possible, as commentaries on published works are encouraged. Consider submitting your manuscript to CITE Journal - Science. Contact the editors with any questions or suitability of a manuscript.

Andrea Burrows - Andrea.Burrows@uwyo.edu  
Tim Slater - TSlater@uwyo.edu
Mid-Atlantic – ASTE Meeting News
Contributed by Tina Cartwright (Regional Director)

On September 29-30, 2017, the annual meeting of the Mid-Atlantic Association of Science Teacher Education met in Prestonsburg, KY. Conference coordinators Stephanie Philipp (University of Louisville) and Sherri Brown (University of Louisville) arranged a wonderful event on the stunning grounds of the Jenny Wiley State Resort Park.

The 45 attendees, including 12 graduate students, had opportunities to participate in 24 plenary paper sessions, and 14 poster sessions. The number of first time attendees was 16, and 9 states were represented (Georgia, Indiana, Kentucky, Louisiana, Maryland, North Carolina, Ohio, South Carolina, Tennessee, Virginia, and West Virginia). The number of members who paid for their
registration using our new PayPal method was 50 (out of 65). The conference ended with a “Business Meeting” where Tina Cartwright (Marshall University) was elected to serve as the Regional Director. Rommel Miranda (Towson University), as outgoing Regional Director, applauded Kerry Cresawn (James Madison University) for agreeing to coordinate the 2018 Mid-Atlantic Conference in Virginia.

We also awarded our fifth Graduate Student Presentation Award which was recently renamed the Dr. Patricia A. Obenauf Graduate Student Research Presentation to honor the matriarch of the Mid-Atlantic ASTE. This award is a peer-reviewed, merit-based honor intended to recognize outstanding contributions to research, as well as delivery of these contributions. The winner, Kathryn Green (North Carolina State University), presented *Evolution of a partnership: Bringing authentic real-world scientific data into the classroom*. As a recipient of this award, she received a certificate and $750 to travel and present her research at the 2018 International ASTE conference in Baltimore, MD. Notification and requirements to apply for the 2018 MA-ASTE Graduate Student Presentation Award will be submitted via the listserv (April 2018).

We would like to thank Rommel Miranda as out-going Regional Director, Paula Magee (Secretary), and Lisa Gross (Treasurer) for their outstanding dedication, commitment to excellence, and service to MA-ASTE. We are also especially grateful and thankful for Rommel Miranda’s dedicated service to MA-ASTE as Regional Director over the past 3-years. You are AWESOME!
ASTE Elections Committee

Contributed by the ASTE Elections Committee

ASTE elections will run from October 1, 2017 through November 15, 2017. The slate of candidates is listed below. The ballot and candidate background information is available at http://theaste.org/resources/elections/. You must be a 2017 member and logged in to view the information and vote.

**President**
Valarie Akerson
William Veal

**Board Member at Large**
Ian Binns
S. Maxwell Hines
Renee Schwartz
David Slykhuis

**Elections Committee**
Mike Borowczak
Julie Brown
Kristin Cook
Meredith Kier
Erin Peters-Burton
Stephanie Philipp

Questions should be directed to S. Maxwell Hines at HinesSM@wssu.edu. Technical difficulties should go to John Rhea at des@theaste.org.

Regards,

The ASTE Elections Committee
Other Opportunities for ASTE Members
Contributed by Lauren Novo (BSCS)

BSCS Releases Free Online Course for Science Teachers on Energy Concepts

Do we need more wind farms? Should I buy solar panels for my roof? Is my lifestyle contributing to climate change? These are relevant questions in today’s world. And our ability to answer them depends on an understanding of energy.

That’s why BSCS developed EMAT.

This free online course helps teachers frame complex energy concepts in a way that will resonate with high school students and prepare them to participate in important societal conversations. EMAT includes 34 engaging classroom videos, 30 content animations, and 20 interactive learning experiences.

Who can benefit from EMAT?

- Teachers: Deepen your own understanding of energy concepts and enhance your ability to communicate the material to students.
- Teacher Educators: Prepare preservice high school teachers for energy instruction by analyzing classroom videos and interactives together.
- District PD Leaders: Gather teachers in your district for PD sessions around each unit, and empower them to dive deeper into the online platform individually.

To access EMAT, register now for a free account at www.bscs.org/emat.

BSCS is a national nonprofit center dedicated to science education research and development. EMAT stands for Energy: A Multidisciplinary Approach for Teachers.
Newsletter Information

Published four times a year by the Association for Science Teacher Education.

Issue Items due by:

- Summer – Aug. 15
- Autumn – Oct. 15
- Winter – Feb. 15
- Spring – May 15

All members are invited to submit items.

Editors: Ian Binns and Mark Bloom
Email: ian.binns@uncc.edu or markb@dbu.edu

Special Announcement

Hidden within this issue is an “Easter egg.” Find and click on it and you will 1) join an esteemed subset of the ASTE membership and 2) receive a valuable reward.

Your hint: “What he really wanted was to spend Thanksgiving with his family. What he got was three days with the turkey.” Think “big screen movie titles.” Good luck!!!