

# **UTeach STEM Educators Conference 2019**

Program

*June 27–28, 2019 • Thompson Conference Center • Austin, Texas*

# Featured Speaker

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## Dr. Ariel J. Taylor

UTeach Austin, 2011

### *Relax, You Got This!*



WHO are you? WHY are you here? WHAT do you hope to accomplish? Have you identified your motivation to teach and developed an understanding of your purpose? Once you've addressed these questions, HOW do you do what needs to be done? In

this interactive session, Dr. Taylor will encourage, inspire and empower STEM educators to walk confidently in their purpose. This presentation will explore ways to utilize inquiry to implement organic instruction and foster authentic engagement within a positive classroom culture.

Dr. Taylor is a UTeach Austin alumna. She completed the Professional Leadership and Policy Studies doctoral program at the University of Houston in 2017 and completed the UTeach Master's program in 2012. By 2016, Dr. Taylor had obtained her principal certification from Lamar University and superintendent certification from the University of Houston. She has taught high school math and served as district math specialist, as well as serving as a mathematics instructor at Wharton County Junior College. Outside of her educational leadership work, she engages in youth empowerment through the nonprofit organization, The RISE Project, which she founded as an undergraduate student.

Dr. Taylor joined the UTeach Austin team in Spring 2019 as a Master Teacher. She teaches Step 1 and works with Mendez Middle School to support teachers with remediation, enrichment and intervention for their students. Additionally, Ariel is the program coordinator for the UTeach Accelerate pathway.

Dr. Taylor has presented at schools and conferences around the world to assist educators in providing quality learning opportunities. She believes in the importance of authentic engagement and student accountability. Her book, *Party of Four Please!: A Standards-Based Approach to Differentiation Through Blended Learning*, was released in September 2018.

## 2019 USEA Award Winner

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### Outstanding Alumnus Award: Amieé Himler

UTeach Dallas Graduate, Secondary Math Specialist  
Richardson Independent School District



Amieé Himler graduated from the University of Texas at Dallas in 2010 with a B.S. in Mathematics and completed her teacher certification program through UTeach Dallas in spring 2011. She will graduate with her M.A.T. in Mathematics Education in May 2019. Amieé is the Secondary Math Specialist for Richardson ISD, where she has spent her entire career thus far.

Prior to this role, she was a high school math teacher, department chair, curriculum writer, and professional learning presenter. Her commitment to and passion for supporting students and teachers is infectious, and it extends into the UTeach Dallas program. Amieé continues to give back by serving as a mentor teacher to current UTeach Dallas students, as well as leading workshops for teachers in their first three years of teaching. She exemplifies what it means to be an outstanding student, teacher, and leader.

## Conference Program Committee

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Thanks to the Program Committee for their thoughtful input and guidance.

Lisha Haughton  
*UTeach Dallas, 2013*

Spencer Martin  
*UTeach Austin Master's Program, 2014*

John McMahon  
*FSU-Teach, 2012*

Finny Philip  
*UTeach Dallas, 2013*

Maisha Rumman  
*UTeach Austin, 2015*

Mark Townsend  
*UTeach Austin, 2012*

# Playground Exhibitors

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## **Alexander Eden – UTeach UMass Lowell Alumn**

*Biology Instructor, Greater Lowell Technical School*

Explore the materials and strategies Alex Eden developed during his apprentice teaching practicum to support his class of English learners and at-risk students. Learn more about differentiation using sentence frames, visuals, and more. Stop by this table to engage in a conversation about adapting instructional strategies to meet the needs of all students.

## **Carolina Biological**

[www.carolina.com](http://www.carolina.com)

Several hands-on science kits have been donated! Stop by to enter a drawing and peruse the catalogs.

## **Ernest and Sarah Butler Awards for Excellence in Science Teaching**

[www.texmed.org/teachers](http://www.texmed.org/teachers)

Each year, TMA's Ernest and Sarah Butler Awards for Excellence in Science Teaching recognize and reward Texas teachers at the elementary, middle, and high school levels. TMA is giving away a total of \$51,500 in cash prizes to outstanding teachers and their schools. Three first-place Texas science teachers will each receive \$6,000, a \$2,000 resource grant for their school science curriculum, and an all-expense paid trip to TexMed (TMA's annual conference) for the award ceremony. Second-place winners each receive \$4,000 and another \$1,000 for their schools. Rookie awards for teachers who have taught for less than five years are \$1,500 plus \$1,000 for their schools. TMA will award one first-place winner with an additional \$5,000 teacher award - to be announced at the awards presentation ceremony.

## **High School Research Initiative**

[cns.utexas.edu/hri](http://cns.utexas.edu/hri)

The University of Texas High School Research Initiative (HRI) is a scientific inquiry center that provides dual-enrollment research courses, trains teachers to successfully lead research/inquiry experiences, and provides supportive resources to introduce and lead scientific inquiry experiences in a high school environment. We currently partner with 10 Austin-area schools.

## **Keynote Speaker – Dr. Ariel J. Taylor, UTeach Austin Alumna and Master Teacher**

[www.elevationstationedu.com](http://www.elevationstationedu.com)

Ask the keynote speaker, Dr. Ariel Taylor, your questions about empowering students, differentiated instruction, blended learning, and more.

## **Katherine Willrich – UTeach Tech – Manipulatives for inquiry in Mathematics**

[www.uteachtech.com](http://www.uteachtech.com)

Student-centered discovery is possible in trigonometry and geometry with similar triangle and unit circle sets. Inquiry-based lesson plans are also available. Make connections between the Pythagorean formula, distance formula, and the circle with tangible tools, resulting in conceptual understanding in place of rote memorization.

## **Knowles Teaching Fellows Program**

[www.knowlesteachers.org](http://www.knowlesteachers.org)

The Knowles Teacher Initiative supports new STEM teachers in their first five years through ongoing professional development, financial support, and a nationwide network of educators. Find out more about this wonderful fellowship program directly from 2014 Knowles Fellow Sarah DiMaria.

## **MathHappens**

[www.mathhappens.org](http://www.mathhappens.org)

MathHappens plans to share a selection of our large collection of math models activities and exhibits at the Playground. On one side of our table we will have items that might be used in a classroom setting, and on the other we will share some of the ways we have been working with informal education institutions to offer opportunities to learn and reinforce math outside the classroom through models, making and field trips. We will share installations and programs we have helped create around Austin and how those destinations could be part of a math field trip or extra credit assignment. Several of our interns who are also UTeach Makers may also be on hand to discuss ways to integrate making into a math curriculum.

## **Museum of Science, Boston – EiE**

[www.eie.org](http://www.eie.org)

EiE is an award-winning program of the Museum of Science, Boston. Our research-based, hands-on engineering curricula (PreK-8) introduce learners to the engineering design process and create a generation of problem solvers. We design engineering curricular materials, and resources, as well as teach professional development to best innovate for the reality of today's educational landscape.

## **PBS Learning Media**

[www.pbslearningmedia.org](http://www.pbslearningmedia.org)

Learn how to access thousands of innovative, standards-aligned digital resources, compelling student experiences, and professional development opportunities.

## **Stories and Numbers Project – Department of Human Development and Family Sciences, University of Texas at Austin**

[www.storiesandnumbers.org](http://www.storiesandnumbers.org)

The Stories and Numbers project is designed to help students, parents, and school personnel in Texas create safe schools for LGBT and all youth by combining their stories with new research about what works. Stop by to review our Safe Schools Policy Brief and learn more about the data and resources available to educators.

## **Texas Section of the American Association of Physics Teachers**

[texas.aaptsections.org](http://texas.aaptsections.org)

TSAAPT is an organization dedicated to physics teaching at all levels. The organization holds two meetings each year that include presentations on research into the many aspects of physics instruction. Presentations include both invited speakers who are recognized nationally as leaders in physics education research and contributed papers by any teacher who has something interesting to report. TSAAPT was established in 1930 with the fundamental goal of ensuring the “dissemination of knowledge of physics, particularly by way of teaching.”

## UTeach Computer Science

[uteachcs.org](http://uteachcs.org)

UTeach CS Principles is a College-Board endorsed, classroom-ready curriculum and comprehensive teacher materials that are flexible and easy for teachers to use in a variety of high school classroom and school settings. Find out about some terrific professional development offerings—not just for CS teachers!

## UTeach Maker

[maker.uteach.utexas.edu](http://maker.uteach.utexas.edu)

UTeach Maker is an endorsement program that supports passionate UTeach students interested in bringing innovative practices and skills into their STEM classrooms. This program is for pioneers who want to bring project-based, constructionist, Maker education to learning spaces. Stop by to learn more about this work and hear from UTeach Maker Fellows about their teaching philosophies, community, and projects, as well as how they incorporate making into their classroom.

## UTeach Professional Development

[pd.uteach.utexas.edu](http://pd.uteach.utexas.edu)

UTeach Professional Development offers online courses for K–12 teachers on topics ranging from Blended Learning to Inquiry-Based instruction. Our courses are lead and developed by Master Teachers at UTeach Austin. Stop by and learn more!

## UTeach STEM Educators Association | National UTeach Alumni Network

[usea.uteach.utexas.edu](http://usea.uteach.utexas.edu) | [alumni.uteach.utexas.edu](http://alumni.uteach.utexas.edu) | [connect.uteach.utexas.edu](http://connect.uteach.utexas.edu)

The UTeach STEM Educators Association (USEA) unites all UTeach teacher preparation programs, UTeach alumni, and other organizations interested in promoting STEM literacy for all students. Find out more about the association, UTeach alumni benefits, and how to get involved!

## Vernier

[www.vernier.com](http://www.vernier.com)

Our mission is to inspire scientific curiosity in students around the globe. We strive to increase student learning and to support science educators by pioneering technologies used to collect, analyze, and interpret scientific data.

## Women in Physics – University of Texas at Dallas

[wipphysicscamp.wixsite.com/wipcamp](http://wipphysicscamp.wixsite.com/wipcamp)

The Women in Physics (WIP) Camp offers a science-packed week for campers, with topics that include mechanics, electromagnetism, rockets, optics, astronomy, engineering, planetary science, and more. Campers work together in small teams under the guidance of University of Texas at Dallas students and veteran campers to investigate physics with hands-on projects. During the activities, the campers will be given numerous opportunities to use creativity, critical thinking, and teamwork as they explore the wonderful world of physics. Teams will engage in friendly competition to demonstrate how well they have learned to work together in collecting and analyzing data, an important part of any science or engineering career. Stop by to learn more about this terrific outreach model to engage more women and girls in your community in STEM education.

# Thursday, June 27

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**12:00–1:00 p.m. Registration / Check-In**

**Lobby**

**1:00–2:30 p.m. Keynote**

**Auditorium, 1.110**

**Relax, You Got This!** Dr. Ariel J. Taylor will speak about student empowerment and authentic engagement in the classroom.

**2:30–4:00 p.m. UTeach Playground**

**2.102**

Discover some favorite tips or tricks for engaging students from fellow STEM educators. Learn about great classroom resources, awards programs, and more while you visit with our exhibitors and mingle.

**4:00–6:00 p.m. Welcome Reception**

**Dining Room**

Reconnect with your community, make new friends, and participate in relevant roundtable discussions at the welcome reception. The event includes appetizers and two complimentary drink tickets.

# Friday, June 28

8:00–9:00 a.m. Breakfast and Registration / Check-In

2.102

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9:00–10:00 a.m.

## ***The Inquiry-Based Math Classroom: Using Manipulatives to Guide Planning | 3.108***

*Katherine Willrich, Undergraduate Intern, Student Teacher, Louisiana Tech University*

*Glenn Larson, UTeach Master Teacher, UTeachTech, Louisiana Tech University*

During this interactive session, attendees will participate in a 5-E lesson designed to stimulate lesson plan creativity. In small groups, participants will be introduced to several math manipulatives and brainstorm ideas for their use in inquiry-based lesson plans. Ideas will be shared throughout the room, and teachers will have the chance to co-design lesson plans. Afterward, the attendees will become the students and complete an exploration exercise entitled "Discovering the Unit Circle." Attendees will leave with new ideas about the possibilities of inquiry-based lessons for mathematics and fresh perspectives on how to design them.

## ***Cracking the Code: Computer Science in General STEM Classes | 3.110***

*Amanda Schantz, Math/Computer Science Teacher, Central High School, Philadelphia School District*

*Timothy Bovitt, TUTEACH Undergraduate Student, Temple University*

Come learn to guide your students toward applying basic coding in your STEM discipline. Students will integrate computer science while building 21st century skills to explore real-world connections.

## ***Digital Making in a Blended Class | 3.122***

*Maisha Rumman, Biology Teacher, Del Valle High School*

*Kelli Allen, Clinical Assistant Professor, UTeach Austin*

Blended learning and maker education may seem like different teaching methodologies. However, combining the two may be a recipe for student success. In this session, you'll learn about making digital products such as animations and preview a blended lesson about mitosis. We'll learn to make animations, GIFs, and videos in a blended setting (please bring a laptop or phone).

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10:15–11:15 a.m.

## ***Best Blended Learning Practices from Teachers across the State of Texas | 3.108***

*Emily Jones, PD Course Facilitator, UTeach Austin*

*Kelli Allen, UTeach Professional Development Program Developer and Coordinator, UTeach Austin*

As facilitators for the UTeach Blended Learning Academy, we will model blended tools and frameworks to encourage student-centered learning,

and share exemplary work products that make use of these initiatives.

## ***Making Makes Students Love Learning | 3.110***

*Kira Lowery, 7th Grade Science Teacher, NYOS Charter School*

Making helps encourage a positive, risk free, and fun environment for students. This session will outline the positive results of using making in classrooms. Examples of maker-based lessons currently being

used at NYOS Charter School will be shown, and teachers will have the time to design and share a maker-based lesson. The session will address the definitions of failure and success in the classroom and how standards-based grading aligns with the maker mindset. Teachers will be challenged to take one of their current lessons and convert it into a maker-based lesson. This will involve teachers using the Elements of Making Matrix to incorporate the basics of making. Teachers will be able to collaborate together and ask questions about possible challenges with maker lessons, such as time restraints and materials. Teachers will also be able to leave this session with usable handouts including rubrics, checklists, journal reflections, and group contacts. With resources and time to construct a maker-based lesson, attendees will be able to leave this session with ideas to use in their classrooms.

### ***Captivating Students with Escape Rooms | 3.122***

*Katy Howell, Teacher, Department Chair, Instructional Specialist, Travis ECHS, Austin ISD*

Participants will collaborate in an escape room designed for high school students to see how puzzles can boost engagement and put the responsibility of learning back on students. Blended activities and clues keep students working together and allow all everyone to find success. Formatively assess where students are as they progress through activities together and watch as they assess their own understanding of concepts. Digital locks keep this escape room experience FREE for teachers!

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## **11:30–12:30 a.m.**

### ***Teaching 21<sup>st</sup> Century Physics | 3.108***

*Jill Marshall, Associate Professor, Science and Mathematics Education, The University of Texas at Austin*

In this session we will review research-based model activities to address the Texas physics TEKS (standards) and relate them to the NGSS. We will cover old standards such as circuits, as well as 21st century topics such as the recent black hole image. We will also provide access to additional resources through the Physics Teacher Resource Agents of the American Association of Physics Teachers. Bring your questions about teaching physics and we will brainstorm ideas!

### ***Fostering a Learning Culture Through Formative Assessments | 3.110***

*Carlos Perez, Biology Teacher, Cypress-Fairbanks ISD*

Formative assessments can create a culture of learning in the classroom, a culture in which students learn from their mistakes. Participants will engage in a 5E lesson to learn more about formative assessments. Throughout the presentation, participants will analyze how students can learn through mistakes, evaluate

the effectiveness of formative assessments, and identify the best times to complete formative assessments. Some formative assessment ideas will be shared with participants.

### ***How a Culturally Responsive Pedagogy Can Change Your STEM Classroom | 3.122***

*Susan Holzknecht, Science Teacher, Katy ISD*

*Sergio Arjon, Science Teacher, Houston ISD*

*Amanda Campos, Science Teacher, Spring Branch ISD*

Participants will learn how to use the culture of their students and school community to give STEM lessons purpose and meaning through provided lesson examples, evaluation tools, and practice.

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## 12:30–1:30 p.m. Lunch

2.102

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## 1:30–2:30 p.m.

### ***Conceptual Cardboard | 3.108***

*Krystal Evans, Math Teacher, Lockhart ISD*

For this session you will work as a team to create a 3D representation of a STEM concept. In addition, you have the option to create a story applying the concept. Participants will explore practical, classroom-ready techniques for making in the classroom while working in teams to create a 3D artifact. Make your content area come to life with art, design, craft materials, real tools, and more.

### ***Blended Learning for Middle and High School Classrooms | 3.110***

*Julie Sandifer, High School Math Teacher, Quitman High School*

Blended learning is an excellent teaching style to maximize student engagement and learning for students. By incorporating technology, hands-on activities, and small group collaboration, students become more engaged. Whether you are a veteran teacher or new to the field, come experience a

blended learning classroom using a station rotation format and watch actual footage of students who participated in blended learning this spring. Participants will experience research-based instructional strategies paired with technology to enhance individualized student engagement. We will wrap up with discussions about the inherent challenges of rotation including planning, execution, and effective rubrics so that students work with intention and accountability.

### ***All We Are Saying Is, Give Choice a Chance | 3.122***

*Lisha Haughton, Biology Teacher, Allen ISD*

An exploration of one teacher's journey into the sometimes scary world of student choice. Examine ways to approach student choice from all comfort levels. Learn how it's not giving up control but rather opening a gateway to empowering students to own their learning and to stop playing at the game of school.

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## 2:45–3:45 p.m.

### ***Collaborating with the Informal Education Community to Combat Math Misery | 3.108***

*Lauren Siegel, Director, MathHappens*

Students can have trouble seeing the point of their math studies. Partnerships with the museum community can help connect math to real-world events and show its value to our society. Field trips to the La Belle ship at the Texas State History Museum offer opportunities to connect math to this historic voyage by highlighting the critical navigation techniques and tools of the 17th century which were invented by mathematicians.

### ***Super Simple Tools and Tips for Integrating Computer Science into Your Math and Science Classes | 3.110***

*Sarah Jenevein, Program Coordinator, UTeach Computer Science*

Learn how computer science activities supporting math and science standards can provide engaging experiences for students and find standards- and project-based resources you can use in your classroom now.

### ***Connecting Student Funds of Knowledge to TEKS | 3.122***

*Ali Robbins, Teacher, Spring Branch ISD*

*Sarah Vanderpool, Teacher, Spring Branch ISD*

*Marina Rodriguez, Teacher, Houston ISD*

*Evelyn Prosperie, Teacher, Katy ISD*

*Krystal Kotal, Teacher, Galena Park ISD*

All students bring with them a wide range of prior knowledge that teachers can leverage to make connections to their learning. This session will provide an introduction employing the funds of knowledge that students possess and the importance of connecting their prior knowledge to learning standards. Also, how teachers can utilize funds of knowledge for asset-based connections to project-based STEM instruction will be discussed.

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### **3:45–4:30 p.m. Closing General Session**

#### **2.102**

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