

**SIXTEENTH ANNUAL
UTEACH STEM
EDUCATORS
CONFERENCE
2022**

JUNE 22–23

**SECOND ANNUAL
EQUITY & RACIAL
JUSTICE IN STEM
TEACHER DEVELOPMENT
SUMMIT 2022**

JUNE 21

Program

AT&T Executive Education and Conference Center • Austin, Texas

The UTeach Institute partners with the National Math and Science Initiative to expand the UTeach program to universities across the country. We thank NMSI for their generous support as co-presenters of the UTeach STEM Educators Conference.

UTeach Institute

WE PREPARE TEACHERS. THEY CHANGE THE WORLD.



NATIONAL
MATH + SCIENCE
INITIATIVE

Schedule Outline & Strand Descriptions

Schedule Outline

TUESDAY, JUNE 21

10:00–11:30: Keynote
11:30–1:00: Lunch
1:00–4:30: Sessions
5:00–7:00: Reception

WEDNESDAY, JUNE 22

7:00: Breakfast
9:00–10:30: Keynote
11:00–12:00: Sessions
12:00–1:15: Lunch
1:15–4:45: Sessions
5:00–7:30: Reception and Poster Session

THURSDAY, JUNE 23

7:00: Breakfast
9:30–11:45: Sessions
11:45–1:00: Lunch
1:00–2:00: Sessions
2:15–3:30: Closing Panel

Strand Descriptions

SUMMIT

Defining Our Purpose. Exploring equity and diversity and their importance in K–12 STEM education and in university-based teacher development.

Developing Self-Awareness. Supporting K–12 professionals, higher education faculty, and preservice teachers with understanding how personal perspectives affect professional practices and the classroom environment.

Embracing Equity Within Practice. Strengthening the UTeach curriculum and connections between UTeach courses, with attention to equity and racial justice in education and support for K–12 educators and classroom practices.

Research on aspects of equity, diversity, inclusion, and racial justice in K–12 or higher education.

CONFERENCE

Strengthening Instruction. Curriculum and instruction at K–12 and higher education levels.

Out-of-Class Support for Everyone. Support UTeach faculty and staff, UTeach students, and K–12 teachers and students in ways that are not explicitly academic.

Adapting and Strengthening the UTeach Program and Curriculum. Program model, program operations, program curriculum, and national efforts.

Preservice Teacher Topics. Practical sessions for preservice teachers in UTeach programs.

Research on K–12 STEM education, higher ed STEM education, and university-based teacher preparation.

Speakers and Panelists

Summit Keynote Speaker



DR. TERRANCE GREEN

Dr. Terrance L. Green is an Associate Professor of Educational Leadership and Policy at the University of Texas at Austin.

Professor Green co-directs the Texas Principals Leadership Academy at UT

Austin, where he's spent nearly the last decade preparing school leaders to do transformative racial justice work. Prior to becoming a professor, Dr. Green was a high school science teacher.

He holds a PhD in Educational Leadership and Policy Analysis from the University of Wisconsin-Madison (#OnWisconsin) and a BS from Kentucky State University, a Historically Black University. Professor Green is also the creator of the Racially Just Schools podcast and is a native of Detroit, Michigan.

Conference Keynote Speaker



DR. MARIAM MANUEL

Dr. Mariam Manuel is an Instructional Assistant Professor/Master Teacher for *teachHOUSTON*, a secondary STEM teacher preparation program in the Department of Mathematics at the University of Houston. She is a proud

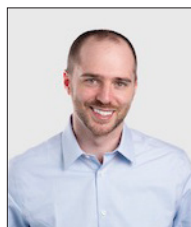
graduate of the University of Houston and was part of the inaugural cohort of the *teachHOUSTON* program during its inception in 2007.

Prior to joining *teachHOUSTON* as a faculty member, Dr. Manuel taught high school physics and served as a science instructional coach for a high-need school district in the Greater Houston Area. In addition to preservice STEM teacher education courses, Dr. Manuel teaches Physics for Middle School Teachers and has authored/taught graduate-level coursework in Engineering Design Education for the UH STEM Master's program. Dr. Manuel serves on multiple grants and actively publishes and presents at national research conferences. Her research interests include STEM teacher preparation, engineering design education, and culturally responsive pedagogy. She is the director of STEM RISE student success. STEM RISE (STEM Research Inquiry Summer Enrichment) is designed to better prepare

future STEM teachers and medical professionals, and support high school students from Houston's historic Third Ward Community in empirical STEM research and laboratory experiences.

Dr. Manuel was presented with the 2018 Million Women Mentors Stand Up for STEM Award, which recognizes efforts in mentoring young girls and women to pursue STEM-related career pathways. She is also the recipient of the 2019 Association of Women in Mathematics Certificate of Service to the Field for Mentorship of Girls and Young Women in STEM. In 2020, she was honored with the UTeach STEM Educators Association Award for Outstanding Contributions to STEM Education. She is the 2022 recipient of University of Houston College of Natural Sciences and Mathematics Butler Excellence in Teaching Award. Dr. Manuel was recently selected as the 2022 Vice President/President Elect for the UTeach STEM Educators Association.

Closing Panelists



MICHAEL RALPH MODERATOR

Michael Ralph is a Senior Associate, Lead Researcher at Multistudio. He was an award-winning biology educator in the Kansas City area, where he was the recipient of the Outstanding Biology

Teacher Award in 2014 and the NABT Genetics Education Award in 2016. He also worked as a Master Teacher at the Center for STEM Learning at the University of Kansas, where he was the recipient of the USEA Outstanding Master Teacher Award in 2020 for his work teaching Research Methods and advancing Maker education in STEM. He now leads the Research Center at Multistudio, where he supports community engagement, study design, and project integration that connects education research, environmental evaluation, and learning space design.

Mr. Ralph's work emphasizes the importance of interdisciplinary connections in both educational scholarship and instructional practice. He holds a BS in Biology, an MS in Chemical and Life Sciences, and is a PhD candidate in Educational Psychology. He combines his experience in classroom praxis with his expertise in research methodology. He has published in biology teaching (*Biology Rocks!*) and in scholarly journals related to education policy, measurement, and curriculum. In his research he strives to elevate the voices of those living and working in each research context. He works as the principal investigator of the Gender Inclusive Design Study at Multistudio and as a collaborating researcher in the application of Universal Design for Learning principles in school spaces.

Speakers and Panelists



LAUREN BENOIT

Lauren Benoit was born and raised in Beaumont, Texas and is a proud product of the Beaumont Independent School District. She is also a graduate of the UTeach Austin program at the University of Texas at Austin, where she earned a

BS in Interdisciplinary Science in 2010 and began her teaching career in 2011, teaching middle school science at Mendez Middle School in Austin ISD. Throughout her teaching career, Ms. Benoit has dedicated herself to her students, school, and the community. The Texas Education Agency has recognized her with a Science Distinction at her previous campus, and she has been named Teacher of the Year multiple times in two school districts.

Her dedication and passion eventually led her to receive her MEd from Concordia University in 2015 and into administration, where she served as Assistant Principal for two years at Elgin Middle School. Ms. Benoit had the pleasure to come back to her roots and join the UTeach Austin team in 2019 and served as the Manager of Instructional Support for the UTeach Institute, where she provided teacher support and helped with school improvement to their partner school, Mendez Middle School. Ms. Benoit is now Secondary Principal in the NYOS Charter School in Austin.



WILLIAM CHAN

William Chan is a passionate educator in science and math learning and his UTeach experience at both undergraduate and graduate levels has inspired him to commit his life to STEM education. Mr. Chan began his teaching

career as a high school chemistry teacher in Sugar Land, Texas. During his journey in education, he accumulated other significant professional experience in addition to classroom teaching, such as presenting at NSTA national conferences and facilitating professional development programs for chemistry teachers on inquiry-based pedagogy at Rice University.

In 2018, Mr. Chan was awarded the University of Chicago Outstanding Educator Award. Between 2018 and 2021, Mr. Chan took a hiatus in public education and invested his time in the private sector. Last year, he took on a new challenge to teach algebra II and precalculus, an adventure he has been waiting on for years. The goal of his new adventure is to implement sound, research-based theories to help more students engage in meaningful math learning in the classroom.



ABRIA HARRIS

Dr. Abria Harris received his BS in Mathematics and Secondary STEM Teaching from Florida State University and is a 2013 FSU-Teach alumnus. He received his master's degree in Curriculum and Instruction from Grand

Canyon University. Most recently, he received his doctorate's degree in Educational Leadership from the Nova Southeastern University.

Dr. Harris has been a secondary mathematics teacher and a district mathematics instructional specialist. He currently serves as clinical mathematics faculty with the FSU-Teach program on the campus of Florida State University. He has received numerous awards and recognitions for his contributions to the profession and service to his community at large.



KATY HOWELL

Katie Howell is an innovative instructional coach, department chair, and educator at Travis Early College High School in Austin, Texas. She has spent the last decade developing relevant, engaging, hands-on curriculum that

promotes success with a wide variety of learners. She believes in inquiry-based learning and student-driven research and worked to establish Travis's annual campus-based science fair. Recently she has been obsessed with creating blended escape rooms that provide unique opportunities for students to collaborate, strategize, and challenge their brains in new ways while learning. This UTeach Austin graduate earned a BS in Biology in 2012 and has been sharing her enthusiastic love for learning and science ever since.



VIVIANA LOZANO

Viviana Lozano received her BS in Physics from the University of Houston in 2022 and was a part of the *teachHOUSTON* program. She student taught during the Spring 2022 semester at Spring Branch ISD. She will begin teaching in the fall

at Spring Woods High School as a physics teacher and cross-country coach. As a teacher, she hopes to cultivate inquiry-based learning and encourage students to become critical thinkers and enjoy learning about STEM.

OUTSTANDING FACULTY TEACHING



EMILY HENNESSY

Emily Hennessy is an assistant professor of instruction in the department of Science and Mathematics Education in the School of Natural Sciences and Mathematics at the University of Texas at Dallas. After teaching in elementary

school for several years, she earned her Master of Arts in Science Education at the University of Texas at Dallas in 2009.

She began her higher education career with the Teacher Development Center and joined the UTeach Dallas program as an instructor in 2016. She currently teaches Step 1, Teaching and Learning in Science and Mathematics Education, and Science Methods for EC-6th grade. In addition, she is the advisor for the Master of Arts in Teaching in Science and Mathematics Education programs where she works with both current and preservice teachers.

Hennessy has valued the education of future teachers her entire career. She derives immense enjoyment from working with students and colleagues in preparing successful and effective educators.

OUTSTANDING FACULTY SCHOLAR



SHERRY SOUTHERLAND

Dr. Sherry Southerland is the Anne & John Daves Professor of Science Education within the College of Education, Director of the School of Teacher Education, and one of the two founding co-directors of the FSU-Teach

program at the Florida State University. Southerland had wide preparation for this role, as she has also worked as a high school science teacher, a field biologist, and a forensic chemist.

Southerland currently serves as the Co-Editor-in-Chief for Science Education, a preeminent outlet for empirical research focusing on our understanding of science teaching and learning. She has served as an Associate Editor for Educational Researcher, a preeminent outlet for research focusing on education more broadly. In addition, Southerland serves on a host of other editorial boards.

She is a Fellow of the Royal Society of Biology, the leading professional body for biologists in the United Kingdom and is also a fellow of the American Association for the Advancement of Science in recognition of her research into the factors shaping teacher learning around messages of reform. Southerland has been named a McKnight Graduate Mentor and served as an Eminent Scholar to support junior faculty at regional institutions.

Propelled by the commitment that all learners need to be able to use the tools of science and mathematics to make sense of and problem solve in their world, Southerland's research sheds light on teacher learning about innovative instructional practice. She has worked closely with a number of colleagues (including mentoring 37 doctoral students) in her research efforts. Southerland's research has described the unintended consequences of national and state educational policies for STEM learning — as the demand for rapid improvements undercuts more long-term, student-centered teaching practices necessary to support student sensemaking, undercutting our efforts toward educational equity. Her student-focused research highlights instructional strategies effective in supporting the development of science proficiency for all students (with a particular emphasis on students traditionally underserved in science classrooms). Taken together, Southerland's research points to the fundamental importance of teachers in supporting students' development in STEM, it speaks to the ways in which effective STEM instruction can be structured, and it provides insights into how teacher education programs can support preservice, novice, and in-service teachers in "taking up" these practices in equitable ways.

Southerland has helped obtain over \$15 million in external funding and is currently the PI of two federally funded research grants. Her funding from the National Science Foundation's Noyce program has supported the preparation of over 70 novice STEM teachers and a wide range of equity-minded STEM outreach efforts that support students traditionally underserved in STEM as they help recruit new STEM teachers. Other research efforts (funded by NSF and IES) have allowed for the development of innovative instructional practices and associated professional development opportunities. She's been author or co-author of over 70 research articles, two methods books, numerous book chapters and teacher support texts, and hundreds of presentations in which she has shared the findings of her team with others in the STEM teacher education communities.

2022 USEA Awards

OUTSTANDING MASTER TEACHER



PAIGE EVANS

Dr. Paige K. Evans is a Co-Director, Clinical Professor, and Master Teacher for the *teachHOUSTON* program at the University of Houston (UH), where she teaches and oversees courses in preservice STEM teacher education.

Prior to joining the UH faculty in 2008, she spent 18 years as a math/science educator and served in various leadership positions.

Dr. Evans secured \$14 million in grant funding and is the PI/Co-PI on several federal grants with goals to broaden STEM participation and improve STEM literacy for all. She frequently publishes and presents on her research interests that include STEM teacher preparation, STEM education, and culturally responsive pedagogy. Moreover, she recently co-authored the book *Preparing Teachers to Teach the STEM Disciplines in America's Urban Schools*.

Dr. Evans served as President of the UTeach STEM Educators Association and was an American Physical Society Physics Teacher Education Coalition Fellow. She is the recipient of four UH Teaching Excellence Awards including the 2022 UH Distinguished Leadership in Teaching Excellence Award. Additionally, she was honored with the American Educational Research Association Narrative Inquiry Outstanding Publication Award, the American Physical Society for Improving Undergraduate Physics Education Award, the UH 50 in 5 Faculty Award, and STEM for all Video Showcase Awards in both 2021 and 2022.

OUTSTANDING STAFF



MICHELLE LOWRY

Michelle Lowry, graduate of St. Edward's University in Austin, is the Senior Software Developer/Analyst for UTeach Austin. She directly supports all groups under the UTeach umbrella, including the academic program, UTeach

Institute, and UTeach Outreach. She joined UTeach in the fall of 2011 after 17 years in various roles at Motorola/Freescale Semiconductors, learning the fascinating process of turning silicon-rich sand into computer chips. Her current job role ranges from maintaining public websites to developing web applications for faculty and solving technical problems. Lowry has a desire to support her amazing coworkers in any way, to aid them to be as successful and productive as possible. Outside of work she enjoys going to comedy shows and rock concerts with her friends.

OUTSTANDING ALUMNI



ALEXANDER EDEN

Alexander Eden is a graduate of the UTeach program at the University of Massachusetts Lowell. He is in his third year of teaching at Greater Lowell Technical High School in Tyngsborough, Massachusetts, which is home to

students from various socioeconomic and demographic backgrounds. As an individual from an immigrant Latino family and a first-generation college graduate, he is honored to be able to work with such diverse students daily. In his career so far, Eden has received honors such as the Dawn Sather Exemplary New Teacher Award from the Massachusetts Association of Science Teachers as well as the National Science Teaching Association's Shell Science Urban Educators Development Award.

In his classroom, he focuses on letting student identities shine brightly. He encourages students to take risks, use their voice, and let their curiosity shine. He wants them to be as true to themselves as possible so that they can highlight their individuality. At the end of each class, he always reminds students "to spread good vibes" as he wants them to believe in the positive force that they can have on those around them. In addition to that, Eden believes that while scientific information can be found in any textbook, the best way to appreciate it is through active learning and discovery. As such, his pedagogy pushes students to design and execute inquiries, explore the outdoors, and challenge known phenomena.

In addition to the influence had within the classroom, Eden is always seeking opportunities to have an impact on the greater community. For example, he currently serves as a member of the board of trustees for a local charter school, providing critical input into decisions. He also attends and presents at conferences both locally and nationally. This includes national conferences hosted by the NSTA and the NABT. He believes that great strides can be accomplished by growing connections, sharing ideas, and collaborating!

This fall, Eden will begin a PhD program in Biology at Florida International University, where he will be conducting Biology Education research under the guidance of Dr. Bryan Dewsbury. His long-term goal is to teach at a university while conducting research into improving Biology and STEM education for students of all backgrounds.

USEA Executive Board

Please welcome the 2022–2023 Executive Board members! The Executive Board advocates for all of UTeach Nation — UTeach programs, alumni, and other STEM education teachers and supporters. In the coming year, they will engage with members to set a new course for the next decade of USEA!

President



DR. MARY ANDERSON

Dr. Mary C. Anderson is an Associate Professor in the Department of Teaching & Learning in the College of Education & Professional Studies at Old Dominion University (ODU). She led efforts in obtaining state funding to replicate the UTeach model for ODU — the first university in the Commonwealth of Virginia to join the UTeach network. She has been co-director since the program began in 2012 and is active in teaching, researching, and supporting the program at various levels.

Dr. Anderson received her Ph.D. in Mathematics Education from the University of Georgia, Athens, GA. She began her mathematics career teaching at the high school level and from there moved into the higher education arena. She has held positions at two other universities prior to arriving at ODU in 2012. Dr. Anderson's research interests focus on STEM teacher preparation, mathematics and STEM literacy, mathematics coaching, and Modeling & Simulation in STEM teacher preparation. She has strong interdisciplinary research connections that have resulted in research endeavors in areas that have connections with mathematics. Dr. Anderson is committed to the UTeach philosophy and believes that recruitment of diverse students into UTeach programs is critical to the success of middle and high school students selecting future careers in STEM fields.

instructional coach for a high-need school district in the Greater Houston Area. In addition to preservice STEM teacher education courses, Dr. Manuel teaches Physics for Middle School Teachers and has authored/taught graduate-level coursework in Engineering Design Education for the UH STEM Master's program. Dr. Manuel serves on multiple grants and actively publishes and presents at national research conferences. Her research interests include STEM teacher preparation, engineering design education, and culturally responsive pedagogy. She is the director of STEM Rise student success. STEM Rise (STEM Research Inquiry Summer Enrichment) is designed to better prepare future STEM teachers and medical professionals, and support high school students from Houston's historic Third Ward Community in empirical STEM research and laboratory experiences.

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Vice President / President-Elect



DR. MARIAM MANUEL

Dr. Mariam Manuel is an Instructional Assistant Professor/Master Teacher for *teachHOUSTON*, a secondary STEM teacher preparation program in the Department of Mathematics at University of Houston. She is a proud graduate of the University of Houston and was part of the inaugural cohort of the *teachHOUSTON* program during its inception in 2007.

Prior to joining *teachHOUSTON* as a faculty member, Dr. Manuel taught high school physics and served as a science



DR. MARY URQUHART

Dr. Mary Urquhart is Director of UTeach Dallas and has led the program since she was a founding Co-Director in 2007. She is an Associate Professor and Head of the Department of Science/Mathematics Education in the School of Natural Sciences and Mathematics at the University of Texas at Dallas (UT Dallas) as well as an Affiliate Associate Professor of Physics. Dr. Urquhart has been the physics and Earth/space science content specialist for the Master of Arts in Teaching (MAT) program in Science Education at UT Dallas in Science Education since she came to the university in 2002, and in her role as Department Head now leads both that program and the MAT in Mathematics Education.

USEA Executive Board

In addition to her teaching, administrative roles, and work with USEA, Dr. Urquhart is a Co-PI and Curriculum Team Lead with the NSF-funded STEPP project and has served as PI / Project Director for NSF Noyce grants and several programs for in-service teachers through the Texas Regional Collaboratives for Excellence in Science and Mathematics Teaching, WeTeach_CS, the Texas Education Agency, and the Texas Higher Education Coordinating Board. Her current scholarly and creative work continues in instructional design, professional development, and assessment. She serves on multidisciplinary research teams involving educators, physicists, computer scientists, animation experts, and geoscientists. Since 2003 she has served as the founding faculty advisor for the student-run Women in Physics camps targeting middle school girls. She continues to be passionate about, and active in, science communication with students, teachers, and the public.

Member-At-Large



DR. CHRISTINA STEEL

Dr. Christina Steel is a Senior Lecturer in the Department of Biological Sciences in the College of Sciences at Old Dominion University. She joined the MonarchTeach program in Spring 2016, developing and teaching Research Methods with the first cohort of students, and continues to teach this course. She has served as the College of Sciences Co-Director since 2019.

Dr. Steel received her PhD in Biomedical Sciences from Eastern Virginia Medical School and Old Dominion University (joint program) in Norfolk, VA. She began teaching as an adjunct at Tidewater Community College in 2008 and at Old Dominion University in 2010 before moving to a full-time lecturer position in 2013.

Dr. Steel's research interests focus on models of viral encephalitis in mouse models and molecular characterization of skin responses in human in-vitro models. She strongly

believes that the UTeach model will help create strong, diverse future teachers who use inquiry- and project-based learning that models authentic scientific practices, and will create a more welcoming, enabling classroom that shows diverse students that they can and do belong in STEM.

Member-At-Large



DR. ALEXANDRA EUSEBI

Dr. Alexandra Eusebi joined the faculty of the UTeach program at the University of Texas at Austin as an assistant professor of practice in January of 2019. She instructs and supports multiple courses in the College of Natural Sciences and

College of Education, including Introduction to Inquiry-Based Learning (Step 1), Introduction to Inquiry-Based Lesson Design (Step 2), and Project-Based Instruction (PBI). Besides working with university students, Dr. Eusebi facilitates and writes curriculum for UTeach Austin's Professional Development group. She has recently developed a new workshop on Designing PBI for the Blended Classroom. Additionally, Dr. Eusebi works with Texas State's Mathworks program as a Master Teacher and curriculum writer/editor.

Dr. Eusebi is the Academic Director for UTeach Access — a new co-enrollment program between the University of Texas and Austin Community College. The program's goal is to increase the number of highly qualified STEM educators in Texas classrooms. UTeach Access provides additional pathways toward secondary STEM certification for underrepresented students. The first cohort for the UTeach Access program will begin classes fall of 2022.

Dr. Eusebi earned her PhD in Chemical Engineering from the University of California, Los Angeles. She has been working in education and teaching for over 20 years and has 14 years of experience teaching and writing curriculum for secondary mathematics.

Our outgoing members have led USEA and UTeach Nation during some of the most turbulent and empowering moments in education. We appreciate their leadership and their efforts to further the impact of UTeach Nation, USEA, and STEM education at large and to tirelessly advocate for equity for all students.

Pat McGuire, Past-President

Elizabeth Goldberg, Secretary

Sara Hammond, Member-at-Large



EQUITY AND RACIAL JUSTICE IN STEM TEACHER DEVELOPMENT SUMMIT

JUNE 21
AUSTIN, TEXAS

USEA UTeach STEM
Educators Association

10:00 A.M. TO 11:30 A.M.

KEYNOTE ADDRESS: BUILDING RACIALLY JUST EDUCATIONAL SPACES THROUGH CRITICAL AND PRAXIS-BASED LEARNING EXPERIENCES | ZLOTNIK BALLROOM

Dr. Terrance Green, Associate Professor, Department of Educational Leadership and Policy, University of Texas at Austin

This interactive keynote session will take participants through a praxis-based process to confront issues of racial injustice in their educational spaces. The first portion of the session will be spent fostering a collective understanding and the remaining time will be focused on a process that participants can use in their work.

11:30 A.M. TO 1:00 P.M.

LUNCH | TEJAS DINING ROOM, LEVEL M2

1:00 P.M. TO 2:00 P.M.

TOOLS FOR WORKING TOWARD EQUITY AND ANTI-RACIST PRAXIS IN STEM TEACHER EDUCATION | ROOM 103

Jennifer Dechaine, Chair, Department of Math and Science Education, Central Washington University
Darin Knapp, Associate Director, CWU Teach STEM, Central Washington University
José Rios, Associate Professor, University of Washington Tacoma

Higher Education | Embracing Equity Within Practice

In this interactive presentation, we will describe and discuss CWU Teach STEM's journey since 2020 to identify and improve structures, practices, and program culture for supporting the recruitment and retention of minoritized students in Central Washington University's UTeach programs. We will briefly introduce the key frameworks supporting this work. We will then lead an interactive discussion of our major learnings to date from multiple data collection processes, such as analysis of student retention by demographics and student/alumni focus groups. Our data collection process utilizes a custom tool that provides questions and reflection to assess five broad goals for STEM teacher education programs to improve their anti-racist praxis. We will share this tool and guide participants in exploring and considering how the tool could apply to their own UTeach programs.

WALK A MINUTE IN THEIR SHOES: USING STORY TO GAIN THE PERSPECTIVE OF DIVERSE LEARNERS | ROOM 104

Curtis Turner, Master Teacher, UCCS Teach, University of Colorado, Colorado Springs
Alissa Whitesell, Student, University of Colorado, Colorado Springs
Jordyn Kinsey, Student, University of Colorado, Colorado Springs

Higher Education | Developing Self-Awareness

In this session we will highlight an assignment we have been using in UCCS Teach's Perspectives on Science and Mathematics course. This course is designed to address equity issues in mathematics and science classrooms, as well as to broaden student perspectives. In this assignment, students listen to interviews with people of color who tell stories about personal experiences throughout their education. These interviews prompt students to think about perspectives they may not have personally experienced. They examine how situations, contexts, or interactions — particularly negative ones — have had long-term effects on the interviewees. Attendees will listen to excerpts of the interviews and hear Perspectives students discuss how the assignment influenced their thinking.

SELF-AWARENESS, STUDENT EMPOWERMENT, AND COMMUNITY PARTNERSHIPS: DESIGNING AN EQUITY-FOCUSED NEW TEACHER INDUCTION PROGRAM | ROOM 107

Lisa Sparks-Hardeman, New Teacher Support Specialist, San Antonio ISD
Lisa Tellez, New Teacher Support Specialist, San Antonio ISD
Clarissa Dovalina, New Teacher Support Specialist, San Antonio ISD
Nisan Kartaltepe, New Teacher Support Specialist, San Antonio ISD
Esmeralda Elizondo, New Teacher Support Specialist, San Antonio ISD
Anastasia Rodriguez Perez, New Teacher Support Specialist, San Antonio ISD

K-12 Education, Higher Education | Developing Self-Awareness

How do we embolden new teachers to value and leverage the strengths and contributions of their students? How do we develop mentors and leaders to support resilient teachers in sustaining these practices? What individualized tools and resources can we use while managing the increasing demands on all educators? In partnership with new teachers, mentors, leaders, higher education faculty, and other stakeholders, the San Antonio ISD Office of Induction and Retention has embarked on the journey of creating an equity-focused induction program. In this session, participants will engage in using tools for building self-awareness, student empowerment, and community partnerships and leave with a plan to implement them with their new teachers and mentors.

A CULTURALLY RESPONSIVE GUIDE TO BUILDING A CLASSROOM COMMUNITY FROM DAY ONE | ROOM 108

Ralph Saint-Louis, Biology Teacher, University of Massachusetts, Lowell

K-12 Education | Embracing Equity Within Practice

Developing a welcoming and affirming environment to support student learning is pivotal to being successful in the classroom. With a community of learners in the classroom, students have a home away from home where they can be their true selves, learn from others, and take ownership of their learning. In this session, participants will learn key strategies based on the understanding of CASEL Social Emotional Learning core competencies to use from day one to build positive, healthy relationships between students and the classroom teacher. These strategies are effective methods to elicit feedback from students, foster community through accountability partners and strategic seating, use music in the classroom to modulate behavior, and much more. Be ready to leave with various tools that leverage students' voices and experiences to build a classroom culture that is optimal for student learning.

ARE WE THERE YET? REACHING SOCIOPOLITICAL CONSCIOUSNESS IN STEM TEACHING | ROOM 115

Leah McAlister-Shields, Lecturer/Faculty Advisor, teachHOUSTON, University of Houston | @DrLeahMShields
Mariam Manuel, Instructional Assistant Professor, teachHOUSTON, University of Houston | @ScienceManuel

Higher Education | Developing Self-Awareness

Culturally responsive pedagogy (CRP) has been recognized as a pivotal teaching paradigm that provides a psychologically safe learning environment for all students, particularly students from racial, ethnic, and linguistically diverse backgrounds. Creating learning environments that see diversity as value-added and leverage difference helps students make sense of their learning and thrive as scholars. Ladson-Billings, the scholar-practitioner who shaped the theory, outlines three tenets — academic achievement, cultural competence, and sociopolitical consciousness. Although we have gained ground on implementing academic achievement and cultural competence in school settings, we have yet to see substantial movement developing sociopolitical consciousness. Faculty of educator preparatory programs must explore catalysts and barriers with the implementation of Tenet 3. In this activity-based session, presenters will explore impacting factors with attendees and share methods to strengthen our own self-awareness in the fidelity of implementing Tenet 3 of the CRP paradigm.

THEMES AND ITERATIVE CHANGES FROM INSTRUCTION TO IMPROVE PRESERVICE TEACHER LEARNING ABOUT EQUITY AND DIVERSITY IN THE KNOWING AND LEARNING COURSE: A LONGITUDINAL STUDY | ROOM ZB 1

Brian Fortney, Master Teacher/Lecturer, Teach North Texas, University of North Texas
Nirmala Naresh, Associate Professor, Department of Mathematics, University of North Texas

Higher Education | Research

There are many obstacles to challenging preservice teachers to understand definitions of inclusion, diversity, equity, and access as well as apply personal definitions to current coursework and future classrooms. This interactive presentation will discuss themes and examples from student work during and after COVID-related changes in education. Themes have been developed utilizing qualitative data and procedures applied to preservice teacher work from Knowing and Learning courses after grades have been submitted. The focus of this presentation will be to discuss themes, obstacles, and lightbulb moments across several semesters of Knowing and Learning coursework. As a result of recognition of obstacles, solutions to subsequent instruction and coursework will be discussed, as well as advances in preservice teacher understanding of equity in future personal classrooms. For example, themes such as Emergent Voice, Use of Cognitive Tools, Trust, and Learning How to Learn will be explored.

PROFESSIONAL DEVELOPMENT FOR CHANGE: EQUITY AND RACIAL JUSTICE | ROOM ZB 2

La Keisha Leonard, Master Teacher, Teach North Texas, University of North Texas
Pam Kirkland, Master Teacher, UTeach Dallas, University of Texas at Dallas | @UTeachDallas
Katie Donaldson, Master Teacher/Associate Director, UTeach Dallas, University of Texas at Dallas
Elizabeth Goldberg, Associate Professor of Practice and Science Master Teacher, UTRGV UTeach, University of Texas Rio Grande Valley | @UTRGVUTeach
Mary Gregory, Master Teacher, MonarchTeach, Old Dominion University
Yolanda Kirkpatrick, Master Teacher, VolsTeach, University of Tennessee, Knoxville
Anisha Campbell, Associate Director, Terrapin Teachers, University of Maryland
Mandi Collins, Master Teacher, NevadaTeach, University of Nevada, Reno

Higher Education | Embracing Equity Within Practice

Stop by to see the current developments of the USEA Equity and Racial Justice: Professional Development Opportunities working group. We are excited to share our current resources and passion project ideas with the network.

This session will be structured as a gallery walk so participants can engage with the material and presenters at their own pace. This gallery walk session is also offered in this room again at 2:15 P.M.

2:15 P.M. TO 3:15 P.M.

WINDOWS AND MIRRORS: SHARING REFLECTIONS TO GAIN INSIGHTS ON DIVERSITY | ROOM 103

Fonya Scott, Graduate Teaching Assistant, Middle Tennessee State University
Jennifer Seat, Graduate Teaching Assistant, Middle Tennessee State University

Higher Education | Developing Self-Awareness

Increasingly, students making up the classrooms in public schools are taught by teachers who have little to no experience or cultural knowledge of people who are not white. To effectively serve all students, teachers must pay attention to differences and provide adaptations of the learning experience to fit their students' unique needs, interests, abilities, and attitudes. Helping preservice teachers see and acknowledge the differences that exist across and within cultures is essential to developing teachers prepared to connect to the experiences of others and have their own reflected and valued. Using the ideas from the image originally created by Craig Froehle illustrating differing perspectives of equity, we will demonstrate a lesson

designed to prompt preservice teachers to consider the diversity of experiences and circumstances that exist in a classroom and share other resources to support the development of anti-racist educators.

WHY SHOULD I STAY? ADDRESSING SOCIAL JUSTICE TO DETER THE EXODUS OF TEACHERS OF COLOR | ROOM 104

Jill Ardley, Associate Professor, Norfolk State University
Angela Goodloe, Assistant Professor, Norfolk State University

K-12 Education | Developing Self-Awareness

Principals, teacher-mentors, and veteran K–12 teachers utilize certain tools, such as orientations, trainings, and one-to-one support, to support the tenure of teachers. However, many teachers of color who are aware that their influence and support go beyond the classroom are looking for leaders and colleagues who support their perspective on social justice. The presenters conducted a review of scholarly documents from 2010–2020 that evaluated tools utilized by principals to promote teacher tenure of teachers of color. We found that most tools utilized by principals or school leaders to promote teacher retention did not tap into beginning teachers' awareness of the community's needs and their desire to "do something" to support the uplift of the given environment or vision of the school. We will share how awareness of an environment's social issues and strategies for addressing them can promote a connection and partnership with new teachers that can result in higher retention.

THE VILLAGE NEEDS YOU: WHAT CAN NONBLACK TEACHERS LEARN FROM BLACK TEACHERS ON HOW TO BEST WORK WITH BLACK STUDENTS? | ROOM 107

Milen Matthews, Graduate Student, University of Maryland
Francesca Henderson, Graduate Student, University of Maryland

K-12 Education | Research

The focus of this session is to collectively explore the current research on Black teacher success and the challenges in an effort to inform the education of Black students. We hope participants leave this session with an understanding that Black teachers are not the only ones who can teach Black students; regardless of race, all K–12 educators have the capabilities to be change agents. There is much we can learn from Black teachers' strategies in order to better serve Black students. However, before adopting these techniques, it is crucial to have a more holistic understanding of Black teachers' experiences characterized by scholarly research. This session will occur in two parts. Part 1: A review of the existing literature on Black teachers' experiences in education. Part 2: A discussion of the themes from the research coupled with opportunities to reflect on these themes in your own context.

CONVERSATIONAL COMMUNITIES TO DRIVE CHANGE | ROOM 108

Laura Robinette Minor, Science Instructor, University of Texas at Austin

Adrian Carrales, Science Instructor, University of Texas at Austin

K-12 Education | Developing Self-Awareness

In this session, educators will engage in a conversational community, sharing their own stories that illuminate interactions with systems of privilege and oppression, and then question whether our classrooms reflect the social justice we want to see in the world. We hope that participants will leave the session inspired to have similar conversations at their schools amongst their colleagues, or to help their students engage in activities that utilize "windows and mirrors."

MATHEMATICS SUPPORT: WHAT AND WHO IS MISSING? | ROOM 115

Lauren Siegel, Director, MathHappens Foundation
@MathHappensOrg

K-12 Education | Embracing Equity Within Practice

This interactive session will share the ways MathHappens Foundation has used UTeach principles of inquiry to take math to "non-math" places. We'll include our observations and understanding of the need for support for mathematical education in our communities including those outside of school, our questions about how we can do better to support learners of all types, and what resources could support students with learning gaps struggling to catch up.

INTEGRATING UDL AND DIFFERENTIATED INSTRUCTION IN CLASSROOM INTERACTIONS TO FACILITATE EXAMINATIONS OF EQUITABLE PEDAGOGY | ROOM ZB 1

Michael Ralph, Senior Associate, Lead Researcher, Multistudio
@MichaelCRalph

Laurie Cleavinger, Co-Director, STEMTeach, University of Kansas

Higher Education | Embracing Equity Within Practice

The Classroom Interactions course is a key opportunity in the UTeach program to anchor students in the pedagogical foundations they need to provide equitable instruction that meets the needs of each student in their classroom. We will share how STEMTeach KU has integrated considerations of Differentiated Instruction (DI) and Universal Design for Learning (UDL) into Classroom Interactions. These conversations around both DI and UDL offer multiple overlapping lenses through which future teachers can build their personal approach to flexible teaching. Situating the class experience in relation to ongoing discussions within the profession about the applicability of DI and UDL to both students with disabilities and other historically

marginalized groups affords an opportunity for UTeach students to consider state-of-the-art advances in building the future of equitable STEM instruction. We will facilitate a conversation about effective approaches to class conversations about DI and UDL and examples of their relevant application to issues of equity in education.

PROFESSIONAL DEVELOPMENT FOR CHANGE: EQUITY AND RACIAL JUSTICE | ROOM ZB 2

La Keisha Leonard, Master Teacher, Teach North Texas, University of North Texas
Pam Kirkland, Master Teacher, UTeach Dallas, University of Texas at Dallas | @UTeachDallas
Katie Donaldson, Master Teacher/Associate Director, UTeach Dallas, University of Texas at Dallas
Elizabeth Goldberg, Associate Professor of Practice and Science Master Teacher, UTRGV UTeach, University of Texas Rio Grande Valley | @UTRGVUTeach
Mary Gregory, Master Teacher, MonarchTeach, Old Dominion University
Yolanda Kirkpatrick, Master Teacher, VolsTeach, University of Tennessee, Knoxville
Anisha Campbell, Associate Director, Terrapin Teachers, University of Maryland
Mandi Collins, Master Teacher, NevadaTeach, University of Nevada, Reno

Higher Education | Embracing Equity Within Practice

Stop by to see the current developments of the USEA Equity and Racial Justice: Professional Development Opportunities working group. We are excited to share our current resources and passion project ideas with the network.

This session will be structured as a gallery walk so participants can engage with the material and presenters at their own pace. This gallery walk session is also offered in this room at 1:00 p.m.

USEA'S EQUITY AND RACIAL JUSTICE (ERJ) COMMUNITY ENGAGEMENT FOR RESEARCH AND STANDARDS | ROOM ZB 5

Mary Urquhart, Director of UTeach Dallas, University of Texas at Dallas | @UTeachDallas, @UTDSME
Sumudu Lewis, Director of UTeach, University of Massachusetts Lowell | @UMassLowell

Higher Education | Defining Our Purpose

The USEA ERJ Research and Standards Committee is engaged in gathering data on how issues of diversity, equity, inclusion (DEI), and racial justice are being addressed by UTeach programs throughout UTeach Nation. This spring the committee, in partnership with the UTeach Institute, conducted a survey on how UTeach faculty and programs around the nation are addressing DEI and what resources faculty and programs recommend to others. In this workshop, the committee co-chairs will share our preliminary survey results and invite

summit participants to engage with us as additional community voices to further guide our work.

3:30 P.M. TO 4:30 P.M.

REIMAGINING DATA LITERACY IN STEM: BUILDING TEACHER CAPACITY FOR EQUITY-CENTERED PEDAGOGY | ROOM 103

Allison Firestone, Doctoral Candidate, University of California Berkeley
Sara Baring, CalTeach Alumnus, University of California Berkeley
Gabriela Bravo Lopez, CalTeach Alumnus, University of California Berkeley
Elisa Stone, CalTeach Program Director, University of California Berkeley

Higher Education | Research

Data literacy learning represents a context with rich potential for exploring social and racial justice in K–12 STEM classrooms. However, novice teachers require supported opportunities to design and implement equity-centered data literacy experiences. To build teachers' capacity in using data literacy to explore these topics with their students, the CalTeach Berkeley-3D program has implemented: (a) curricular innovations in coursework and (b) monthly alumni-facilitated workshops for NSF Noyce Scholars, other preservice teachers, and program alumni.

In this presentation, the program research team and our workshop facilitators (former Noyce Scholars) will detail the Berkeley-3D curricular innovations and share findings from the first two years of impact research. Data sources include participant interviews, teaching observations, survey responses, and artifacts from participants' practice. Preliminary findings have implications for teacher education, particularly in integrating social and racial justice datasets and analyses into the STEM classroom and guiding implementation of effective STEM learning.

EXTENDING THE EQUITY PROJECT: REFLECTIONS ON THE IMPACT OF A COURSE-LONG PROJECT FOCUSED ON EQUITY IN STEM CLASSROOMS | ROOM 104

Darin Knapp, Associate Director, CWU Teach, Central Washington University
Jennifer Smith, Assistant Professor, University of Texas, Austin

Higher Education | Developing Self-Awareness

Presenters will share their experiences extending the traditional Classroom Interactions capstone equity project into a larger course theme with activities focusing on the development of teacher identity, the impact of implicit bias on student learning, and the modeling of equitable STEM teaching practices. They will share the rationale behind their work, lesson resources, samples of impactful student work, and the impact this extended project has had on student learning and engagement.

DEFINING AND DEVELOPING EQUITY IN OUR FUTURE OR CURRENT STEM CLASSROOM | ROOM 107

Brian Fortney, Master Teacher/Lecturer, Teach North Texas, University of North Texas
Nirmala Naresh, Associate Professor, Department of Mathematics, University of North Texas
Janel Madeley, Master Teacher/Lecturer, Teach North Texas, University of North Texas

Preservice Teachers, K–12 Education | Developing Self-Awareness

In order to identify implicit bias and make sense of literature on Inclusion, Diversity, Equity, and Access (IDEA), one must wrestle with and understand the definition of equity and what equity means in personal practice. In this workshop, preservice teachers and practicing K–12 professionals will develop a first draft of their personal definition of equity and how that applies to their future or current STEM classroom. Real preservice teacher examples will be provided for deconstruction and as a concrete example to begin/continue the process. Definitions of equity from the literature will be provided. Participants will be encouraged to utilize an existing definition to expand personal understanding.

EMBRACING EQUITY: HOW THE STEM TEACHER ONLINE INDUCTION COURSE HELPS UTEACH INDUCTEES REIMAGINE THEIR CLASSES THROUGH AN EQUITY LENS | ROOM 108

Melicia Michelin, Science Teacher, Florida International University
Lacey Simpson, High School Science Teacher, Florida International University
Crystal Ann Coronel, High School Algebra Teacher, Florida International University
Elizabeth Goldberg, Associate Professor of Practice and Science Master Teacher, UTRGV UTeach, University of Texas Rio Grande Valley | @UTRGVUTeach
Anisha Campbell, Associate Director, Terrapin Teachers, University of Maryland

K-12 Education, Higher Education | Embracing Equity Within Practice

The STEM Teacher Online Induction Course is an innovative, collaborative project between FIUteach, Terrapin Teachers, and UTRGV UTeach. Through asynchronous and synchronous online modules and Zoom chats, first- and second-year UTeach alumni learn how to embed equity-based practices into K–12 STEM classrooms. Learn about the STEM Teacher Online Induction Course from three UTeach inductees who participated in the pilot. They will share their experiences in the course and how it challenged them to rethink and reimagine how to embrace equity-based teaching practices in math and science classes.

LEVERAGING STUDENTS' FUNDS OF KNOWLEDGE FOR AN INCLUSIVE STEM CLASSROOM | ROOM 115

Sumudu Lewis, Director of UTeach, University of Massachusetts Lowell | @UMassLowell
Grace Hansen, Student, University of Massachusetts Lowell
Jessica Coppinger, Student, University of Massachusetts Lowell
Javier Palma, Student, University of Massachusetts Lowell
Alina Em, Student, University of Massachusetts Lowell
Angelo Pcoli, Student, University of Massachusetts Lowell

K-12 Education | Developing Self-Awareness

A student's funds of knowledge are collections of facts, skills, and general information based in cultural practices that are a part of their family's inner culture and daily life. Knowing a student's academic as well as personal background knowledge, accumulated life experiences, and world views can help teachers draw on these experiences in classrooms to enrich their understanding of academic content while also motivating them during classroom activities. Session attendees will receive guidance on how to collect students' funds of knowledge and teacher candidates will share their experiences of using students' funds of knowledge in creating inclusive classrooms.

RETHINKING IMPLICIT BIAS THROUGH A NON-DUALIST LENS | ROOM ZB 1

David Kirshner, Professor, GeauxTeach, Louisiana State University
David Eller, Graduate Student, Louisiana State University
Chelsea Graves, Master Teacher, Louisiana State University

Higher Education | Developing Self-Awareness

This presentation critiques the traditional, dualist understanding of implicit bias as stemming from implicit beliefs or attitudes. Instead, we argue for an interpretation of implicit bias as non-conscious associations that operate at the perceptual level. We work with teachers to anticipate "vulnerable decision points" at which perception-actions sequences may embody prejudicial responses. "Perceptual reframing" enables establishment of more equitable response patterns. This approach is illustrated through an implicit bias unit that spans three UTeach courses: Knowing and Learning in Mathematics and Science, Classroom Interactions, and Project-Based Instruction.

RECLAIMING MY TIME: IMPLEMENTING INCLUSIVE DISCIPLINE STRATEGIES TO ENSURE EQUITABLE ACCESS TO INSTRUCTION | ROOM ZB 2

Lelah Moseley-Haywood, Educator, Each One, Teach One – San Antonio

K-12 Education | Developing-Self Awareness

Addressing bias in schools is critical, but it is insufficient without also addressing systemic discrimination. We see this play out particularly clearly with school discipline policies like zero tolerance, which result in disproportionate punishments for students of color for subjective and minor offenses, like being “defiant” or “distracting.” These send messages to students of color that they don’t belong and aren’t welcome in their own schools. When students can bring their full and authentic selves into the classroom rather than being asked to check pieces of themselves at the door, it creates a sense of emotional safety that supports positive identity development, social/emotional development, and academic engagement. In this session, participants will learn strategies that change behaviors, systems for teacher self-control, and prompting techniques for students.

5:00 P.M. TO 7:00 P.M.

SUMMIT RECEPTION | ZLOTNIK BALLROOM

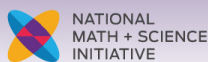
Join us for snacks and drinks and celebrate our chance to connect in person with colleagues and friends.

UTEACH STEM EDUCATORS CONFERENCE 2022

**RECONNECTING
WITH PURPOSE**

JUNE 22 - 23
AUSTIN, TEXAS

UTeach
Institute



7:00 A.M. TO 8:45 A.M.

BREAKFAST | TEJAS DINING ROOM, LEVEL M2

Breakfast for most attendees will be in the Tejas Dining Room.

TEXAS CO-DIRECTOR BREAKFAST — CLOSED SESSION | ZB 5

*Mary Urquhart, Director of UTeach Dallas, University of Texas at Dallas | @UTeachDallas, @UTDSME
Michael Marder, UTeach Executive Director, University of Texas at Austin | @UTeachAustin*

Texas UTeach Co-Directors and other Texas UTeach program leaders are invited to come together in-person to discuss issues of importance to UTeach programs and university-based teacher preparation across the state. The meeting will include a discussion of data on teacher production and state rules impacting EPPs.

STUDENT BREAKFAST — CLOSED SESSION | ZB 2

*Chris Deyo, Expansion Site Coordinator, UTeach Institute
Fernanda Marrero Hi, teachHOUSTON Graduate and Program Manager, City of Houston Mayor's Office of Education; USLA
Founder and Advisor*

All UTeach students are welcome to convene for a student-centered breakfast and orientation. You will have the opportunity to exchange “swag” from your programs, learn how you can get involved in the UTeach Student Leaders Association, and discuss general conference etiquette and networking. Students participating in the poster session will also have an opportunity to advertise their presentations.

9:00 A.M. TO 10:30 A.M.

KEYNOTE ADDRESS: WHY NOT US? WHY NOT NOW? | ZLOTNIK BALLROOM

Dr. Mariam Manuel, Instructional Assistant Professor, teachHOUSTON, University of Houston; Director, NHS STEM RISE

Dr. Mariam Manuel will speak on coming back permanently changed from the pandemic, asking in what ways we need to reimagine STEM teacher preparation. The overarching theme of this talk will be purposeful and authentic inclusivity in our programs, including the need to cultivate psychological safe spaces not only for our students, but also for faculty and staff involved in teacher preparation.

In an effort to support students of color and produce more culturally responsive teachers, we must also call out the issues of systemic racism and inequities that produce barriers within our organizations for people of color. Topics of Diversity, Equity, and Inclusion have rightfully been discussed and continue to require rich conversation; however, it isn't enough just to talk about these issues — they require active and persistent work on behalf of our programs and USEA. It is time to walk the DEI talk and do so with solidarity and accountability while centering the voices and lived experiences of BIPOC.

11:00 A.M. TO 12:00 P.M.

COURSE OVERVIEW: RESEARCH METHODS | ROOM 103

Deanna Buckley, Associate Professor of Practice, UTeach Austin, University of Texas at Austin

Higher Education | **Strengthening Instruction**

This session will provide an introduction to the UTeach course Research Methods. This course engages future teachers in a series of independent scientific inquiries.

RESTORATIVE PRACTICES IN THE CLASSROOM | ROOM 104

Lynn Kirby, Associate Professor of Practice, UTeach Austin, University of Texas at Austin
Ariel Taylor, Assistant Professor of Practice, UTeach Austin, University of Texas at Austin

Preservice Teachers, K–12 Education | **Preservice Teacher Topics**

Participants will engage in discussions about fostering a positive classroom community. Models will include restorative practices, Teaching with Love and Logic, and culturally responsive practices. This is the first of two sessions focusing on positive classroom environments; the second session, called Practical Applications to Create a Positive Classroom Environment, is at 1:15 P.M.

ADAPTING THE FIELD EXPERIENCE FOR A POST-PANDEMIC WORLD | ROOM 107

Jennifer Smith, Assistant Professor of Instruction, University of Texas at Austin
Shelly Rodriguez, Professor of Practice, University of Texas at Austin

Higher Education | **Adapting and Strengthening the UTeach Program and Curriculum**

In this session, we'll discuss the ways we've altered the field experience in the Step courses and Classroom Interactions in order to better address the post-pandemic teaching context. We'll share our rationale for these changes, the ways this affected the structure of the courses, and some student experiences. We'll also invite participants to share their own strategies to update and adapt field experiences in their own programs.

"YOU CAN DO THIS, I CAN HELP": DIFFERENTIATING MATH AND SCIENCE FOR ELL STUDENTS | ROOM 108

Alexander Eden, Biology Teacher, University of Massachusetts, Lowell | *@EducatorEden*
Ariel Leva, Math Teacher, University of Massachusetts, Lowell

K–12 Education | **Strengthening Instruction**

STEM subjects allow students to explore phenomena connected to the world around them. In doing so, students can engage in interactive activities and inquiries. However, English Language Learners can sometimes struggle with these subjects as they are filled with discipline-specific vocabulary. Trying to learn these concepts while also learning the English language can be a

daunting task. Come to our session to learn about simple strategies that can be used in math and science classrooms to increase accessibility not just for ELL students but for all students. See examples of guided notes, presentation slides, and more! You will leave this session with new strategies to use the next time you are in your classroom. Ultimately, to help grow interest in STEM, we must be able to lend a hand whenever possible; nobody is ever alone.

WHAT IS UTEACH? | ROOM 115

Kimberly Hughes, Director, UTeach Institute | @UTeachInstitute | @hugheskk
Lee Meadows, Executive Director, Alabama STEM Council | @scientificallee

Higher Education | Adapting and Strengthening the UTeach Program and Curriculum

This session is for anyone interested in learning more about the UTeach secondary STEM teacher preparation program. Presenters will describe the hallmarks of UTeach, its organizational structure, the roles of key program staff and faculty, and its partnership with local K–12 schools. The presenters will also review the impact of national UTeach expansion and the role of the UTeach Institute in supporting new UTeach programs.

LEVERAGING FUNDS OF KNOWLEDGE IN CULTURALLY RESPONSIVE INSTRUCTION | ROOM ZB 5

Mariam Manuel, Instructional Assistant Professor, teachHOUSTON, University of Houston | @ScienceManuel
Leah McAlister-Shields, Lecturer/Faculty Advisor, teachHOUSTON, University of Houston | @DrLeahMShields
Paige Evans, Clinical Professor/Co-Director, teachHOUSTON, University of Houston | @UHteachHOUSTON

Higher Education, K–12 Education | Strengthening Instruction

Research confirms that an asset-based approach to teaching that draws on the lived experiences students accumulate through time spent with family, siblings, peers, and within communities and households can transform instructional practices by allowing teachers to leverage students' backgrounds to build meaningful curricular connections. In this session, presenters will share strategies used with in-service and preservice teachers to help acquire funds of knowledge that are transferable to use in classrooms. Audience members will engage in interactive activities that model ways in which funds of knowledge can help build relationships, cultivate a culture of trust, and meaningfully connect to the classroom curriculum. Presenters will share an overview of culturally responsive pedagogy and how the approach relates to the practice of acquiring students' funds of knowledge. Moreover, the presenters will share their personal experiences and lessons learned during implementation.

12:00 P.M. TO 1:15 P.M.

LUNCH | TEJAS DINING ROOM, LEVEL M2

1:15 P.M. TO 2:15 P.M.

COURSE OVERVIEW: KNOWING AND LEARNING IN MATHEMATICS AND SCIENCE | ROOM 103

Perri Segura, Clinical Associate Professor, teachHOUSTON, University of Houston

Higher Education | Strengthening Instruction

This session will provide an introduction to the UTeach course Knowing and Learning in Mathematics and Science. This course focuses on issues of what it means to know and learn secondary science and mathematics.

PRACTICAL APPLICATIONS TO CREATE A POSITIVE CLASSROOM ENVIRONMENT | ROOM 104

Lynn Kirby, Associate Professor of Practice, UTeach Austin, University of Texas at Austin
Ariel Taylor, Assistant Professor of Practice, UTeach Austin, University of Texas at Austin

Preservice Teachers, K–12 Education | Preservice Teacher Topics

Participants will build on the first session, Restorative Practices in the Classroom, as they explore practical applications of restorative and culturally responsive practices. This is the second of two sessions focusing on positive classroom environments; the first is at 11:00 A.M.

EXPANDING AND STRENGTHENING THE STEM TEACHER WORKFORCE THROUGH UTEACH | ROOM 107

Kimberly Hughes, Director, UTeach Institute | @UTeachInstitute, @hugheskk
Amy Moreland, Manager for UTeach Expansion, UTeach Institute
Yvonne Loya, Manager, UTeach Computer Science | @UTeachCS
Carrie Culpepper, UTeach National Network Coordinator, UTeach Institute | @UTeachAlumni

Higher Education | Adapting and Strengthening the UTeach Program and Curriculum

This session will provide a project overview and share outcomes from the Supporting Effective Educator Development (SEED) work. We will share Alternative Certification Pathways information and disseminate materials produced during this multi-year Department of Education grant involving four UTeach partner universities and UTeach Computer Science.

CREATING AN AFFINITY SPACE FOR STEM WOMEN OF COLOR EDUCATORS: SUCCESSES, CHALLENGES, AND OPPORTUNITIES | ROOM 108

*Naehee Kwun, UC Irvine CalTeach Teacher Network Facilitator, University of California, Irvine | @NaeheeK
Socorro Cambero, Graduate Student Researcher, University of California, Irvine*

Higher Education | Out-of-Class Support for Everyone

Supporting the persistence and development of underrepresented teachers in STEM is a critical equity issue facing the teacher preparation community. How can we build communities for underrepresented teachers that sustain them through preparation and into their teaching career? Considering the limitations within university coursework and the barriers that underrepresented educators in STEM experience, specifically women of color, this session will provide detailed efforts on creating an affinity space to support aspiring and in-service STEM women of color educators affiliated with the UC Irvine CalTeach program. We will share the space's structure and content, including how we are building community, navigating microaggressions, and finding our strengths. The goal is to create a community with educators with shared identity and create actionable steps to promote social justice and equity in classrooms. Participants will share their experiences, challenges, and success with creating affinity spaces to promote belonging, community, and growth.

BUILDING A PUBLIC-PRIVATE PARTNERSHIP FOR STEM EDUCATION RESEARCH | ROOM 115

*Michael Ralph, Senior Associate, Lead Researcher, Multistudio
@MichaelCRalph*

Higher Education | Research

Community connections are a pillar of effective UTeach programs, with stakeholders within and beyond schools supporting the work we do to prepare STEM teachers and generate rigorous research to support that work. Public-private partnerships represent an opportunity to establish the kinds of formal relationships within communities that build more sustainable research apparatus for long-term study. They also create a platform from which UTeach faculty can present highly effective fundraising narratives to both private donors and public agencies hosting grant competitions. I will share the developing story of an effort to build a research center positioned in partnership between the university and a private firm. Our work strives to engage the nearby university community, regional major metropolitan areas, and other nationwide metros through multiple firm locations across the country. I will then facilitate a conversation for how UTeach faculty might strategically engage partners in their own regions.

AVOID BURNOUT BY DOING FEWER THINGS BETTER | ROOM ZB 1

Laura Robinette Minor, Science Instructor, University of Texas at Austin

K-12 Education | Out-of-Class Support for Everyone

In this session, the facilitator will guide teachers through practices to help them remember why they love teaching, share strategies and tools to help teachers do fewer tasks while still being high-quality teachers during their working hours, and encourage participants to share strategies they've implemented in their day-to-day lives to avoid burnout.

THE OTHER MATHEMATICIANS PROJECT: REPRESENTATION MATTERS | ROOM ZB 2

*Dana Grosser-Clarkson, Master Teacher, Terrapin Teachers, University of Maryland | @Dana_MathEd
Alexis Williams, Student, University of Maryland | @TerpTeachers
Abigail White, Student, University of Maryland | @TerpTeachers
Joanna Hung, Student, University of Maryland | @TerpTeachers*

Higher Education | Strengthening Instruction

Throughout our Terrapin Teachers version of Functions and Modeling students are asked to introduce their classmates to "other" mathematicians. By "other" we mean the mathematicians who are not typically represented in our textbooks and history because they have been marginalized due to their race, gender, or sexual orientation. Our goal is to raise the awareness of mathematicians we should have learned about, but have not. Each semester students select a mathematician to present to the class. We know representation matters, so it is important that our future teachers have the knowledge and access to resources to introduce their future students to a variety of mathematicians. We have successfully implemented this over the last three semesters of Functions and Modeling, learning about a plethora of mathematicians. We aim to share this project and our resources with other UTeach programs for replication. This presentation will be co-presented with former Teaching Assistants of the course.

UTEACH CO-DIRECTOR MEETING — CLOSED SESSION | ROOM ZB 5

Mary Urquhart, Director of UTeach Dallas, University of Texas at Dallas | @UTeachDallas, @UTDSME
Mary Enderson, Co-Director of MonarchTeach, Old Dominion University

Co-directors (and other UTeach program leaders in similar roles) from across the UTeach Nation are invited to come together to discuss common issues of concern, to identify future opportunities to collaborate, and to provide guidance on the future direction of the UTeach STEM Educators Association.

2:30 P.M. TO 3:30 P.M.

COURSE OVERVIEW: FUNCTIONS AND MODELING | ROOM 103

Ariel Taylor, Assistant Professor of Practice, UTeach Austin, University of Texas at Austin

Higher Education | **Strengthening Instruction**

This session will provide an introduction to the UTeach course Functions and Modeling. In this course, students engage in explorations and lab activities designed to strengthen and expand their knowledge of the topics found in secondary mathematics.

ACP THAT ROCKS! INCREASE YOUR STEM TEACHER PRODUCTION WITH AN ALTERNATIVE CERTIFICATION PATHWAY | ROOM 104

Paige Evans, Co-Director, teachHOUSTON, University of Houston | @UHteachHOUSTON
Leah McAlister-Shields, Faculty Advisor, teachHOUSTON, University of Houston | @DrLeahMShields
Jacqueline Ekeoba, Master Teacher, teachHOUSTON, University of Houston | @MsEkeoba
Ramona Mateer, Master Teacher, teachHOUSTON, University of Houston
Amanda Campos, Master Teacher, teachHOUSTON, University of Houston

Higher Education | **Adapting and Strengthening the UTeach Program and Curriculum**

teachHOUSTON at the University of Houston created a nine-month certification pathway that provides secondary STEM teacher certification for new graduates and career changers. This program provides a practical option to populations unable to pursue the traditional UTeach pathway. Thus far, we have certified 42 teachers who are all teaching in Houston area schools. This interactive session will highlight culturally responsive coursework, fieldwork, student teaching, a classroom management class, and feedback from participants, as well as lessons learned from

previous cohorts. This initiative is part of a DOE grant with three other UTeach institutions.

THE KNOWLES TEACHING FELLOWSHIP: FINDING SUPPORT TO BE A TEACHER LEADER | ROOM 107

Jeffrey Rozelle, President and CEO, Knowles Teacher Initiative | @KnowlesTeachers

Preservice Teachers | **Preservice Teacher Topics**

The Knowles Teaching Fellowship supports early career math and science teachers with financial support, professional development, mentors and coaches, and most importantly, inclusion in a national network of amazing teachers and teacher leaders. The presentation will help preservice teachers understand the Teaching Fellowship and how to put their best foot forward in our application and interview process. They'll hear from current Fellows (via video) about how the support has enabled them to make a difference with their students and in their schools. There will be plenty of time for questions about the program.

ASKING THE RIGHT QUESTIONS TO MAKE THINKING VISIBLE IN THE SCIENCE CLASSROOM | ROOM 108

Carlos Perez, Biology Teacher, University of Houston

K-12 Education | **Strengthening Instruction**

Imagine a typical day in your classroom. Think for a moment: How many questions do you ask in a single class period? What is the nature of your questions? Is there a better question than "Why?"? And more importantly, do these questions unravel what students are thinking? In this session, participants will learn about the type of questions that can make students thinking visible and questions that support inquiry-based learning. Additionally, participants will engage with thinking routines that can be easily implemented in the classroom. Be ready for a session with plenty of questions, discussions, and collaboration.

PROJECT-BASED INSTRUCTION INSIDE MATH CIRCLES | ROOM 115

Sumudu Lewis, Associate Clinical Professor and Director of UTeach, University of Massachusetts, Lowell | @UMassLowell
Katherine Miller, Assistant Teaching Professor, University of Massachusetts, Lowell
Thomas Heywosz, High School Math Teacher and UTeach Alumnus, University of Massachusetts, Lowell
Angelo Pocoli, Student, University of Massachusetts, Lowell

K-12 Education | **Strengthening Instruction**

We are all aware that project-based learning, if planned and executed effectively, leads to deeper knowledge of concepts through active exploration of real-world challenges and problems. Developing quality math projects can often be challenging, time consuming, and even frustrating for teachers. This session presents how we have adapted the PBI course at UMass Lowell and focuses specifically on PBI in math. We will share effective ideas and strategies for leveraging Math Circles on campus to structure a project-based learning experience for students. The presenters will share math projects they have created, and lead participants through an engaging activity that will get you thinking.

REVISITING AND REVISIONING THE UTEACH ELEMENTS OF SUCCESS | ROOM ZB 1

Pat McGuire, Professor and Co-Director, UCCS Teach, University of Colorado, Colorado Springs

Kristi McCann, Senior Instructor, University of Colorado, Colorado Springs

Mary Lummus-Robinson, Senior Lead, Data & Analytics, UTeach Institute

Michael Marder, UTeach Executive Director, University of Texas at Austin | @UTeachAustin

Mary Urquhart, Director of UTeach Dallas, University of Texas at Dallas | @UTeachDallas, @UTDSME

Higher Education | Adapting and Strengthening the UTeach Program and Curriculum

This interactive session provides a formal space for participants to review the nine UTeach Elements of Success and conduct a program-level audit to examine how their program adheres to the elements. Through this process, attendees will systematically identify program elements of strength and opportunities for improvement within their respective UTeach program. After a brief review of the nine UTeach Elements of Success, attendees will self-select into small group breakouts and use a short rubric to examine their program against the nine elements. Small groups will engage in brainstorming, information sharing, and transfer of ideas between UTeach programs. Attendees will leave this session with more knowledge related to the UTeach Elements of Success, a stronger understanding how their program currently aligns to the elements, and actionable strategies that can be employed to address areas of improvement.

GET THE FACTS OUT: USER-TESTED, RESEARCH-BASED RESOURCES FOR STEM TEACHER RECRUITMENT | ROOM ZB 2

Wendy Adams, Director of Teach@Mines, Colorado School of Mines/Get the Facts Out | @coschoolofmines

Glenn Waddell, Master Teacher, NevadaTeach, University of Nevada, Reno | @unrcoehd

Gay Stewart, Eberly Professor of STEM Education, West Virginia University | @WVUEberly

Higher Education | Adapting and Strengthening the UTeach Program and Curriculum

Get the Facts Out (GFO), which is finishing its fourth year of funding, has an aggressive research arm that studies the effectiveness of every resource produced by the project as well as perceptions of students and perceptions of faculty at over 50 U.S. institutions. In this session, we will share several recent exciting research results as well as strategies and resources for sharing the facts about the profession so that students will have accurate information about their career prospects. GFO provides customizable resources and local data mining for faculty and staff who advise students. All materials are professional quality, research-based, and have been extensively user-tested.

3:45 P.M. TO 4:45 P.M.

BEYOND CALLING OUT: NAVIGATING CONVERSATIONS ABOUT EQUITY AND BIAS | ROOM 103

Jennifer Smith, Assistant Professor of Instruction, University of Texas at Austin

Higher Education, K-12 Education | Out-of-Class Support for Everyone

What do you do when you witness a microaggression against a colleague or student? How do you respond to biased, harmful language, whether in the classroom or outside it? In this interactive discussion, we'll share resources and strategies for interrupting and addressing these kinds of remarks, and for having constructive conversations about equity and bias with students, colleagues, and others.

SUPPORTING EFFECTIVE EDUCATOR DEVELOPMENT (SEED) PROJECT ALL-PARTNERS MEETING — CLOSED SESSION | ROOM 104

Facilitator: Amy Moreland, Manager for UTeach Expansion, UTeach Institute

We invite our SEED project partners to join us as we debrief our various Expanding and Strengthening the STEM Teacher Workforce Through UTeach works and share highlights and challenges from this year.

INITIAL EMPLOYMENT OUTCOMES OF UCCSTEACH GRADUATES | ROOM 107

Grant Clayton, Associate Professor, UCCS Teach, University of Colorado, Colorado Springs

Pat McGuire, Professor and Co-Director, UCCS Teach, University of Colorado, Colorado Springs

Kristi McCann, Senior Instructor, University of Colorado, Colorado Springs

Higher Education | Research

The distribution of teachers to schools is an important and relatively poorly understood feature of the teacher labor market.

What factors predict a teacher's initial job choice and retention in teaching? We explore these questions using longitudinal data from cohorts between academic year 2010 and 2021 from UCCSTeach. Preliminary results of this analysis highlights patterns for UCCSTeach and provide working model for other UTeach sites.

BUILDING BETTER RELATIONSHIPS: IMPLEMENTING SOCIAL, EMOTIONAL, AND CONVERSATION SKILLS TO ENCOURAGE A SUPPORTIVE CLASSROOM ENVIRONMENT | ROOM 108

Pam Kirkland, Master Teacher, UTeach Dallas, University of Texas at Dallas | @UTeachDallas

Emily Hennessy, Assistant Professor of Instruction, UTeach Dallas, University of Texas at Dallas

James McConnell, Master Teacher, UTeach Dallas, University of Texas at Dallas

K-12 Education | Strengthening Instruction

The session will address how curriculum focused on the development of social, emotional, and conversation skills has been incorporated in our classes for UTeach Dallas students. The focus of the added curriculum topics is to support building better relationships for our UTeach Dallas students with their peers and mentor teachers' students. The goal is through teaching and modeling specific CASEL SEL competencies as well as conversation skills in our UTeach Dallas classes, a strong foundation to support Cooperative Learning, building better relationships with peers and students, and encouraging a classroom, which supports taking academic risks can be achieved. Using scaffolding tools such as a SEL Toolbelt, conversation starters, skills practice, discussion, and encouraging self-reflection, students address the value in implementing SEL to encourage a supportive learning environment for all.

WE DON'T LECTURE ABOUT THE 5E CYCLE: GETTING "META" WITH THE 5ES | ROOM 115

Gayle Evans, Clinical Assistant Professor, UTeach, University of Florida | @ufteach1

Kristen Apraiz, Clinical Assistant Professor, UTeach, University of Florida | @ufteach1

Higher Education | Strengthening Instruction

How do you introduce the 5E Cycle to your students? We have struggled with this question and determined that using any approach other than the 5E Cycle itself feels disingenuous. Join us as we share our process to authentically introduce the 5Es through modeling the cycle by setting mutually shared expectations for discussion, collecting preconceptions about teaching mathematics and science, brainstorming possible E words, narrowing down choices, and providing resource materials that aid students in developing a cycle of progression promoting inquiry-based learning.

HOLD THE MIRROR FOR ME: EXAMINING PERSONAL TEACHING PRACTICES USING PEER OBSERVATIONS | ROOM ZB 1

Denise Gregory, Master Teacher, UTeach Dallas, University of Texas at Dallas | @gmathmomma

Kate York, Master Teacher, UTeach Dallas, University of Texas at Dallas

Higher Education, K-12 Education | Strengthening Instruction

This session will explore two master teachers' journeys to assess their personal teaching practices and course curriculum design using a culturally responsive instruction lens. We will share how we use peer observation to examine our own instruction using the CRIOP observation tool and discuss our learning and future plans. Participants will be asked to reflect on their own teaching practices and engage in discussion about potential next steps. Participants will leave with a deeper understanding of the pillars of culturally responsive instruction and strategies for establishing peer observations. Come for a conversation.

LAUNCHING A UTEACH PROGRAM WITH MAXIMUM BUY-IN | ROOM ZB 2

David Sparks, Assistant Professor, UTeach Permian Basin, University of Texas Permian Basin

Milka Montes, Associate Professor, UTeach Permian Basin, University of Texas Permian Basin

Higher Education | Adapting and Strengthening the UTeach Program and Curriculum

UTeach Permian Basin, one of the newest UTeach replication sites at UT Permian Basin in Odessa, Texas, kicks off their first year in Fall 2022. An important aspect of starting a new program is community buy-in, and a steering committee is a great place to start. We will discuss how the steering committee was formed, its purpose, and the members who represent a cross section of university, K-12 schools, and business and community partners. New UTeach programs, those just starting or in their first three years, are welcome to attend and share their successes and challenges. All UTeach replication sites are encouraged to participate and contribute to the discussion as well.

5:00 P.M. TO 7:30 P.M.

CONFERENCE RECEPTION | ZLOTNIK BALLROOM

Join us for snacks and drinks and celebrate our reconnecting with purpose after two years away.

POSTER SESSION

The posters will be in the ballroom with the reception. Please visit the poster presenters and give them a cheer! **Poster descriptions appear at the end of the program.**

Thursday, June 23, 2022

7:00 A.M. TO 9:30 A.M.

BREAKFAST | TEJAS DINING ROOM, LEVEL M2

Breakfast for most attendees will be in the Tejas Dining Room.

MASTER TEACHER BREAKFAST — CLOSED SESSION | ZB 5

Elizabeth Goldberg, Associate Professor of Practice and Science Master Teacher, UTRGV UTeach, University of Texas Rio Grande Valley | @UTRGVUTeach

Alexandra Eusebi, Assistant Professor of Practice and UTeach Access Academic Director, University of Texas at Austin

UTeach Master Teachers will convene to address topics of interest and/or need related to recruitment, preparation, and retention of UTeach students. Dialogue with peers and (sustainable) collaboration opportunities will be a primary feature of the session.

UTEACH RESEARCH GROUP EDUCATORS' NATIONAL TASKFORCE (URGENT) — OPEN SESSION | ZB 1

Facilitator: Pat McGuire, Professor and Co-Director, UCCS Teach, University of Colorado, Colorado Springs

Open to everyone who is part of the UTeach network, our focus is on collaborative grant proposals, peer-reviewed publications, data sharing, and more — leveraging the 40+ universities and more than 10 years of data already collected. This is a grass roots research effort looking to recruit additional UTeach stakeholders to engage in STEM education research initiatives. Join us for discussion!

9:30 A.M. TO 10:30 A.M.

COURSE OVERVIEW: STEP 1 AND STEP 2 | ROOM 103

Lynn Kirby, Associate Professor of Practice, UTeach Austin, University of Texas at Austin

Higher Education | Strengthening Instruction

This session will provide an introduction to the Step courses, the first two UTeach courses students take. These recruitment-focused courses provide students with early opportunities to try out teaching.

UTEACH COMMUNITY COLLEGE PARTNERSHIPS AND PATHWAYS: UTEACH ACCESS CASE STUDY | ROOM 104

Katey Arrington, Associate Director, UTeach Institute | @UTeachInstitute, @ArringtonKatey

Ashlee Bushee, Project Manager for Math and Computer Science Teacher Initiatives, University of Texas at Austin

Alexandra Eusebi, Assistant Professor of Practice and UTeach Access Academic Director, University of Texas at Austin

Martha Perez, Data Collection and Evaluation Coordinator, UTeach Institute

Higher Education | Adapting and Strengthening the UTeach Program and Curriculum

Thinking about how to build an effective pathway from your community college to your UTeach program? Come to this

session to learn about the successes, challenges, and opportunities from UT Austin's new co-enrollment pathway in partnership with Austin Community College (UTeach Access). You will also have access to an early preview of the new UTeach Community College Pathway Implementation Guide, and get to hear how we are bringing together multiple UTeach programs to form a Community College Pathway Community of Practice. There will be ample opportunity to ask questions and explore ideas for your own program.

DOES THIS SCHOOL LEADER KNOW SOCIAL JUSTICE IS IMPORTANT? FINDING A SCHOOL MATCH THAT FITS YOUR DESIRE FOR INFUSION OF SOCIAL JUSTICE IN SCHOOLS AND COMMUNITIES | ROOM 107

Jill Ardley, Associate Professor, Norfolk State University

Angela Goodloe, Assistant Professor, Norfolk State University

Preservice Teachers, K-12 Education | Preservice Teacher Topics

The presenters did a literature review on effective tools used by principals to retain teachers of color (years 2010-2020) and found that social justice was neglected in many cases as a retention tool. Moreover, many principals did not differentiate based on the needs of their teachers of color who wanted to make a difference in their communities from teachers who were simply seeking a position at their school. Unfortunately, a lack of connection to the community and the inability to collaborate with others in a constructive manner in and out of the classroom was a reason some gave for leaving a new position. To support new teachers in finding a better school match that fits their desire for the infusion of social justice, the presenters will share techniques for unearthing school leaders' stances

toward community partnerships and connections that support social justice in and out of the classroom.

WHERE'S MY SANDWICH? USING THE LEGACY CYCLE OF PROBLEM-BASED INSTRUCTION TO TEACH RATIOS AND UNIT RATES IN MATHEMATICS | ROOM 108

Martha Day, Co-Director/Professor, SKyTeach, Western Kentucky University

Riley Alexander, Mathematics Teacher, Barren County Middle School

Payton Riggins, Mathematics Teacher, South Warren High School | @missrigginsmath

K-12 Education | Strengthening Instruction

Participants will engage in a model problem-based unit of instruction (PBI) involving the mathematics content of ratios and unit rates. This student-centered, legacy cycle PBI will be modeled with an engaging, inquiry-based unit on solving the Grand Challenge, "Where's My Sandwich?" Attendees will learn how to guide students in active, collaborative, problem-solving tasks, where learners acquire knowledge and workplace skills, through authentic tasks.

GIVING LIFE TO BIOLOGY: BRIDGING THE GAP BETWEEN ACADEMIA AND THE FIELD | ROOM 115

Sergio Arjon, Biology Teacher, University of Houston

K-12 Education | Strengthening Instruction

Have you ever been told what to do but not how to do it? This session will highlight different techniques to engage students in biology lessons that are both culturally responsive and relevant. Participants will look at a menu that portrays how a highly successful biology team implements their yearly scope and sequence that is supported by teacher and student data. This student-centered and engaging biology curriculum includes engineering design process, storytelling, math, history, literature, art, school-based curriculum, and prior knowledge. Teachers at all levels of their careers will benefit from this session provided by a practitioner in the field. Takeaways include curriculum, tech tools, quick implementations, and networking.

TEACHER SHORTAGES AND THE DECLINE OF SECONDARY TEACHER PRODUCTION | ROOM ZB 1

Michael Marder, UTeach Executive Director, University of Texas at Austin | @UTeachAustinII

Higher Education | Research

This session will present a way to estimate U.S. STEM teacher shortages using Civil Rights data and show we need more than 100,000 more middle and high school STEM teachers. From Title 2 Data, one finds that the number of high school STEM teachers produced annually is dropping so quickly that

production extrapolates to zero in a decade. We will discuss the reasons for these problems, and the possible role of UTeach in addressing them.

USEA'S EQUITY AND RACIAL JUSTICE (ERJ) COMMUNITY ENGAGEMENT FOR RESEARCH AND STANDARDS | ROOM ZB 2

Mary Urquhart, Director of UTeach Dallas, University of Texas at Dallas | @UTeachDallas, @UTDSME

Sumudu Lewis, Director of UTeach, University of Massachusetts Lowell | @UMassLowell

Higher Education | Adapting and Strengthening the UTeach Program and Curriculum

The USEA ERJ Research and Standards Committee is engaged in gathering data on how issues of diversity, equity, inclusion (DEI), and racial justice are being addressed by UTeach programs throughout UTeach Nation. This spring the committee, in partnership with the UTeach Institute, conducted a survey on how UTeach faculty and programs around the nation are addressing DEI and what resources faculty and programs recommend to others. In this workshop, the committee co-chairs will share our preliminary survey results and invite participants to engage with us as additional community voices to further guide our work.

10:45 A.M. TO 11:45 A.M.

COURSE OVERVIEW: PROJECT-BASED INSTRUCTION | ROOM 103

Martha Day, Co-Director/Professor, SKyTeach, Western Kentucky University

Higher Education | Strengthening Instruction

This session will provide an overview of the UTeach course Project-Based Instruction. This course focuses on developing problem- and project-based units of instruction.

UTEACH ALABAMA FUNDING OPPORTUNITY | ROOM 104

Kimberly Hughes, Director, UTeach Institute | @UTeachInstitute, @hugheskk

Lee Meadows, Executive Director, Alabama STEM Council | @scientificallee

Katey Arrington, Associate Director, UTeach Institute | @UTeachInstitute, @ArringtonKatey

Are you from an Alabama college or university and considering submitting a response to the UTeach Alabama RFP? Come meet with representatives from The Alabama STEM Council, the UTeach Institute, and other Alabama educators to discuss and get answers to your questions about the proposal process, the UTeach model, and the potential partnership through the grant.

DEFINING AND DEVELOPING PERSONAL DEFINITIONS OF EQUITY IN OUR FUTURE OR CURRENT STEM CLASSROOM | ROOM 107

Brian Fortney, Master Teacher/Lecturer, Teach North Texas, University of North Texas
Nirmala Naresh, Associate Professor, Department of Mathematics, University of North Texas
Janel Madeley, Master Teacher/Lecturer, University of North Texas

Preservice Teachers, K–12 Education | Preservice Teacher Topics

In order to identify implicit bias and make sense of literature on Inclusion, Diversity, Equity, and Access (IDEA), one must wrestle with and understand the definition of equity, and what equity means in personal practice. In this workshop, preservice teachers and practicing K–12 professionals will be expected to develop a first draft of their personal definition of equity, and how that applies to their future or current STEM classroom. Real preservice teacher examples will be provided for deconstruction and as a concrete example to begin/continue the process of developing a personal definition. Definitions of equity from the literature will be provided. Participants will be encouraged to utilize an existing definition to expand personal understanding. All student work used with permission.

ALUMNI AND ASPIRING TEACHER MENTORSHIP ALUMNI NETWORK: SUCCESS, CHALLENGES, AND OPPORTUNITIES | ROOM 108

Kris Houston, UC Irvine CalTeach Academic Coordinator, University of California, Irvine
Annmarie Ngo, UCI CalTeach Alumni, Current Biology Teacher, University of California, Irvine
Socorro Cambero, Graduate Student Researcher, University of California, Irvine

Higher Education | Out-of-Class Support for Everyone

Providing UTeach student teachers with peer mentoring can create a critical layer of support to sustain them and facilitate their transition into their own classroom. We will present the CalTeach Alumni mentoring program, where CalTeach program alumni provide mentoring support for current student teachers. This session will provide an overview on efforts in strengthening connections among alumni and aspiring teachers through the mentorship network. We will share the affordances of creating this community, including the leadership and coaching opportunities for mentors, and the opportunities to demystify teacher preparation and early career teaching for mentees. Furthermore, we will provide insight on how to navigate constraints in order to foster a strong network of support. Participants will connect and learn how to center the mission of their UTeach program in their preparation program in their mentorship program and begin this endeavor to support alumni and aspiring teachers.

DEEPENING ENGAGEMENT FOR UTEACH THROUGH RESEARCH EXPERIENCES: ADAPTING RESEARCH EXPERIENCES FOR TEACHERS (RET) AND RESEARCH METHODS FOR INTERDISCIPLINARY ENGINEERING STUDENTS | ROOM 115

Nicholas Oehm, Clinical Associate Professor/Master Teacher, FIUteach, Florida International University | @fiuteach
Beth Simmons, Clinical Assistant Professor/Master Teacher, FIUteach, Florida International University | @fiuteach

Higher Education | Adapting and Strengthening the UTeach Program and Curriculum

Increasing engagement calls for a multifaceted approach. Various partnerships at FIUteach collaborate across disciplinary lines, creating bold new research experiences for their students and teachers. This session explores two exemplary partnerships: one with the Florida Coastal Everglades Long Term Ecological Research Program (FCE LTER) — which provides NSF-funded Research Experiences for Teachers (RETs) for FIUteach alumni and mentor teachers — and the other with the Interdisciplinary Engineering Program at FIU to incorporate the engineering design process into cross-disciplinary research experiences.

CURRICULUM MODULES THAT INTEGRATE THE INSTRUCTION OF MATHEMATICS AND COMPUTER SCIENCE | ROOM ZB 1

Ellen Granger, Co-Director, FSU-Teach, Florida State University
Megan Crombie, K–12 Teacher, Florida State University
Ashley Gannon, Graduate Student, Florida State University
Sherry Southerland, Co-Director, FSU-Teach, Florida State University

K–12 Education, Higher Education | Strengthening Instruction

Curriculum modules integrating the instruction of middle school mathematics and computer science coding were developed and tested in four different school contexts through an NSF-funded curriculum project using Design-Based Research. All modules were built around research-based teaching principles and targeted mathematics concepts that tend to be less intuitive for students. Twelve modules, four for each middle grades level (6, 7, and 8) plus an Introductory module, were developed and tested in classrooms. This session will summarize the project and the modules developed, and include a hands-on demonstration of one of the modules by a teacher who was both a member of the module design team and who trial tested the modules in her classroom over three years. Participants will get a chance to experience a module firsthand and have questions answered about it, the other modules, and the project in general.

Attendees will need to bring a laptop if they want to participate in the module demonstration.

BLENDED LEARNING STRATEGIES FOR SECONDARY STEM CLASSROOMS | ROOM ZB 2

Kelli Allen, Associate Professor of Practice and Professional Development Coordinator, UTeach Austin, University of Texas at Austin | @UTeachPD

Crystal Duran, Apprentice Teacher, UTeach Austin, University of Texas at Austin

Fernando Merida, Apprentice Teacher, UTeach Austin, University of Texas at Austin

Itssel Sanchez, Apprentice Teacher, UTeach Austin, University of Texas at Austin

K–12 Education, Higher Education, Preservice Teachers | Strengthening Instruction

Blended learning combines technology-driven learning activities with teacher-led instruction to maximize a personalized learning experience. Spring 2022 Apprentice Teachers will share a variety of blended learning work products geared toward enhancing student engagement and accountability as well as their reflections on implementation success. This session is applicable to new apprentice teachers, in-service teachers, apprentice teacher instructors, and anyone else interested in the practical application of blended learning frameworks in secondary STEM classrooms.

11:45 A.M. TO 1:00 P.M.

LUNCH | TEJAS DINING ROOM, LEVEL M2

1:00 P.M. TO 2:00 P.M.

COURSE OVERVIEW: CLASSROOM INTERACTIONS | ROOM 103

Jennifer Smith, Assistant Professor of Instruction, University of Texas at Austin

Higher Education | Strengthening Instruction

This session will provide an overview of the UTeach course Classroom Interactions. This course continues the process of preparing students to teach mathematics and science in secondary settings by providing opportunities to see how theories explored in the Knowing and Learning in Mathematics and Science course play out in instructional settings. Additionally, this course has a directed diversity, equity, and inclusion focus.

REIMAGINING RESEARCH METHODS: BUILDING A STEM PIPELINE FOR UNDERREPRESENTED HIGH SCHOOL STUDENTS | ROOM 104

Jacqueline Ekeoba, Master Teacher, teachHOUSTON, University of Houston | @MsEkeoba

Mariam Manuel, Instructional Assistant Professor, teachHOUSTON, University of Houston | @ScienceManuel

Thomas Thesen, Associate Professor, University of Houston

Higher Education | Adapting and Strengthening the UTeach Program and Curriculum

Typically, in the Research Methods in STEM course, preservice STEM majors perform four independent inquiries, combining skills from mathematics and science to solve research problems. With the addition of the STEM Research Inquiry Summer Enrichment (STEM RISE) program, an NSF-funded initiative, *teachHOUSTON* faculty members Jacqueline Ekeoba and Mariam Manuel with Thomas Thesen of the College of Medicine at University of Houston reimagined the research lab experience as an opportunity to strengthen the STEM pipeline of underrepresented populations by redesigning the empirical STEM research engagement to include a field-based component, access to ongoing STEM laboratories, and engaging STEM faculty at UH in a multilayered mentoring model including high school students, STEM undergraduates, and first-year medical school students. The presenters will share the process for developing community partnerships, Research Methods course curriculum additions, and student experiences from the 2021 pilot of STEM RISE.

UTEACH OBSERVATION PROTOCOL (UTOP): TRAINING YOUR FACULTY WITH A VALIDATED CLASSROOM OBSERVATION INSTRUMENT | ROOM 107

Kelli Allen, Associate Professor of Practice and Professional Development Coordinator, UTeach Austin, University of Texas at Austin | @UTeachPD

Jackie Burniske, Director, UTeach K–12 Initiatives, University of Texas at Austin | @UTeachPD

Ellen Granger, Co-Director, FSU-Teach, Florida State University
Michael Marder, UTeach Executive Director, University of Texas at Austin | @UTeachAustin

Higher Education | Strengthening Instruction

The UTeach Observation Protocol (UTOP) for Mathematics and Science is an observational instrument that can be used to assess the overall quality of classroom instruction in math and science from kindergarten to the undergraduate level. The UTOP was designed to allow individuals to evaluate teaching effectiveness while valuing different modes of instruction. We have specifically considered instruction in a spectrum from inquiry-based instruction to direct instruction. Using the tool, you review the classroom environment, lesson structure, and implementation, as well as mathematics and science content. Attend this session to learn more about the UTOP and how UTeach Austin faculty worked with educators from FSU-Teach on a training session to prepare FSU-Teach to use the UTOP.

SHARE YOUR STORY: INNOVATIVE WAYS TO MARKET AND BRAND YOUR UTEACH PROGRAM | ROOM 108

Elizabeth Goldberg, Associate Professor of Practice and Science Master Teacher, UTRGV UTeach, University of Texas Rio Grande Valley | @UTRGVUTeach

Omar Elizondo, Associate Professor of Practice and Science Master Teacher, UTRGV UTeach, University of Texas Rio Grande Valley

Gus Valencia, Associate Professor of Practice and Math Master Teacher, UTRGV UTeach, University of Texas Rio Grande Valley

Stacy Solis, Associate Professor of Practice and Science Master Teacher, UTRGV UTeach, University of Texas Rio Grande Valley

Tim Sears, Associate Professor of Practice and Science Master Teacher, UTRGV UTeach, University of Texas Rio Grande Valley

Higher Education | Adapting and Strengthening the UTeach Program and Curriculum

Your UTeach program is doing amazing things. In this interactive session, learn how to share that success with the world. We will go over how to use a variety of mediums from graphics, to videos, to podcasts, to feature stories to promote the accomplishments of your program. We will also go over some traditional and some not-so-traditional ways of spreading your message (like chalk walks and basketball games). Join us and learn innovative ways to share your story!

WHY NOT US? WHY NOT NOW? | ROOM 115

Mary Enderson, Co-Director, MonarchTeach, Old Dominion University

Mary Urquhart, Director of UTeach Dallas, University of Texas at Dallas | @UTeachDallas, @UTDSME

Carrie Culpepper, UTeach National Network Coordinator, UTeach Institute | @UTeachAlumni

Katey Arrington, Associate Director, UTeach Institute | @ArringtonKatey, @UTeachInstitute

Higher Education, K-12 Education, Preservice Teachers | Adapting and Strengthening the UTeach Program and Curriculum

2:15 P.M. TO 3:30 P.M.

PURPOSE AND IMPACT: 2022 UTEACH ALUMNI PANEL | ZLOTNIK BALLROOM

Moderator: Michael Ralph, Senior Associate, Lead Researcher, Multistudio; STEMTeach KU Alumnus, University of Kansas | @MichaelCRalph

Lauren Benoit, Principal, Not Your Ordinary School (NYOS) Charter School, Austin, Texas; UTeach Austin Alumnus

William Chan, Algebra II and Precalculus Teacher, Clements High School, Sugar Land, Texas; UTeach Austin Alumnus

Abria Harris, Mathematics Clinical Faculty, FSU-Teach, Florida State University; FSU-Teach Alumnus

Kayte Howell, Instructional Coach, Department Chair, and Educator at Travis Early College High School; UTeach Austin Alumnus

Viviana Lozano, Apprentice Teacher, teachHouston, University of Houston

UTeach alumni from across the network reflect on how their role as education leaders continues to change and grow amid the many challenges facing education today. The panel brings together voices of UTeach educators at different career points to examine how UTeach can meet the needs of students affected by education disruption, advance equity and justice in U.S. education, and embrace our maturing network of programs and community of alumni.

We need your voice in the conversation! USEA executive board members will facilitate a discussion to gather input about how the network can be a leader in transforming STEM education in both higher education and K-12 settings. Help shape USEA goals and objectives, including more opportunities for leadership, advocacy, and scholarship. Participants will engage in discussion to identify initiatives in which they want to participate and/or lead. Any faculty, staff, student, teacher, administrator, or STEM education supporter is welcome!

A HYBRID UNIVERSITY/NON-PROFIT ALT CERT PARTNERSHIP: A NEW UTEACH PARTNERSHIP MODEL | ROOM ZB 1

Greg Hale, Assistant Dean of Science, University of Texas at Arlington

Ann Cavallo, Assistant Vice Provost, University of Texas at Arlington

Ramon Lopez, Distinguished Professor of Physics, University of Texas at Arlington

Erin Philp, Coordinator of Student Services, University of Texas at Arlington

Higher Education | Adapting and Strengthening the UTeach Program and Curriculum

Our session will facilitate a discussion among UTeach site leadership and faculty regarding the effectiveness of the collaboration at their universities between the core UTeach group and the certification gatekeepers on their campuses. After eliciting best practices, common pitfalls, and success stories from the audience, we will then describe the new partnership between UTeach Arlington and the Texas Education Agency's Region XI Service Center that will lead to certification of our graduates and solicit feedback from the audience.

Posters

Wednesday, 5:00 P.M. TO 7:30 P.M.

The posters will be in the ballroom with the conference reception on Wednesday, 5:00 p.m. to 7:30 p.m. Please visit the poster presenters and give them a cheer!

Students – Competitive

S1. WHERE DO TEACHERS COME FROM, HOW CAN WE ATTRACT MORE TEACHERS, AND HOW CAN WE KEEP TEACHERS MOTIVATED?

Samson Stynten, Student and Peer Mentor, University of Nevada, Reno

I interviewed/surveyed preservice and current teachers in order from Step 1 classes all the way to preservice teachers in their apprenticeship semester to see where their motivation to become a teacher comes from. I interviewed and surveyed program graduates to find out how they are staying motivated. Finally, I interviewed/surveyed long-term teachers.

Overall, my goal for this research is to help programs attract more preservice teachers, keep students motivated, and help graduates stay positive teachers (specifically through difficult times like the past few years).

S2. MATH ANXIETY AND ITS EFFECTS ON PROSPECTIVE STEM TEACHERS

Dillan Marroquin, Student Teacher, University of Nevada, Reno | @Nevada Teach

STEM teachers are always in high demand, now more than ever, but student teachers may feel hesitant to teach in these fields due to the level of math that is expected of them to learn, know, and comfortably teach. My poster delves into the concepts of math anxiety and math-teaching anxiety and the effects that these anxieties have on prospective STEM teachers. Prospective math teachers are of particular interest in my poster since these individuals are expected to be experts at their craft; however, some math teachers still feel anxiety when learning, teaching, or explaining mathematics. I also explain the effects that math/math-teaching anxiety has on the students of teachers with these conditions as well as possible remedies to ease these anxieties.

S3. FIELD TRIPS AND SCAVENGER HUNTS

Anna Mavrodieva, Student, University of Florida

Field trips are a form of informal STEM education frequently incorporated by formal educational facilities to enhance learning and make places like museums, parks, etc., more accessible to students who otherwise may not have the chance to visit them. Scavenger hunts are a tool that can be used during field trips to further enhance this learning experience and connect information learned during the field trip to traditional classroom curriculum. While working at the Florida Museum of Natural History (FLMNH), I created a scavenger hunt that connected an exhibit about South Florida history to the 4th-grade science and social studies curriculum, which focuses on the environment and history of our state. Although I have not yet had the opportunity to test the effectiveness of this scavenger hunt in the learning process, it has been reviewed by the Department of Education at the FLMNH and I am interested in testing this scavenger hunt (and possibly creating more scavenger hunts for more exhibits and grade levels) in the future.

S4. NVTC PROJECT-BASED INSTRUCTION: CAR FINANCIAL SIMULATOR

Sabrina Ma, Apprentice Teacher, University of Nevada, Reno | @Sabrina_JMa
Tian Xu, Apprentice Teacher, University of Nevada, Reno

Project-Based Instruction helps students visualize mathematics in the real world. In this project, we designed a car-buying simulator that lets students explore their financial future with different car options and obstacles related to financial needs. We divided this project into three components that focused on step functions, absolute value functions, and piecewise functions. Throughout our teaching week, as students learned the new material, they applied their knowledge to their project calculations, and put it together on a design of their choice. Although we were unable to include a community partner when teaching this project, we would have invited a financial specialist to discuss more details of how to buy a car. At the end of the project, students concluded that, “No matter who you are or where you are from, you can always succeed financially,” which directly linked to our bigger goal for the whole community.

55. ASSESSMENT AND INTERVENTION THROUGH COLLABORATION

Valerie Bonet, Student, University of Florida

It is not unlikely that students spend more time at their school than in their own house. For this reason, teachers are able to notice patterns in students' behavior that others may not. It is incredibly important for teachers to be able to be there for their students socially and emotionally. However, they may not always have the tools to be able to do so in the most effective manner since teachers are not trained psychologists. My poster will focus on how teachers and school psychologists can collaborate in order to create assessments and intervention techniques to help their students. School psychologists and teachers have to work to help students based on what each student needs. I will be focusing on mental health services for students, promoting social justice and working to shape education and close achievement gaps, and different types of intervention and assessment systems.

56. WATER SMARTER

*Jessie Coppinger, Student, University of Massachusetts, Lowell
Grace Hansen, Student, University of Massachusetts, Lowell*

Project-based instruction/learning has been shown to have several benefits. Some include an increase in student success in answering applied and conceptual problems as well as a superior performance on standardized testing compared to students not engaged with project-based learning. Using skills gained from several UTeach courses, we were able to facilitate a six-lesson project based on water quality. Our poster displays how we helped lead students to direct their own learning. In the lesson series, students designed a water filter that they believed will filter a sample of contaminated water. They were responsible for conducting research, creating a proposal, building the filter, and then testing the water in a UMass Lowell laboratory. Students were challenged to think critically about several questions and how their filter and water quality in general can be applied to many global issues.

57. THE ROLE OF MUSEUMS IN STUDENTS' TACTILE STEM EDUCATION

*Mollie Dent, Student, University of Florida | @UFteach1
Andrew Fishkin, Student, University of Florida | @UFteach1*

Museums can play an important role in aiding students' K–12 STEM education through tactile learning. Tactile learning occurs when students understand concepts by engaging in physical movements that can promote and develop fine motor skills. The poster describes the presenters' experiences promoting tactile learning in STEM education through summer outreach programs with the Florida Museum of Natural History. It also describes how the museum connects local students with local scientists and gives the students opportunities for tangible engagement with scientific practices and skills. We describe interviews with two of the museum's educators on the importance of developing fine motor skills and how museums can assist

educators with opportunities for tactile learning in STEM educational settings. Many scientists must develop fine motor skills to conduct their research and we believe museums can provide aid in developing those skills through informal outreach or in providing educational materials for formal classroom settings.

58. MUSEUM EDUCATION AND AUTISM SPECTRUM DISORDER

Helna Babu, Student, University of Florida

This poster is based on research conducted regarding the experience of students with Autism Spectrum Disorder (ASD) through a museum experience. The accessibility of education for these students in an informal environment in comparison to the rigid structure of a school classroom is assessed. A literature review is done about programs conducted within a museum aimed towards children with ASD with responses from their parents. There are also qualitative data gathered from the observations within a museum's summer camps and the reactions one student had to different methods used over time.

59. MAKERSPACE EDUCATION: ASSESSING THE EFFECTIVENESS OF AN ARTS MAKERSPACE IN A MUSEUM SETTING

*Douglas Brazie-Brown, Student and Resident Assistant,
University of Florida | @douglasbbuwu*

This poster looks at informal STEM education, specifically in museums, as a facet of out-of-classroom learning and instruction. I worked in a makerspace at a museum, a space where people are provided with collective tools, materials, and knowledge, and use these resources to learn and create. They have been implemented in museum spaces as a way to get visitors engaged in hands-on experience with creating and engineering. I wanted to develop a framework for evaluating the learning that happens in these spaces, eventually deciding on 5 key traits: investment, creativity, problem-solving, collaboration, and understanding. I then developed a way to practically implement this system for data collection, using a survey for both students and parents interacting with an arts-based makerspace, self-evaluating use of these five skills. This would allow students and parents to reflect on the learning occurring and if they were engaging with the materials as intended.

510. EFFECTS OF STANDARDIZED TESTING ON STUDENT MENTAL HEALTH

Barbie LaMontagne, Student, University of Florida | @UFteach1

I describe my findings from both my internet research and own surveys from university and high school samples on mental health in direct correlation to standardized testing, such as the FSA or the past FCAT. This research tends to focus on the negative effects these tests have on students and how we can work to improve the experience students have when taking such required exams.

S11. EXPLORING EFFECTIVE TEACHING STRATEGIES FOR ASSISTING AND IMPROVING HIGH SCHOOL STUDENTS' ABILITY TO SOLVE PROBLEMS IN ALGEBRA II

Jessica D'Antona, Student, University of Massachusetts, Lowell

This study explored methods of teaching and the ways that students learn algebra in order to develop lessons to support the teaching of exponential functions in high school Algebra II courses. The data were collected by analyzing student work samples and using the framework of competencies including conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive disposition. Using these competencies as a guideline, a unit of work was developed.

S12. INTERSECTIONALITY EFFECTS ON STEM ANXIETY

Gloria Pulido, Student, University of Houston - Clear Lake

Stress and anxiety have frequently caused detrimental effects on the academic well-being of college students. This research focuses on undergraduate students with intersectional identities in science, technology, engineering, and mathematics (STEM) to examine the prevalence of stress, anxiety, self-esteem hardships, and/or social support. Findings allow instructors to use this data to adjust educational discourse and alleviate student stress and anxiety in STEM.

S13. LIGHT IN MEDICINE — ONLY PHOTONS CAN DO THAT: A PROJECT-BASED LEARNING APPROACH FOR TEACHING ENGINEERING PRINCIPLES IN A HIGH SCHOOL ENGINEERING CLASSROOM

William Zouzas, Student, University of Massachusetts, Lowell

Project-Based Learning (PBL) is a model and framework of teaching and learning in which students acquire content knowledge and skills in order to answer a driving question based on an authentic challenge, need, problem or concern. PBL was used to design a unit of work comprising five lessons and a field experience to guide students into exploring the properties of light to understand its use in the design and application of medical devices.

The goal of this unit was to establish enduring understanding. Data on student understanding was collected by comparing pre- and post-assessment scores and tracking formative assessments such as quizzes, surveys, and class activity worksheets. Students completed a final project researching the design of a specific medical device where light was necessary for its function.

S14. GREEN BOXES: A COLLABORATION WITH DESERT RESEARCH INSTITUTE TO SUPPORT STEM EDUCATORS

Emilie Prudhomme, Student Intern Desert Research (DRI) and Student, University of Nevada, Reno
Abigail Duran, Student Intern Desert Research (DRI) and Student, University of Nevada, Reno

Over the course of two semesters, we have designed, tested, and revised two lessons in collaboration with the Desert Research Institute. These are hands-on STEM learning experiences aligned to the NGSS framework. The purpose of this partnership is to create accessible and versatile STEM kits for educators and for preservice teachers in the NevadaTeach program to gain experience in curriculum writing and collaboration with community stakeholders. We aim to create lessons that are engaging for all learners in both formal and informal settings. Moving forward, this internship will expand the Green Box project to more STEM educators throughout the state of Nevada and provide valuable experiences to education interns.

S15. THE STEM RISE PROGRAM AT TEACHHOUSTON: CONNECTING INQUIRY-BASED TEACHING AND MENTORING THROUGH STEM AND MEDICINE

Theresa Pham, UTeach Student, University of Houston | @uhstemrise
Olivia Pittman, UTeach Student, University of Houston

The STEM Research Inquiry Summer Experience program is a collaboration between the University of Houston's College of Natural Sciences and Mathematics *teachHOUSTON* program, the new UH College of Medicine, and Jack Yates High School in Houston's Third Ward. The program aims to combat the lack of minority representation in STEM fields by involving Jack Yates High School students in an immersive opportunity to collaborate with STEM undergraduates (preservice teachers), medical students, and STEM faculty. This poster includes sample 5E inquiry-based lessons, derived from medical research, that incorporate culturally responsive pedagogy. We share how engagement with research labs and medical student mentors helped inform teaching practices and transferable strategies for acquiring students' funds of knowledge. Finally, we provide takeaways from participating in the program's informal learning experience and the newly reimagined research methods course.

S16. ADHD IN STEM

Makayla Mitchell, Student, University of Houston — Clear Lake

This poster examines ADHD and its effect on students in STEM education courses. I provide background information on ADHD experiences and offer possible strategies STEM teachers can use with struggling students.

S17. ENGLISH LANGUAGE LEARNERS IN STEM EDUCATION

Samuel Trejo, Student, University of Houston – Clear Lake

Research shows that some English Language Learners are struggling to perform not just in K–12, but also in college. This presentation offers strategies to aid future or current teachers in supporting English Language Learners in STEM classrooms.

S18. THE DEVELOPMENT OF HIGH SCHOOL LEVEL RESEARCH PROJECTS: PH ANALYSIS AND COMPARISON OF COLA PRODUCTS

Heather Smith, Student, Stephen F. Austin State University

In high school laboratory settings, it is a challenge to keep students engaged and cover the required state standards. An experiment using popular cola drinks was developed to introduce the concepts of pH, titration, and equivalence points to students. Litmus paper was used to quickly indicate the pH of the drinks as the titration progressed. For the titration, students measured the pH levels of six different sodas and one energy drink. Sodas were used to pique the students' interest in learning about the acidity of beverages that they consume daily. The majority of the drinks have an initial pH of roughly 3–4, contain phosphoric acid, and show at least two equivalence points. Analysis of the data requires students to be able to accurately define acid-base concepts, such as pH, equivalence points, and neutralization, and be able to do calculations involving molarity, stoichiometry, and percent by mass.

Faculty, Staff, and K–12 Teachers

NC1. PROFESSIONAL DEVELOPMENT FOR CHANGE: EQUITY AND RACIAL JUSTICE

La Keisha Leonard, Master Teacher, Teach North Texas, University of North Texas
Pam Kirkland, Master Teacher, UTeach Dallas, University of Texas at Dallas | @UTeachDallas
Katie Donaldson, Master Teacher/Associate Director, UTeach Dallas, University of Texas at Dallas
Elizabeth Goldberg, Associate Professor of Practice and Science Master Teacher, UTRGV UTeach, University of Texas Rio Grande Valley | @UTRGVUTeach
Mary Gregory, Master Teacher, MonarchTeach, Old Dominion University
Yolanda Kirkpatrick, Master Teacher, VolsTeach, University of Tennessee, Knoxville
Anisha Campbell, Associate Director, Terrapin Teachers, University of Maryland
Mandi Collins, Master Teacher, NevadaTeach, University of Nevada, Reno

Stop by to see the current developments of the USEA Equity and Racial Justice: Professional Development Opportunities working group. We are excited to share our current resources and passion project ideas with the network.

NC2. UTEACH STUDENT LEADERS ASSOCIATION

Fernanda Marrero Hi, teachHOUSTON Graduate and Program Manager, City of Houston Mayor's Office of Education; USLA Founder and Advisor

Established in March 2021, the UTeach Student Leaders Association (USLA) is a student-led national network that aims to create collaboration spaces for all UTeach student leaders. USLA is designed for all preservice teachers enrolled in UTeach programs. Mission statement: To create a national community of equity-driven preservice STEM teachers that advance social justice in education.

NC3. FACTORS PREDICTING UCCSTEACH COURSE AND PROGRAM COMPLETION

Kristi McCann, Senior Instructor, UCCS Teach, University of Colorado, Colorado Springs
Grant Clayton, Associate Professor, University of Colorado, Colorado Springs
Pat McGuire, Professor and Co-Director, UCCS Teach, University of Colorado, Colorado Springs

The “leaky” STEM pipeline is well documented in teacher preparation. We extend the knowledge base by investigating factors specific to UTeach program completion. Descriptive results show demographic characteristics of UTeach program participants by course including race/ethnicity, gender, STEM major, course hours enrolled, first generation status, military dependent/veteran, wealth, ACT/SAT, and edTPA. Inferential statistics estimate the probability of a student completing UTeach courses after controlling for student characteristics.

NC4. REIMAGINING DATA LITERACY IN STEM: BUILDING TEACHER CAPACITY FOR EQUITY-CENTERED PEDAGOGY

Allison Firestone, Doctoral Candidate, University of California, Berkeley
Gabriela Bravo Lopez, CalTeach Alumni, University of California, Berkeley
Sara Barring, CalTeach Alumni, University of California, Berkeley
Elisa Stone, CalTeach Program Director, University of California, Berkeley

Data literacy learning represents a context with rich potential for exploring social and racial justice in K–12 STEM classrooms. However, novice teachers require supported opportunities to design and implement equity-centered data literacy experiences. To build teachers' capacity in using data literacy to explore these topics with their students, the CalTeach Berkeley-3D program has implemented: (a) curricular innovations in coursework and (b) monthly alumni-facilitated workshops for NSF Noyce Scholars, other preservice teachers, and program alumni.

NC5. USEA INDUCTION AND PROFESSIONAL DEVELOPMENT WORKING GROUP

Elizabeth Goldberg, Associate Professor of Practice and Science Master Teacher, UTRGV UTeach, University of Texas Rio Grande Valley | @UTRGVUTeach
Kim Distin, Educational Technology Specialist, University of Texas at Dallas | @kimavh
Mary Urquhart, Director of UTeach Dallas, University of Texas at Dallas | @UTeachDallas, @UTDSME

Graduation is just the beginning. Learn how the USEA Induction and Professional Development Working Group brings together diverse members of the UTeach community to provide induction services to UTeach alumni and professional development opportunities to all members of UTeach Nation. Hear more about our initiatives and programs and learn how you can join the USEA Induction and Professional Development Working Group to expand your program's services and share your ideas to help strengthen UTeach Nation.

NC6. CATALYZING CHANGE IN UNDERGRADUATE SCIENCE TEACHING TO BETTER PREPARE FUTURE TEACHERS

Anne Egger, Professor, Central Washington University
Leighanna Hinojosa, Science Education Specialist, Central Washington University
Devarati Bhattacharya, Science Education Specialist, Central Washington University

The vision of the Teaching with Investigation and Design in Science (TIDeS) project is that future teachers will learn science as undergraduates the way they are expected to teach science in the K–12 classroom: engaging all students in science investigation and engineering design in a discourse-filled, context-rich, inclusive learning process. TIDeS seeks to catalyze transformation of introductory undergraduate science courses by supporting faculty in the development and implementation of rigorously tested, inclusive curricular materials that focus on investigation and design. We ask: How do the beliefs and practices of instructors change with developing and implementing these new curricular materials?

NC7. EXAMINING THE USE OF STEM TEACHING IDENTITY CONSTRUCTS AS PREDICTORS OF ENTRY INTO A STEM TEACHER PREPARATION PROGRAM

Leslie Nisbet-Gonzalez, Master Teacher, FIUteach, Florida International University
Ingelise Giles, Master Teacher, FIUteach, Florida International University

In response to calls for more STEM certified teachers, identity has emerged as a theoretical lens for examining how candidates can be recruited into and retained in the teaching profession. This quantitative study explores how STEM students in a recruitment course for a teacher preparation program

construct their science and mathematics teaching identity and which constructs of identity are influential in students joining the teacher preparation program. This work informs future research on the retention of students in STEM teacher preparation programs.

NC8. SOCIAL JUSTICE-FOCUSED MATH ENRICHMENT ACTIVITIES FOR MIDDLE SCHOOL STUDENTS

Diana Cheng, Associate Professor, Towson University
Kimberly Corum, Assistant Professor & Fisher Endowed Chair, Towson University
April Mangaoil, Preservice Teacher, Towson University
Christian Pippin, Preservice Teacher, Towson University
Jean Ciscell, Preservice Teacher, Towson University
David Johnson, Preservice Teacher, Towson University

We present two social justice math activities that preservice teachers conducted in Perspectives in Science and Mathematics and in enrichment sessions with middle school students. These activities use mathematical modeling to help students describe impacts of bias and injustice on the world, historically and at present.

Exhibitors

Visit exhibitor booths all day June 22 outside the Zlotnik Ballroom. Exhibitors will be present at their booths just before the reception, beginning at 4:30 p.m.

NATIONAL MATH AND SCIENCE INITIATIVE

The National Math and Science Initiative believes that STEM education is the greatest lever to accessing opportunity and is unmatched in unlocking student potential. We work with local, state, and national partners to increase educational opportunities and empower better outcomes for all students. We strive to advance STEM education to ensure all students, especially those furthest from opportunity, thrive and reach their highest potential as problem solvers and lifelong learners who pursue their passions and tackle the world's toughest challenges. NMSI is proud to partner with the UTeach Institute to ensure that students have access to highly qualified educators and that educators have opportunities to be the best version of themselves.

nms.org

NATIONAL ASSOCIATION OF GEOSCIENCE TEACHERS

NAGT is a member-driven society that supports a diverse, inclusive, and thriving community of educators and education researchers to improve teaching and learning about the Earth. Our members are college instructors at all institution types, K–12 teachers, informal educators, students, and others that care about Earth education for all. We offer high-quality resources and professional development opportunities that support current and future geoscience educators throughout their careers, foster and disseminate research in geoscience education, promote and advocate for high-quality Earth education, and work to drive change toward an equitable and inclusive system of geoscience education.

nagt.org

KNOWLES TEACHER INITIATIVE

Established in 1999 by Janet H. and C. Harry Knowles, the Knowles Teacher Initiative is a nonprofit organization that supports a national network of mathematics and science teachers who are collaborative, innovative leaders improving education for all students in the United States. Through the Knowles Teaching Fellows Program, Knowles supports early-career, high school math and science teachers in their efforts to develop teaching expertise and lead from the classroom. Through the Knowles Academy, Knowles provides professional development services for teachers and customized services for schools and districts that are designed and facilitated by experienced teachers.

knowlesteachers.org

INTERNATIONAL SPACE STATION (ISS) PROGRAM, NASA

Our team shares NASA's International Space Station's robust scientific research by providing access to images, stories, curriculum, and other cool materials about the Space Station.

issnationallab.org/stem

Exhibitors

TAKE CARE OF TEXAS

Take Care of Texas is a program of the Texas Commission on Environmental Quality (TCEQ) and offers free educational publications for families, students, and teachers on the topics of air, water, and waste. The Take Care of Texas YouTube page has several educational videos, including virtual field trips. The website offers free publications, both physical and digital, that range from posters and lesson plans to stickers and bookmarks.

takecareoftexas.org

UTEACH STEM EDUCATORS ASSOCIATION (USEA)

The UTeach STEM Educators Association is a network of over 7,000 individuals from universities, K–12 schools, nonprofits, and businesses with the mission of STEM literacy for all. USEA members can engage in numerous association activities such as committee membership, professional development, and leadership opportunities. USEA will mark its 10-year anniversary in 2023 and is looking for passionate individuals to help lead the next decade of STEM teacher preparation, support, and leadership. **Join our session “Why Not Us? Why Not Now?” at 1:00 P.M. on Thursday to be part of the conversation!**

usea.uteach.utexas.edu

UTEACH COMPUTER SCIENCE

UTeach Computer Science provides project-based AP CS curricula, engaging professional development, ongoing teacher support, and free micro-credentials. As a College Board–endorsed provider for both AP CS Principles and AP CS A, UTeach CS has prepared and supported more than a thousand in-service teachers since 2015. Starting in 2022, preservice teachers from UTeach Austin will join in-service teachers in summer professional development as an integral part of the redesigned preservice CS Pathway. UTeach CS also provides free micro-credentials for K–12 educators on a variety of research-backed skills, such as equitable recruitment, pair programming, rubber duck debugging, unplugged computational thinking, and more!

cs.uteach.utexas.edu

UTEACH PROFESSIONAL DEVELOPMENT

For more than 15 years, UTeach Professional Development at the University of Texas at Austin has offered our award-winning, high-quality, research-based professional learning opportunities for all in-service K–12 educators. Focus areas include blended learning, inquiry-based learning, project-based instruction, and restorative practices. Courses are online, job-embedded, and facilitated by practicing K–12 pedagogy experts who provide personalized responses to all work products submitted in the courses. More than 3,000 educators have completed an online Blended Learning Course since 2018.

pd.uteach.utexas.edu

SCIENCE MILL

The Science Mill’s mission is for all students—regardless of economic status, location, gender or race—to have equitable access to STEM programs and be able to envision themselves in a future career in STEM. Through our highly interactive museum and innovative STEM programs, we inspire students’ curiosity and give them the confidence, tools and support they need to reach their full potential as skilled members of the 21st-century STEM workforce.

sciencemill.org

Thank you

EQUITY AND RACIAL JUSTICE IN STEM TEACHER DEVELOPMENT SUMMIT COMMITTEE

This committee developed the Equity and Racial Justice in STEM Teacher Development Summit from conception to implementation.

Co-Chair: Abria Harris, Mathematics Clinical Faculty, FSU-Teach, Florida State University; FSU-Teach Alumnus

Co-Chair: Pat McGuire, Professor and Co-Director, UCCS Teach, University of Colorado, Colorado Springs

Phillips Adebayo, Chemistry Teacher, Crockett Early College High School, Austin Independent School District

Alexandra Eusebi, Assistant Professor of Practice and UTeach Access Academic Director, University of Texas at Austin

Amanda Reinsburrow, Coordinator and Researcher for the ORCID grant, Drexel University

Deanna Buckley, Associate Professor of Practice, UTeach Austin, University of Texas at Austin

Brian Fortney, Master Teacher/Lecturer, Teach North Texas, University of North Texas

Kate York, Master Teacher, UTeach Dallas, University of Texas at Dallas

Alexander Eden, Biology Teacher, University of Massachusetts, Lowell

USEA AWARDS COMMITTEE *This committee reviewed nominations and determined winners of the annual USEA awards.*

Pat McGuire, Professor and Co-Director, UCCS Teach, University of Colorado, Colorado Springs

Kristen Apraiz, Clinical Assistant Professor, UTeach, University of Florida

Martha Day, Co-Director/Professor, SkyTeach, Western Kentucky University

Alexandra Eusebi, Assistant Professor of Practice and UTeach Access Academic Director, University of Texas at Austin

Mark Townsend, Learning Experience Design Manager, Houghton Mifflin-Harcourt; UTeach Austin alumnus

POSTER JUDGES *This group provided feedback and recommendations on competitive posters.*

William Chan, Algebra II and Precalculus Teacher, Clements High School, Sugar Land, Texas

Gus Gustavo, Associate Professor of Practice, University of Texas Rio Grande Valley

Michael Ralph, Senior Associate, Lead Researcher, Multistudio

Laurie Cleavinger, Co-Director, STEMTeach, University of Kansas

John McMahon, Mathematics Teacher, Collier County Public Schools, Naples, Florida

Perri Segura, Clinical Associate Professor, teachHOUSTON, University of Houston

Alexander Eden, Biology Teacher, University of Massachusetts, Lowell

Laura Robinette Minor, Science Instructor, University of Texas at Austin

Christine Sinatra, Director of Communications, College of Natural Sciences, University of Texas at Austin

Mary Enderson, Co-Director of MonarchTeach, Old Dominion University

Sherry Southerland, Co-Director, FSU-Teach, Florida State University

PROPOSAL REVIEWERS *This group reviewed session and poster proposals for the summit and the conference.*

Phillips Adebayo, Chemistry Teacher, Crockett Early College High School, Austin Independent School District

Alexander Eden, Biology Teacher, University of Massachusetts, Lowell

Fernanda Marrero Hi, teachHOUSTON Graduate and Program Manager, City of Houston Mayor's Office of Education

Deanna Buckley, Associate Professor of Practice, UTeach Austin, University of Texas at Austin

Alexandra Eusebi, Assistant Professor of Practice and UTeach Access Academic Director, University of Texas at Austin

Pat McGuire, Professor and Co-Director, UCCS Teach, University of Colorado, Colorado Springs

Carrie Culpepper, UTeach National Network Coordinator, UTeach Institute

Abria Harris, Mathematics Clinical Faculty, FSU-Teach, Florida State University

Jennifer Smith, Assistant Professor, University of Texas at Austin

Chris Deyo, Expansion Site Coordinator, UTeach Institute

Pam Kirkland, Master Teacher, UTeach Dallas, University of Texas at Dallas

David Sparks, Assistant Professor, UTeach Permian Basin, University of Texas Permian Basin

Mary Lummus-Robinson, Senior Lead, Data & Analytics, UTeach Institute