# Join the Department of Science and Mathematics Education at UT Dallas for Fun and Informative Workshops!

## Thursday, November 21

9:00 AM – 10:00 AM, Ming, **Art, Surface Tension, Like Dissolves Like** Art inspires all. Come explore surface tension and "like dissolves like," in these two fun examples of making art: fractal paintings and making your own tempura paint. Fractal paintings create a great way to tie back to math, while tempura paints stretch into history. Make connections to other classes while exploring science in a hands-on way. Ideas for inquiry will also be explored. *Dr. Stephanie Taylor, Senior Lecturer*

10:30 AM – 11:30 AM, Manchester, **Easy Atom Models for Your Classroom!** Tiny, invisible atoms make up the world around us, so come make some atoms! You'll build four different atom models to take back to your classroom, including original creations by UT Dallas faculty. Each manipulative is made from readily available materials and explores a different topic: the parts of an atom, atomic mass, a scale model between the nucleus and electrons, and exploring periodic trends. We'll also show you how scientists "see" real atoms! *Dr. Mary Urquhart, Associate Professor and Department Head and Dr. Stephanie Taylor, Senior Lecturer*

12:00 PM - 1:00 PM, Ming, **Microwave Cake & Inquiry** Getting students to ask questions is a challenge in and of itself! Challenging students to change a given recipe gives them a starting point, while still allowing creativity to flow. What do eggs do in a cake? Does the type of cocoa powder matter? What happens if you take all the flow out. Come explore coffee cup chemistry -- in a microwave oven. *Dr. Stephanie Taylor, Senior Lecturer*

1:30 PM - 3:30 PM, Continental -27th floor, **"Break out of the Box" Using Cooperative, Social and Emotional Learning Strategies.** The Breakout Box Chemistry activity engages students through mystery and problem solving, while demonstrating how an educator can incorporate Cooperative Learning (CL) strategies, and support Social & Emotional Learning (SEL), with diverse student populations. English as a Second Language (ESL) and English Language Proficiency Skills (ELPS) strategies are also incorporated throughout the lesson. In addition, the importance of these strategies for educators in relation to Texas Teacher Evaluation and Support System (TTESS) will be presented. *Pam Kirkland and Dr. Jim McConnell, Master Teachers and Emily Hennessy, Senior Lecturer and Graduate Advisor*

Presentation materials, handouts, and more available at **http://tinyurl.com/UTD-CAST-2019** for workshops by Dr. Mary Urquhart (urquhart@utdallas.edu) and Dr. Stephanie Taylor (StephanieM.Taylor@utdallas.edu). Free Space Science Resources! **http://tinyurl.com/UTD-CAST-2015** and https://www.utdallas.edu/sme/outreach/k-12-teachers/space-science-resources/

Did you know? UT Dallas is recruiting Mentor Teachers for our STEM teacher preparation program, **UTeach Dallas** and offers in-service teachers **Master of Arts in Teaching** degrees in **Science Education** and **Mathematics Education**, taught by faculty with a mix of STEM and STEM education expertise. To learn more, see the UT Dallas booth #1300, our website at https://utdallas.edu/sme/ or contact Emily Hennessy ehennessy@utdallas.edu

## Friday, November 22

9:00 AM - 10:00 AM, Batik B, **High Flyin' Hot Air Balloons: A Fun Way to Teach about Gases** Join us for a high flyin' hot air balloon adventure! See how this fun hot air balloon activity can be used in teaching the basics of states of matter (gases) all the way to gas laws! We'll build and launch hot air balloons, all while learning how they can be used to teach science principles at any grade level! Balloon templates and instructional activities will be provided to all attendees. *Dr. Kate York, Master Teacher (kate.york@utdallas.edu) and Katie Donaldson (katie.donaldson@utdallas.edu), UTeach Dallas Associate Director and Master Teacher*

10:30 AM - 11:30 AM, Peridot, **Cutting-Edge Science Investigations with the Flatworm Planaria** Join us in this hands-on interactive workshop to learn how the freshwater flatworm "Planaria" used in scientific research can be used to excite your students and drive real-world investigations. Activities will focus on inquiry-based investigations with the Planarian to explore topics such as organism's interactions with their environment, asexual reproduction, cell division, stem cells, and regeneration and anatomy and physiology. Classroom-ready resources, vendor information, care and feeding requirements for these organisms will be provided. *Dr. Vinita Hajeri, Senior Lecturer*

10:30 AM - 11:30 AM, Grand Ballroom A, **Interactive Visualization of the Invisible** What is pressure? What really causes convection? How do particles of matter move? Answer these questions and more! Explore buildable kinesthetic models created by faculty at UT Dallas involving simple and inexpensive materials like ping pong balls and marshmallows. We'll also share plenty of teaching ideas and free technology-based interactive simulations used in our professional development programs for science teachers of all levels and in our own university classrooms! *Dr. Mary Urquhart, Associate Professor and Department Head and Dr. Stephanie Taylor, Senior Lecturer*

4:00 PM - 5:00 PM, Peridot, **Real-World Investigations with Sea Monkeys** Come explore in this hands-on interactive workshop how you can use brine shrimp (sea monkeys) to conduct authentic real-world scientific inquiries at a low budget. Discover the value of brine shrimp to bring alive complex topics such as organisms and their interactions with the environment, biotic and abiotic factors, food chain, and life cycle. Classroom-ready resources including vendor information and care for these organisms and alignments to TEKS across grade levels will be provided. *Dr. Vinita Hajeri, Senior Lecturer*

Presentation materials, handouts, and more available at **http://tinyurl.com/UTD-CAST-2019** for workshops by Dr. Mary Urquhart (urquhart@utdallas.edu) and Dr. Stephanie Taylor (StephanieM.Taylor@utdallas.edu). Free Space Science Resources! **http://tinyurl.com/UTD-CAST-2015** and https://www.utdallas.edu/sme/outreach/k-12-teachers/space-science-resources/

Did you know? UT Dallas is recruiting Mentor Teachers for our STEM teacher preparation program, **UTeach Dallas** and offers in-service teachers **Master of Arts in Teaching** degrees in **Science Education** and **Mathematics Education**, taught by faculty with a mix of STEM and STEM education expertise. To learn more, see the UT Dallas booth #1300, our website at https://utdallas.edu/sme/ or contact Emily Hennessy ehennessy@utdallas.edu

## Saturday, November 23

8:00 AM - 9:00 AM, Manchester, **The Sun, Earth, Moon System: Observations, Models, and More!** Why is understanding the 'why' of lunar phases challenging for students of all ages? Why is doing authentic observations of the moon important? How are day and night related to the phases of the moon? How can you find the moon in the daytime sky? Come explore lunar phases and more with space scientist/educator Dr. Mary Urquhart. You'll also receive free TEKS-relevant classroom-ready resources, including the Lunar Phase Wheel developed by the presenter! *Dr. Mary Urquhart, Associate Professor and Department Head*

8:00 AM - 9:00 AM, Senator's Lecture, **Why Don't We Shoot Nuclear Waste Into the Sun?** Let's shoot nuclear waste into the sun! Was Fukushima a nuclear or chemical explosion? How does nuclear power work? Can we mine the moon to further fusion research? How does radiation kill cancer cells? Explore resources and activities to answer these questions and more! Attendees will engage in discussions, explore resources and discover many of these answers for themselves. Virtual resources will be shared via Dropbox links, and displayed. *Dr. Stephanie Taylor, Senior Lecturer*

9:30 AM – 11:30 AM, Inverness, **The Search for Habitable Worlds Near and Far** How does our own solar system compare to the thousands of planetary systems around other stars? What makes a habitable world? Explore our solar system and the alien worlds within it and far beyond using NASA resources, classroom-friendly spectroscopy, and scale models created by space scientist/educator, Dr. Mary Urquhart. Learn why Earth is so special and why strange "eyeball Earths" may be the most common "Earth-like" planets of all. *Dr. Mary Urquhart, Associate Professor and Department Head*

11:00 PM - 12:00 PM, Grand Ballroom E, **Stories of Women in STEM** Once upon a time, there was a scientist. More likely, a team of scientists, who were not just white males. This presentation will tell stories, some old, like that of Rosalind Franklin, Marie Curie, and Lise Mietner, and some new from recent Nobel Laureates. This presentation will go through a variety of different stories from history, from a variety of fields of science. It is story time! *Dr. Stephanie Taylor, Senior Lecturer*

Presentation materials, handouts, and more available at **http://tinyurl.com/UTD-CAST-2019** for workshops by Dr. Mary Urquhart (urquhart@utdallas.edu) and Dr. Stephanie Taylor (StephanieM.Taylor@utdallas.edu). Free Space Science Resources! **http://tinyurl.com/UTD-CAST-2015** and https://www.utdallas.edu/sme/outreach/k-12-teachers/space-science-resources/

Did you know? UT Dallas is recruiting Mentor Teachers for our STEM teacher preparation program, **UTeach Dallas** and offers in-service teachers **Master of Arts in Teaching** degrees in **Science Education** and **Mathematics Education**, taught by faculty with a mix of STEM and STEM education expertise. To learn more, see the UT Dallas booth #1300, our website at https://utdallas.edu/sme/ or contact Emily Hennessy ehennessy@utdallas.edu