

2023 STEM Days of Summer Program

Breakfast and Check-in (8:30-9:20m, UCCS Library Apse)

WORKSHOP SESSIONS

Concurrent Sessions #1 (9:30-10:30am)

A Tiny Serengeti for your Classroom: Studying Animal Behavior with House Crickets (Room: Osborne Center - B314)

Presented by Emily Mooney (Associate Professor and Associate Chair, Department of Biology, UCCS) and Audrey Fahland (Undergraduate student, Department of Biology, UCCS)

Animals display a range of behaviors as they forage, compete for resources, and select mates. Ecologists have developed a set of tools to study animal behavior. This tutorial will introduce these tools using house crickets, which are an affordable, easy-to-rear animal for studying behavior in the laboratory classroom.

Tricks, strategies, and lesson plans to use for *any* STEM topic to engage and motivate students (Room: UC 122)

Presented by NSF Noyce Mentors: Christopher Cruz (Science Educator at Jack Swigert Aerospace Academy), Kathy Davis (Math Educator at Falcon High School) and Casey Schutz (Science Educator at Russell Middle School)

In this session, you will get to experience multiple lesson structures that can be adapted for multiple content areas. The goal of these lesson structures is to engage students, motivate learning, and create a sustainable structure that can be utilized throughout the year.

The AI Conversation Has Started, Join Us to Explore the Possibilities! (Room: UC 303)

Presented by Josie Smith and Cory Gavitt, Senior Instructors and Pre-service Teacher Mentors, UCCSTeach

The purpose of this session is to empower K-12 teachers with the knowledge and skills to effectively utilize AI in their classrooms. Participants will gain an understanding of the challenges and benefits associated with integrating AI and explore strategies to maximize its potential for use in the classroom. Through hands-on activities and discussions, teachers will leave the session equipped with practical tools and confidence to begin their AI journey!

Concurrent Sessions #2 (10:45-11:45am)

Transplantation Science

(Room: UC 122)

Presented by Jason Reimer and Susan Gimarc, Education Coordinators for Donor Alliance and Donate Life Colorado

Transplantation Science is a free, single day class taught in your classroom by a professional educator. During the class, students will have the opportunity to encounter real human organs, tissue grafts, and eye grafts, while learning about the science of organ, eye, and tissue donation and transplantation. In this session, you will have the opportunity to learn more about this unique experience for your middle or high school science classroom.

Using 3-Act Math Tasks to Build Conceptual Fluency

(Room: UC 124)

Presented by Dr. Katie Anderson-Pence, Associate Professor, Mathematics Education and Associate Dean, College of Education

This workshop will explore the use of 3-Act Math Tasks to engage elementary students in meaningful mathematics. These are rich tasks present students with the opportunity to model conceptual thinking in real-world situations. Lessons require students to identify essential variables, formulate models from those variables, perform operations using the model, interpret the results of those operations, and validate the conclusions of those results. It all takes place within three simple acts. Participants will experience a 3-Act Math Task first-hand and see an example of a task in action in an elementary classroom. Finally, we will discuss strategies for incorporating such tasks into the regular classroom curriculum.

How to Provide Authentic STEM Learning Experiences that Engage Students

(Room: UC 302 Theatre)

Presented by Nancy Hampson (Science Educator and PPRSEF Director), Lynne Williams (Science Educator and PPRSEF Special Awards Coordinator), Susan Forget (Career and Technical/STEM Educator), Natalie Muro and Cami Wolkow (Palmer High School Students), and Vivian Wolkow (North Middle School)

In this session, participants will discuss how to transform STEM education so it can provide opportunities for students to actively engage in authentic STEM inquiry. A panel of students, teachers, and project-based experts will share their experiences from the underground world of authentic scientific inquiry. While this transformation can seem overwhelming, once established the facilitative nature of authentic learning provides the teacher more freedom and provokes deeper learning, conversations, and formulates a shared understanding of what complex work is.

Lunch and AFCEA Awards (11:50am-12:50pm, Café 65)

KEYNOTE PRESENTATION (1:00-2:00pm, UC 302 Theatre)

Advanced Air Mobility and the Future of Aeronautics

Presented by April Lanotte



Abstract: The future of aeronautics and aviation in the United States and internationally requires new technologies, innovative systems planning, and creative ideas that will allow an entirely new transportation system to evolve. NASA Aeronautics is leading the way, developing a “Sky for All” that will move people and cargo safely and efficiently through our airspace. Learn more about advanced air mobility, the integration of drones and air taxis into our airspace, and how this will change everyone’s lives in the future. More than science fiction and closer than you think, you will have the opportunity to envision our future highways in the skies, how NASA is working with other federal agencies and industry to create these new roadmaps and ask questions about the careers students will have access to.

Biography: April Lanotte has been an educator at the formal, informal, and federal agency level for over twenty years. Currently the STEM Integration Lead for NASA’s Aeronautics Research Mission Directorate, April works with internal and external organizations and programs to find ways to bring STEM education and NASA’s aeronautics work together. She supports aviation and STEM workforce development initiatives including Career and Technical Education development and searches for ways to broaden student participation in STEM. She also created and is an Aerospace Frontiers Education Committee member for the state of Colorado, which supports aviation and space education and workforce development including the statewide CTE High School Aviation Advisory Board. Previously, she was a Senior Instructor in the UCCSTeach program.

A lifetime educator who was born and raised in the rural town of Mars, PA, April works on making aerospace science more accessible to all educators and students and champions DEIA efforts particularly in aerospace. She holds graduate degrees in both English (science writing emphasis) and in Space Education and is constantly working on cross-curricular ties to STEM content. She authored a STEM Literacy chapter in *Best Practices in STEM Education: Innovative Approaches* from Einstein Fellow Alumni which was published in fall of 2018. Other published aeronautics projects include small unmanned aerial vehicle lessons and activities, an activity guide that focuses on Earth’s atmosphere and human survival at high altitudes, development of AOPA’s high school aviation curriculum, and lessons that support ShareSpace Foundation’s Giant Moon Map. She has also contributed science content to

Challenger Center for Space Science, the LEGO Space Challenge Activity Pack, and Disney's Youth Experiences in Science. As a 2021 "Women to Watch" award recipient from Women and Drones, April works tirelessly to bridge the gap between education audiences, organizations, and industry.

Workshop Activities (2:00-3:30pm – UC 303)

Fun STEM Activities Designed by NASA for your Classroom

Following her presentation, our keynote presenter will share NASA resources and activities that are freely available to educators. We will have multiple stations with different activities that you can use in your classrooms or any educational setting. Take home some great ideas for next year!