

An MT Engage Week Event

*By The College of Basic and Applied
Sciences Departments*

September 19-23

Food and Drinks provided
Science Building Atrium

**COME AND JOIN US
FOR A DISCUSSION!!!**

A chance to learn
and engage with
informal science
discussions

Science Cafes for
STEM and Non-
STEM students

For topic descriptions, see next page

Monday: "Rewriting the Language of Life" Dr. David Nelson & Dr. Erin McClelland of the Biology Department (starts at 2PM) in the Science Atrium

Tuesday: "The MTSU Solar Boat: 30 MPH Without a Drop of Gas!" Dr. Saeed Foroudastan & Mr. Cary Woodson of the Engineering Technology Department (starts at 12noon) in the Science Atrium

Tuesday: "Oklahoma's Human -Induced Seismicity: Is OK Fracking Okay?" Dr. Clay Harris of the Geosciences Department (starts at 2PM) in the Science Atrium

Wednesday: "Unmanned Aircraft-A Drone by Any Other Name is Still a Drone." Dr. Kevin Corns & Mr. Doug Campbell of the Aerospace Department (starts at 12noon) in the Science Atrium

Wednesday: "If Climate Change is Coming, What Will It Mean for Tennessee?" Dr. Melissa Lobegeier of the Geosciences Department (starts at 2PM) in the Science Atrium

Thursday: "Recent Development of Statistical Methods on Helping Drug Development" Dr. Yeqian Liu of the Math Department (starts at 2PM) in the Science Atrium

Friday: "What Happens When Systems Crash at an Airline?" Dr. Andrea Georgiou & Mr. Evan Lester of the Aerospace Department (starts at 12noon) ***Located in FOCUS Lab (BAS S216B)

Friday: "Don't Landfill It, Put It in Concrete." Dr. Heather Brown of the School of Concrete and Construction Management (starts at 2PM) in the Science Atrium

TOPIC DESCRIPTIONS

Monday:

Dr. David Nelson & Dr. Erin McClelland “Rewriting the Language of Life”

The last five years have seen significant advances in our ability to edit or even completely recode genomes of living organisms (including ourselves). During this MT Engage Science Café presentation, we will describe the new technologies that have made this possible, where they come from, how they work, and discuss the ethical implications – What should we do or not do with these powerful new tools?

Tuesday:

Dr. Saeed Foroudastan & Mr. Cary Woodson "The MTSU Solar Boat: 30 MPH Without a Drop of Gas!"

The MTSU Solar Boat provides students with an opportunity to gain professional-level skills and experience. The boat is designed and built entirely by students and competes annually in an international, intercollegiate solar regatta known as the Solar Splash where it has taken the second place position for the past two years running. It ultimately represents a powerful hands-on, active engagement project that promotes green technology and a brighter future for MTSU’s students. Come and see the Solar Boat in person.

Tuesday:

Dr. Clay Harris “Oklahoma’s Human-Induced Seismicity: Is OK Fracking Okay?”

In May 2014, for the first time ever, the United States Geological Survey issued a seismic warning for a state east of the Rocky Mountains. The warning indicated that since 2009 the risk of damaging earthquakes (larger than the magnitude of 5.0) had “increased by more than an order of magnitude” in central Oklahoma. On September 3, 2016, central Oklahoma experienced its largest seismic event on record: a magnitude 5.8 earthquake. Disposal of fluids from oil and gas production, including waste water from fracking, is considered responsible for this increase in seismic activity. The USGS reports that six states are experiencing increased seismic risk associated with petroleum production activities. This begs the question: Is it okay to expose people and their homes to an annual “10-12 percent risk of strong shaking” for the sake of lower gas prices?

Wednesday:

Dr. Kevin Corns & Mr. Doug Campbell “Unmanned Aircraft-A Drone by Any Other Name is Still a Drone.”

Brief presentation on the current state of FAA regulations regarding unmanned aerial systems, followed by a discussion about the current applications for unmanned systems and how air space use issues are being addressed. Anticipated future applications of unmanned systems will also be discussed.

Wednesday:

Dr. Melissa Lobegeier “If Climate Change is Coming, What Will It Mean for Tennessee?”

President Obama has called climate change one of the most urgent challenges of our time. We’re seeing flooding in Louisiana, drought in California, hurricanes in the Pacific and Atlantic Oceans, hotter summers and colder winters. Residents of Miami and New York, Is this climate change? What will climate change mean for residents of Tennessee?

Thursday:

Dr. Yeqian Liu “Recent Development of Statistical Methods on Helping Drug Development”

In oncology clinical trials, cancer patients overall survival is considered as an ultimate clinical benefit and FDA is requiring overall survival data as part of drug submission and approval. However, overall survival data requires much longer follow-up than the progression data which can be easily obtained. The cancer progression can be determined by target tumor diameter change (%), non-target tumor progression or new tumor appearance. We developed an innovative Bayesian model average approach using cancer progression information to predict the overall survival of the patients.

Friday:

Dr. Andrea Georgiou & Mr. Evan Lester “What Happens When Systems Crash at an Airline?”

Brief presentation on how an airline operations center works, followed by a demonstration/discussion on what happens to airline operations when there is a computer system failure. Through this discussion, the massive flight delays and cancellations experienced this past summer by both Southwest and Delta airlines due to computer systems failures will be explained.

Friday:

Dr. Heather Brown “Don’t Landfill It, Put It in Concrete.”

The use of recycled and byproducts in concrete and construction.