

SIU MATH FIELD DAY WORKSHOPS
TUESDAY, MARCH 17, 2020 – 1-1:30 p.m.

Workshop 1

Engineering – EGRE 215

Title: Intuitive Math in Electrical and Computer Engineering

This workshop gives a demonstration of math concepts that are very intuitive in essence, that requires no thinking. Concept of the binary representation of numbers in computers is discussed. The other activities include: creation of light from electron, polarization of light, fiber optic communications, and holograms.

Mohammad Sayeh, Electrical and Computer Engineering, SIUC

Workshop 2

Psychology – EGRA 322

Title: The Science of Prejudice. Prejudice permeates all facets of our culture and society. This reality is not surprising, given that humans possess an evolutionary predisposition to favor people who are like them over others. Further, our minds process information in ways that create and reinforce stereotypes, and preferences for our groups over others are cognitively and motivation-ally intertwined with our identity and self-esteem. These biases often operate undetected and outside of awareness to reinforce systematic disparities. Join us to explore the psychology of prejudice and unearth the hidden biases that exist in all people.

Kathleen Schmidt, Psychology, SIUC

Workshop 3

Mathematics – First Mid-Bank Saluki Lounge

Title: Fun with Math. Participate in fun games using Mathematics and Geometry to solve the puzzles. Make your own Mobius Strip. SIU Admissions and Engineering will be available to answer SIU questions.

Mathematics Professors, Admissions, Engineering, College of Science, SIUC

Workshop 4

Medicine – Small Business Development Center 174

Title: Uncovering Microscopic Mysteries. Have you ever wondered how tissues are prepared for microscopic analysis? Special scientific techniques are needed to change a biological specimen from an animal, plant or human into a microscope slide. These slides can reveal clues to chemical exposure, trauma, disease or cause of death. Learn how tissue specimens are processed, sectioned and stained to unlock the secrets of cellular structure.

Maureen Doran, Histological Technologist, Saffron Scientific Histology Services, LLC

Workshop 5

Engineering – EGRD 131

Title: Egg Drop Challenge. Using a variety of materials, teams will work together to create a method to protect their egg from a high drop.

Allison McMinn, President, Society of Women Engineers, SIUC

Workshop 6

Mathematics – EGRA 422

Reimaging the Paper Crane Game! Learn how getting crafty with paper can touch someone's heart or even land you among the stars! See how origami can be used to make compact collapsible solar panels and heart stints while getting a chance to get hands on and try to fold paper all the way to the moon!

Experience how mathematics and geometry come together to bring the second dimension into the third by folding your own flowers, animals, and 3D geometric shapes.

William Holt, Math Club, AMS, SIUC

SIU MATH FIELD DAY WORKSHOPS
TUESDAY, MARCH 17, 2020 – 1-1:30 p.m.

Workshop 7

Geology – Park 110

Title: Space Exploration: Colonization of the Moon. Colonization of the Moon is the proposed establishment of a permanent human community or robotic industries on the Moon. In this workshop, you will learn about the Moon and recent initiatives by the United States space administration NASA for a new crewed mission to the Moon by 2024, the Artemis mission, followed by a sustained presence on the Moon by 2028.

Liliana Leticariu, Department of Geology, SIUC

Workshop 8

Chemistry – Image Center

Title: Observe and Watch Materials Which You Cannot see by using Electron Microscopes.

Students will utilize an electron beam, instead of white light, to observe structures that cannot be seen with your naked eye or best optical microscopes. We will use the scanning and transmission electron microscopes, also known as SEM and TEM respectively, to observe flowers, leaves, bacteria and mold at ultra-high resolution which may not be possible with a light microscope.

Nathalie Becerra, Department of Chemistry, SIUC

*Location: Integrated Microscopy and Graphics Expertise
750 Communications Drive*

Workshop 9

Physics – EGRA 310

Title: How to Build a Gyroid. Students will be given a tutorial of the gyroid structure that was discovered by SIUC Mathematician Alan Schoen.

Duston Wetzel, Department of Physics, SIUC

Workshop 10

Mathematics – Neckers 218

Title: Tricks, Patterns, Puzzles and Math..... The only thing cooler than watching math tricks is learning how to perform them yourself. This workshop is designed to give the opportunity to explore a variety of types of math tricks and puzzles. More than 5 tricks will be taught and practiced, and the instructions to several more will be given at the completion of the workshop.

Dinush Panditharathan, Mathematics, SIUC

Workshop 11

Automotive Technology- EGRA 222

Title: Automotive Electrical and Mechanical Session

The students will get to Deep dive into the SIU automotive 12-volt electrical systems. The students will also get to visualize Internal Combustion Engine cut outs and understand the basics of how they operate.

Jessica Suda, Automotive Technology, SIUC

Workshop 12

Zoology- LSII 381

Title: Fish Population Monitoring. Fish inhabit the surrounding lakes and rivers, acting as important parts of the food web, indicators of lake and river health, and recreation for humans. Knowing the types of fish and how many there are in lakes and rivers lets us know the health of fish populations. But how do we know what types of fish and how many fish there are? Fisheries Biologists capture fish using nets, electricity, or hook and line then identify the fish, tag them, and release the fish for recapture later on. We will discuss how Fisheries Biologists use capture-recapture methods, tagging, and analyses to determine the size and structure of fish populations.

Shaley Valentine, Zoology, SIUC

SIU MATH FIELD DAY WORKSHOPS
TUESDAY, MARCH 17, 2020 – 1-1:30 p.m.

Workshop 13

Geology – Parkinson 113

Title: Geographic Modeling with a Virtual Augment Sandbox. As geologist, we can use a Virtual Augment Sandbox in order to visualize geography features in an Hands-On 3D aspect that would otherwise be only viewed on maps. This can help our understand and teaching others about various geologic features (i.e. glaciers, rivers, and volcanoes)!

Zachariah Seaman, Geology, STEM Center/Geology Outreach, SIUC