

2022 AAUW-OML STEM Conference Workshops

Title	Description	Presenter	Affiliation
3D Modeling and Printing	In this workshop, you'll learn about the process of 3-dimensional modeling and printing. In addition to witnessing an active 3D printer close up, you will also spend a lot of time in the computer lab, designing your very own 3D model using Tinkercad (www.tinkercad.com). After the workshop, we will print your custom model and mail it to your home!	Kristen Beck	Former Math Professor at Saint Mary's College
Balloon Car Challenge	Learn about vehicle design and jet power through the building and then racing 4-wheeled balloon cars. Building materials can largely be found at home.	Christine Haswell	Chevron Corporation
Clean Energy Solutions	We will spend time talking about energy and different clean energy sources. I will instruct students on building a wind turbine and measuring the energy output. We will discuss the best places to harness wind energy.	Erin Brindley	Athenian School
Computers - an inside look	Learn the different parts of a computer, disassemble and reassemble a computer; Each participant will be given a flash drive, they will copy the workshop handouts to it and take the flash drive home with them.	Bill Taylor	Lawrence Livermore Laboratory
Design and Build Bridges	Learn how to work with natural forces such as wind, water and earthquake to create safe environment for humans to live in this world	Sheila Apte	retired from Parsons Corporation
Designing Robots for Fun and for Good	Robotics is a field that is expanding every year as humans rely on robots to do more and more. This program is designed to introduce girls to robotics through fun, hand-on activities while teaching them the basics of robot design and testing, as well as encouraging them to think of how robotics could have a meaningful impact on the world around them. We will learn about the steps of the design process, build a prototype robotic hand, assemble our own robot to paint abstract art, and design and discuss our "dream" robots to solve global problems.	Denise Sallee	Girl Scouts Robotics Program Manager

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Engineers, Structures & Earthquakes	There will four (4) stations, with smaller groups of students spending about 15 minutes at each station and rotating to the other stations. They will learn about (i) beams: where do you see them, how they carry load and ways to carry same load with lighter beam, (ii) buildings: efficient ways of bracing, (iii) ancient to modern structures and ways they survive, and (iv) building a k'nex model structure and testing it for earthquake shake.	Amarnath Kasalanati	Pacific Earthquake Engineering Research Center (PEER), University of California, Berkeley
Examining Food Science from the Inside Out	Experiment with foods to see and feel the differences in types of fiber, how the same molecules can smell different in similar foods, and extracting minerals with magnets. Learn about nutrition during the whole lifespan, how to look at body image through a new lens, and the types of exciting careers available in nutrition and food science.	Erika Costanzo	UC Davis Graduate Student; Regional Breastfeeding Liaison - California WIC Program and a Certified Lactation Educator and Breastfeeding Counselor - Breastfeeding USA
Experiments in Space - Where No One Can Hear You Scream	See ice, water & steam at one time. Figure out what happens to water, light, and sound when's there is no air.. Coat a penny. Watch a marshmallow Peep blow up.	Kathy Arnold	American Vacuum Society
Exploring the Microscopic World	In the workshop titled "Exploring the Microscopic World," students will use different types of microscopes (brightfield, fluorescent, phase contrast microscopy and confocal microscopy) to examine living and fixed samples, tissue specimens and inanimate objects.	Vidya Chandrasekaran	Saint Mary's College
FBI-CSI	Join the FBI in investigating a crime scene. Learn how the FBI investigates a crime scene and why your fingerprints are unique. See Alternate Light Source (ALS) and Electrostatic Dust Lifter in action. Dust for latent fingerprints.	Gail Paresa, Shannon Cox	Federal Bureau of Investigation Emergency Response Team
Get to Know Your Brain!	Participants will use real cadaveric human brains to observe and learn basic brain structures and functions. Participants will dissect a sheep brain and compare the sheep brain anatomy to the human brain anatomy.	Barb Puder	Samuel Merritt University

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Green Plants Make Rubber Tires	Natural rubber is a critical agricultural material required for production of thousands of products. It is produced from carbon dioxide sequestered by plants through biosynthesis. We will explore rubber biosynthesis by several plant species, and learn how molecular biology and genomic sciences contribute to domestic natural rubber agriculture. A compounded rubber product will be made.	Colleen McMahon Co-Presenters: Grisel Ponciano, Chen Dong	US Dept. of Agriculture
Introduction to 'Capture the Flag' Games and Puzzles	The students will see the inner workings of computer games and puzzles and be exposed to coding in python and Java. The students will: 1) Learn about how to maintain passwords, what are crypto ciphers? Etc via blogs. 2) Play games and also see the 'code' of the game next to the game to see how the games are written. 3) Solve puzzles and capture flags by following simple instructions.	Renuka Nadkarni Co-Presenter: Anoushka Nadkarni	F5 Inc
Learn About Architecture with LEGOS	In the world of architecture, coming up with a design to be constructed is only half the battle. You need to also describe it and communicate how it should be built to your building team using drawing tools. In this workshop you'll be building a small LEGO model of your own design, then creating architectural drawings that provide instruction for how to build your model. Can another team member recreate your LEGO model using only your drawing instructions? Well that's the challenge...	Kelli Franz	kkf architecture
Seeing and Touching DNA	All living things contain DNA. What does DNA actually look like? Have you ever touched it? In this experiment, we will take the DNA from fruits and vegetables to see what it looks and feels like.	Megan Newcomb	Geltor, Inc.