

SEEDING YOUR FUTURE



The Seeding Your Future Conference is part of the Seeding Your Future Initiative aimed at encouraging the next generation of science, technology, engineering, and math (STEM) professionals.

Specifically, the Seeding Your Future Conference is a one-day, hands-on event that aims to inspire middle school-aged girls (grades 5-8 or equivalent). It is held on a Saturday in October on the campus of Shepherd University.

During the conference, attendees will enjoy listening to a short, inspirational talk by a woman in STEM, interacting with STEM women during a speed-dating style panel, and participating in a series of four hands-on workshops that encompass many STEM areas. Presenters are Shepherd faculty and students as well as other STEM professionals from the surrounding area.

The Seeding Your Future Conference is **free** to attend.

FOR MORE INFORMATION

PLEASE VISIT US AT:

seedingyourfuture.weebly.com

OR EMAIL US AT:

seedingyourfuture@gmail.com

• HAPPY CHEM-O-WEEN

~PRESENTED BY DR. JACQUELYN COLE

Join me in my mad scientist's lab where we will make ghostly hands, blood, glowing skulls, witch's brew, and so much more! We'll even create some slime to take home. Bwah ha ha!

• ELECTRIC PLAY-DOH SCULPTURES

~PRESENTED BY DR. JEFF GROFF

This workshop will use homemade Play-Doh™ that conducts electricity to explore principles of electric circuits. Participants will build electric sculptures out of this dough, battery packs, LED lights, and other components.

• HOORAY FOR DNA!

~PRESENTED BY DR. CAROL PLAUTZ

Learn about the importance of DNA and the cells of your body, then step up to the lab bench and isolate and visualize your OWN DNA!

• BUILD AND CODE YOUR OWN WEARABLE "SMART NECKLACE"

~PRESENTED BY MS. TARA ECHLIN

Build your own wearable smart necklace! Computers are everywhere—learn how they work! Play around with making LEDs light and sounds respond to sound or movement. Get familiar with some basic electronics and coding (or do some advanced exercises if you're already familiar). Take home a cool craft you've made that contains a computer, speaker, buttons and switches, sound, temperature, motion and light sensors, and multicolor LEDs. Impress your friends with your circuit-building and coding skills, and dive into physical computing and the Maker Movement, an intersection of science, technology, and art!



SEEDING YOUR FUTURE

Conference Workshops



WORKSHOPS



• LIQUID RAINBOW

~PRESENTED BY PROFESSOR ANNITSA SPANOS

What makes people float? What causes objects to sink? Learn the answers to these questions and more. Make and take home a liquid rainbow to explain your findings with your family and friends.

• HOW'S IT GROWING? UNLOCK THE SECRETS IN TREE RINGS!

~PRESENTED BY DR. MARK LESSER

Understanding how trees grow is not only remarkable in itself, but offers us all kinds of information about how old a tree is, and what conditions it has been growing in. In this workshop you will learn how to look at tree rings (without cutting the tree down!), and use those rings to figure out how the tree has been growing.

• ROCK DOWN TO ELECTROCHEMICAL AVENUE

~PRESENTED BY DR. JORDAN MADER

Electrochemistry is the driving force behind batteries, solar cells, and fuel cells. Learn about how these reactions work by transferring electrons from one substance to another. Then, you can create your own work of art using electrochemistry!

• THE ADDITIVE & SUBTRACTIVE POWER OF COLOR!

~PRESENTED BY DR. SYLIL MURPHY

Colors are considered to be primary if all other colors can be obtained from them by mixing. In school, you are taught that the primary colors are red, yellow, and blue. However, ink cartridges come in magenta, cyan, and yellow. Which set is primary?

• DR. WARBURTON'S BIOCHEMISTRY EMPORIUM

~PRESENTED BY DR. ROBERT WARBURTON

In the past, Dr. Warburton looked at the digestion of liver and bioluminescence. This year, he couldn't decide on just one idea. Therefore, this workshop will feature a group of biochemistry inspired experiments.

• DIGITAL 3D AND PHYSICAL OUTPUT

~PRESENTED BY PROFESSOR CHRISTIAN BENEFIEL

This workshop will explore the potential for digital 3D modeling, and a variety of physical output options. It will include a variety of 3D Process, and will focus on laser cutting and engraving of materials such as wood and plastic. The 3D software, hardware and materials, and computers for the class will be provided.

• HIGH TOWER PHYSICS!

~PRESENTED BY DR. FRAN BROWN

Learn the fundamentals of structural engineering and building design! Build a weight supporting sky tower using principles of mechanical physics.

• VIRUSES ARE SICK!

~PRESENTED BY BBB

Want to learn how viruses are transmitted? You will participate in a math based, hands on viral outbreak game to see how diseases can be spread! Afterwards, you will hear about various types of viruses and design your own virus to take home!

• ROBOTICS GRAB BAG

~PRESENTED BY MR. BILL VON ALT

Do you think robots are cool? Want to learn how to build and program them? In this workshop, you will be able to explore robotics and get an introduction to the concepts needed to successfully train a robot to complete a task.

• ELECTROLYTE CHALLENGE! HOW GOOD IS YOUR SPORTS DRINK?

~PRESENTED BY DR. KATHRYN WILLIAMSON

The makers of sports drinks spend tens to hundreds of millions of dollars advertising their products each year. Among the benefits often featured in these ads are the beverages' high level of electrolytes, which your body loses as you sweat. In this science project, you will compare the amount of electrolytes in a sports drink with those in orange juice to find out which has more electrolytes to replenish the ones you lose as you work out or play sports. When you are finished, you might even want to make your own sports drink!

• EXPLORING WEST VIRGINIA

~PRESENTED BY THE SHEPHERD ENVIRONMENTAL ORGANIZATION

We will introduce you to Graphical Information Systems (GIS) software through an exploration of the mountain state. GIS can be used to make maps (even ones like Google Maps!), study ice caps, learn about pollution trends, animal migrations, plan responses to natural disasters, look at planetary features, and can even be used to study disease transmission and spread. Recently, GIS was used to map Mars to indicate areas that might have the presence of water.

• CAN YOU DIG IT?

~PRESENTED BY DR. KAREN ADAMS

What does math have to do with unlocking the secrets of King Tut's tomb or finding the Titanic? Join me on this archaeological exploration and discover how to use cool math tricks to piece together the puzzles of the past!

• COLORFUL CHEMISTRY

~PRESENTED BY DR. DAN DILELLA

The color of an object such as a shirt or a ball depends on the materials from which it is made. However, when a chemical reaction occurs, it is often possible to produce colors that are different from the starting materials. In this workshop you will perform several chemical reactions that will often produce surprising color changes.

• H₂O CATALYSIS (SCIENCE OF BATH BOMBS)

~PRESENTED BY THE CHEMISTRY SOCIETY

Want to know how catalysis works and the purpose of catalysis in everyday life? Come learn about it in this workshop, then make your own bath bomb by mix together an acid and base along with chemicals to stabilize the reaction.

• WATER BUGS AND STREAM POLLUTION

~PRESENTED BY DR. PETER VILA

We all need clean drinking water and many love playing in streams. But how do you determine if your stream is healthy? Aquatic insects are fascinating creatures and can also be used to detect water pollution problems. Find out why and how aquatic insects are used to detect healthy waters.

• BINARY BRACELETS

~PRESENTED BY DR. KATHRYN WILLIAMSON

Did you know computers can only read two numbers—0 and 1? Learn how to read like a computer using "binary." Make binary bead bracelets encoded with secret messages to take home and share!

• LEARNING FROM DATA

~PRESENTED BY DR. RALPH WOSTOWICZ

Data analysis is used to discover distant solar systems, predict weather patterns, identify business trends, improve health care, introduce friends in social networks and monitor transportation systems. In this workshop we will gain hands-on experience with powerful data analysis tools. We will discuss the history and future of big data.

• SEEING SOUNDS, HEARING PICTURES

~PRESENTED BY DR. RUTH CONLEY

Did you know that computers allow us to both see and hear sounds? We also use computers to understand and modify sound. In this workshop you will listen to, view, and process sounds on the computer. You'll even make your own audio composition to take home!