

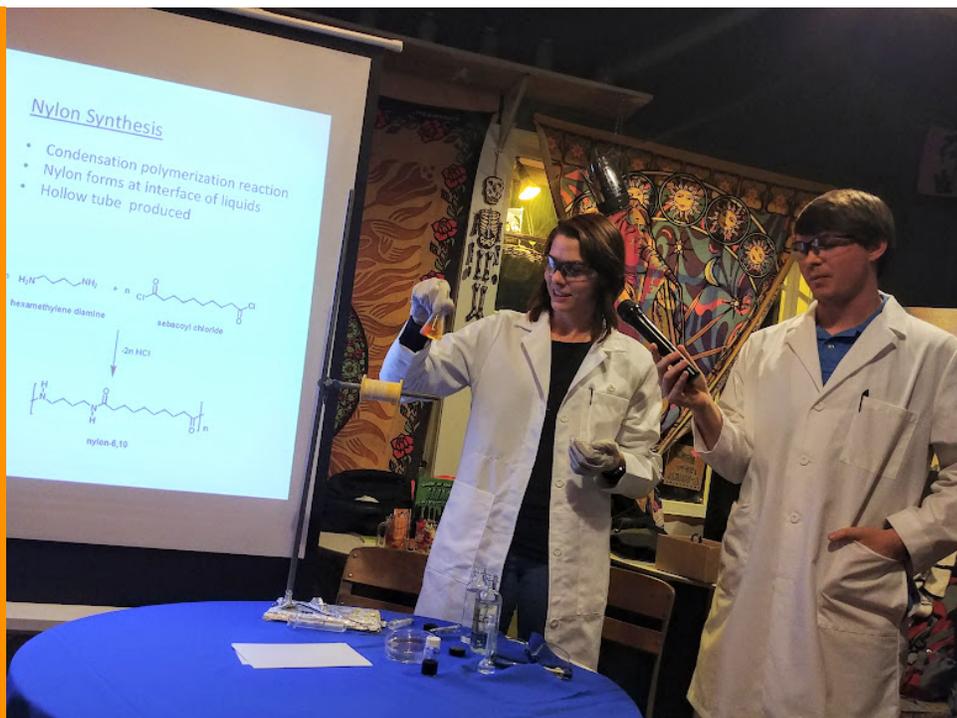


AUBURN UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

$$E=mc^2$$

Engaging More
Community Connections



Volume 10: Issue 1



COSAM Outreach Newsletter
January/February 2018



Upcoming Events & Programs

Tiger Giving Day

February 21

On Feb. 21, you can show your support for COSAM and SCORE during TIGER GIVING DAY, an event designed to help our students and faculty accomplish great things.

Your investment in a state-of-the-art, large-format 3D printer for the Southeastern Center for Robotics Education, or SCORE, will transform the methods used by SCORE and add a new “dimension” to their training workshops and robotics competitions. SCORE is building its 3D printing infrastructure to host community workshops, student camps, and assist graduate students and professors in their research.

All funds donated (100 percent) will go toward the project you choose. And, unlike other crowd-funding sites, donations will be immediately allocated to the specified project – whether the project meets its funding goal or not.

For more information, visit the facebook event here

<https://www.facebook.com/events/1875091982562394/> or contact

TJ Nguyen at tcn0002@auburn.edu .

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Science Olympiad

Science Olympiad is a one-day sports-like science competition involving elementary to high school students throughout the US. Auburn hosts a regional event for elementary students and the state competition for qualifying middle and high school teams. Approximately 1000 students participate in these events.

This year's Elementary Science Olympiad features 29 participating teams for the competition on February 24th.

Elementary Science Olympiad – 2018 Competing Teams February 24, 2018

Auburn Classical Academy
Beulah Elementary School
Bryan Elementary School
Concord Elementary School
Excalibur Christian School
Fairhope Intermediate School
Gardendale Elementary School
Lafayette Eastside Elementary School
Montana Street Magnet School
Montgomery Catholic Preparatory School

Mt. Gap Elementary School
Oak Grove Elementary School
Ogletree Elementary School
Pick Elementary School
Prattville Christian Academy
Springwood School
St. Luke's Episcopal School
West Forest Intermediate School
Wrights Mill Road Elementary School
Yarbrough Elementary School

For more information about Science Olympiad, visit
<http://www.auburn.edu/cosam/scienceolympiad>.

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Outreach Calendar

February

- 10 SCORE VEX Competition
- 22 Science Pub
- 24 Elementary Science Olympiad

March

- 6 GEARSEF
- 12 SCORE Spring Break Camp
- 27 Science Cafe
- 31 AL Middle & High School State Science Olympiad

Save the Dates!

GUTS – April 26

G.U.T.S. is a 90-minute, hands-on, science evening program for 1st-6th grade students and their parents or grandparents. Look for more details and registration in late March!

The AU Science Café & Pub



Join us **each month** for a night of science, good drinks, tasty food, and great conversations! At the AU Science Café & Pub, you'll have the opportunity to sit down and talk about new and exciting science and technology with experts in our community, all the while relaxing in a great local food and drink venue. The event alternates between a “pub” version at Red Clay Brewery and a “café” version at Mama Mocha's Coffee Emporium.

The event is **FREE**, open to the public, and **family-friendly** whether hosted at Mama Mocha's or Red Clay Brewery. **No science background is required**, and no question is too silly to ask!

For more info, including parking directions and the event schedule, visit us online at <http://auburn.edu/cosam/sciencecafe> or contact Josh King at josh.king@auburn.edu.

Next Science Café/Pub Dates:

February 22nd – “Shining a Light on Aliens” by Dr. Stuart Loch @ Red Clay Brewery
March 27th – Emily Merritt @ Mama Mocha's



Summer Academy for Elementary Students

Registration Opens February 14th

Science Matters is a summer enrichment program for students in rising grades 1 – 8 offering a supercharged science experience. The program allows participants to explore the world of science through **real experiments**, technology and **art projects**, and hands-on, **project-based activities**. During this action-packed program, kids can design and build, **dabble in the art of chemistry**, “become a flight specialist”, **see amazing critters**, and more!

Science Matters offers six different science-themed weeks for rising 1st – 8th graders, two of which are offered through the Auburn University Museum of Natural History.

All programs operate between 8am-4pm daily. Prices range from \$195 – \$235 per week/child. Multiple week discounts are available. Courses fill on a first-come-first-serve basis.

Upcoming Events and Programs (Cont'd.)

2018 Course Offerings by Grade

Week	1st - 2nd Grade	3rd - 4th Grade	5th - 6th Grade	7th - 8th Grade
June 4 - 8	Engineered for Fun	Assembly Required	Slip and Slime	No Offering
June 11 - 15	No Offering	No Offering	Oh What a Web	No Offering
June 18 - 22	Assignment: CODE	Blinded by the Light	Can't Touch This	Ready, Set, Research
	Sound Off!			
June 25 - 29	Give me Five	Beauty in the Beast	No Offering	No Offering
July 16 - 20	The Body Shop	Branching Out	Person of Interest	Growing Greens & Gills
July 23 - 27	Out of this World	911 – What's your Emergency?	Curves Ahead	No Offering

For more information or to register visit www.auburn.edu/cosam/sciencematters. Further questions can be directed to Kristen Bond at Kristen.bond@auburn.edu or by phone at 334-844-5769.

SCORE Spring Break Camp

March 13 – 15

SCORE is hosting its first ever Spring Break Tech Camp on March 13-15. Students will explore different hands-on activities such as making toothbrush robots and creating LED name tags, coding and programming different robots, and other engineering design activities. Students will be separated into 1st-2nd grade and 3rd-5th grade groups. Camps will be taught by state certified teachers.



To register, visit our website at scoreau.org and for more information, email TJ Nguyen at tcn0002@auburn.edu.

Activity of the Issue

Musical Water*

(Water, frequency, and a pentatonic scale)

Materials:

- Five identical glass containers (thin-walled containers make more pleasing sounds)
- A spoon
- A pitcher full of water
- A scale accurate to 2 grams (or ~0.1 ounce)
- Food coloring (optional)

Safety:

- No major safety concerns in this activity. Just be sure to not break your glass containers!

What to do:

1. Fill one of the glasses to nearly full with water and measure the mass of the water in the glass. To do this, you can subtract the mass of the glass with the water by the mass of the empty glass.
2. Calculate the mass of water that corresponds to 92% of the water in this glass. Put that calculated amount of water in a second glass.
3. Repeat this step with 82% of the initial mass of water, now placing this in a third glass.
4. Repeat this step with 66% of the initial mass of water, now placing this in a fourth glass.
5. Repeat this step with 53% of the initial mass of water, now placing this in a fifth glass.
6. If you'd like to make the glasses more visually appealing, add a few drops of different colored food coloring to each glass.
7. Number the glasses 1 to 5 (in the order of their creation), and get ready to play some music! Tap the glasses (gently with a spoon) in this order: 3-2-1 2-3-3-3-, 2-2-2, 3-5-5

How it works:

The five pitches produced in this arrangement (by the different masses of water) form a **pentatonic scale**—a musical scale with 5 notes per octave. This scale is created by changing the amount of water in each glass which varies the pitch created by the glass when you tap on it. You'll note that adding more water (more mass) lowers the pitch of the sound produced. Since the sound you are hearing is produced by the **vibrations in the glass**, when you add more water to the glass, it “dampens” the glass vibrations, lowering its **frequency** (how quickly the setup vibrates) and the pitch of the sound you hear. Reducing the amount of water has the opposite effect.

Extension:

The project above is a DEMONSTRATION. To make it a true experiment, you can try to answer these questions:

1. Does changing the shape of the glass produce different tones?
2. Does adding solutes (dissolving something in the water) affect the sound?
3. How do thick vs thin-walled glass containers affect the sound?

*This project was adapted from:

<http://scifun.chem.wisc.edu/HomeExpts/musicalglasses.htm>



Since the last issue

Middle and High School AMP'd 2018

The Auburn Mathematical Puzzle Challenge (AMP'd) is a yearly competition challenging students' math and critical thinking skills through a series of challenging puzzles. The competition took place on January 27 at Auburn University. The overall competition winners are listed below.

Middle School AMP'd Winners

- 1st Place: Madras Middle School (Team 17)
- 2nd Place: Evans Middle School (Team 10)
- 3rd Place: First Baptist Opelika Christian School (Team 18)

High School AMP'd Winners

- 1st Place (Varsity): First Baptist Opelika Christian School (Golf)
- 2nd Place (Varsity): Saint James School (Kilo)
- 3rd Place (Varsity): Saint James School (Uniform)
- 1st Place (Junior Varsity): LAMP High School (Juliett)
- 2nd Place (Junior Varsity): Newnan High School (Lima)
- 3rd Place (Junior Varsity): Smiths Station High School (Sierra)

More information about High School AMP'd, including a full listing of event winners, can be found at www.auburn.edu/cosam/ampd.



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