



AUBURN UNIVERSITY  
COLLEGE OF SCIENCES  
AND MATHEMATICS

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Engaging More  
Community Connections



Volume 9: Issue 4



COSAM Outreach Newsletter  
September/October 2017



## Upcoming Events & Programs

### AMP'd

January 27, 2018 (both Middle and High School)

The Auburn Mathematical Puzzle (AMP'd) challenge is held annually at Auburn University. The event is a problem solving challenge in which student teams work together while answering real mathematical puzzles. The focus of AMP'd is for students of all math ability levels to engage in math in a way that is fun, interesting, and different from a traditional math class. AMP'd has two separate competitions—one each for middle and high schools. Information about AMP'd can be found at

[www.auburn.edu/cosam/ampd](http://www.auburn.edu/cosam/ampd).

#### Middle School AMP'd

- **Contact:** Kristen Bond: 334-844-5769 or [kristen.bond@auburn.edu](mailto:kristen.bond@auburn.edu)

#### High School AMP'd

- **Contact:** Josh King: 334-844-8123 or [josh.king@auburn.edu](mailto:josh.king@auburn.edu)

**Registration for both middle school and high school AMP'd opens on December 1<sup>st</sup>, but don't forget to mark your calendars now!**

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## War Eagle BEST

War Eagle BEST is the local BEST Robotics hub for schools located in East Central Alabama and West Georgia. The program is co-hosted by the College of Sciences and Mathematics and the Samuel Ginn College of Engineering at Auburn University. Each fall, 20+ local schools design, build, and program a robot from a kit of raw materials. The six-week-long program culminates in a one-day, sports-like competition. For more information about War Eagle BEST including dates, locations, and public viewing of the event, visit [www.wareaglebest.org](http://www.wareaglebest.org).

### 2017 Competing Teams

- Central Educational Center
- Central High School
- Chilton County High School
- Early College Academy of Columbus
- Eastwood/Cornerstone Schools
- Edward Bell Career Technical Center
- Glenwood School
- Holtville Middle/High School
- LaGrange Academy
- LAMP High School
- Lanett High School
- Lee-Scott Academy
- Opelika High School
- Opelika Middle School
- P.D. Jackson-Olin High School
- Pike Road Historic School
- Saint James School
- Sanford Middle School
- Southside Middle School
- Springwood School
- Stanhope Elmore High School
- Tallassee High School
- Trinity Christian School
- Wetumpka High School

## Outreach Calendar

### September

- 14 War Eagle BEST Kickoff
- 22 Destination: STEM
- 25 GEARSEF New Teacher Training
- 28 September Science Pub

### October

- 17 October Science Cafe
- 21 War Eagle BEST Mall Day
- 28 War Eagle BEST Competition



## 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](mailto:josh.king@auburn.edu).

Next Science Café/Pub Dates:

September 28<sup>th</sup> – "An 'Itchy' Situation" by Dr. Matt Grilliot @ Red Clay Brewery  
October 17<sup>th</sup> – Dr. Chandana Mitra @ Mama Mocha's



## G.U.T.S.

Getting Under the Surface  
November 16<sup>th</sup>, 2017

G.U.T.S. is an evening program for **1<sup>st</sup>-6<sup>th</sup> grade students and their parents or grandparents**. Each evening session includes snacks followed by a **hands-on 90-minute science activity** featuring a “Getting Under the Surface” theme designed to demystify science topics—this fall themed on changing life cycles and nature. The mission of G.U.T.S. is to enhance science literacy and engagement within our community by providing relevant science activities to students and their parents. **The cost of attendance is \$10 per parent/child team**. Slots fill on a first-come-first-serve basis.

Registration will open in mid-October! Keep an eye on <http://auburn.edu/cosam/guts> for updates!

## GEARSEF New Teacher Training

September 25<sup>th</sup>, 2017

@ The Auburn Chamber of Commerce

GEARSEF (the Greater East Alabama Science and Engineering Fair) is a regional affiliate fair of Intel ISEF, the world's largest international pre-college science competition. Any new teachers in our local region wishing to have their students participate in this year's competition (February 28<sup>th</sup>, 2018) should consider attending our new teacher training on Monday, September 25<sup>th</sup>, 2017. Lunch, PD credit, and limited sub pay will be provided.

For details on the competition (including eligible counties) or to register for the training visit: <http://auburn.edu/cosam/gearsef>. For questions, contact Josh King at [josh.king@auburn.edu](mailto:josh.king@auburn.edu).



## Instafreeze\*

(An ice nucleation trick)

### Materials:

- A large bowl
- Ice
- Rock salt
- 2 water bottles
- A thermometer

### What to do:

1. Nearly fill your bowl with ice and place your two water bottles (filled with purified water) in so that they are both buried in as much ice as possible.
2. Add a generous layer of rock salt to the top of the ice in the bowl and stick a thermometer in the middle.
3. Watch the thermometer in the bowl until it drops to 17 degrees Fahrenheit, adding ice and rock salt as needed to get the bowl that cold.
4. After the bowl has remained at this temperature for 10 minutes, check to see if the water bottles are still liquid, moving them as little as possible. If the bottles have frozen, you may have to melt them and start again, being careful not to disturb them so they don't freeze.
5. If the bottles are still in liquid form, take one out and strike it sharply against a table – you should see the bottle instantly freeze! You can produce the same effect in the other by twisting open the cap.

### How Does it Work?

Ice water is a **crystalline** form of water wherein the water molecules are arranged in a specific pattern. In order for water to arrange itself this way, it requires a **nucleating point** which may be another ice crystal or some impurity in the water. Water that is relatively pure can sometimes be cooled to below its freezing point and remain a liquid by lowering its temperature without having a nucleation point.



When you strike the water bottle, you are moving the water molecules about and likely knocking some into position to form an ice crystal. When you open the bottle top, you're allowing air in and out of the bottle which both changes the pressure and allows particulates in that might also form a nucleation point.

### Make it An Experiment



This activity is a demonstration. To make it a true experiment, you might try to answer these questions:

- Is this effect possible for other liquids also? Why or why not?
- What would happen if you didn't use rock salt in your cooling bowl? Note that the rock salt is used to create a freezing point depression effect in the bowl.
- What are other things you could do to make the water create ice crystals? Does the purity of the water have an effect?

\*This activity and accompanying graphics were developed by "Steve Spangler's Science" and adapted for this publication. For more experiment ideas visit:

<https://www.stevespanglerscience.com/>

# Since the last issue

Summer Impact: COSAM Outreach was busy this summer bringing science to hundreds of students, teachers, and community members across the state and across the nation. Here's a quick summary of our impact!

- Days of Programming: **150**
- Number of Programs: **14**
- K-12 Students Impacted: **295**
- Local community Members Impacted: **199**
- Teachers Trained: **370**

Thanks to all who participated, donated space or supplies, or taught with us throughout these programs. We couldn't do it without you!



Engaging More Community  
Connections

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131 Sciences Center Classrooms Bldg.  
315 Roosevelt Concourse  
Auburn University, AL 36849

[auburn.edu/cosam/outreach](http://auburn.edu/cosam/outreach)  
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[instagram.com/cosamoutreach](https://instagram.com/cosamoutreach)



Phone: 334-844-5745  
Fax: 334-844-5740

## For more information about any of our programs visit:

[www.auburn.edu/cosam/outreach](http://www.auburn.edu/cosam/outreach)

Or call us at 334-844-5745

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