



AUBURN UNIVERSITY

COLLEGE OF SCIENCES  
AND MATHEMATICS

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Engaging More  
Community Connections



Volume 9: Issue 1



COSAM Outreach Newsletter  
January/February 2017



## Upcoming Events & Programs

### Greater East Alabama Regional Science & Engineering Fair

**Project Registration Deadline Coming Soon -- February 10<sup>th</sup>!**

GEARSEF is a regional affiliate fair of the Intel International Science and Engineering Fair (Intel ISEF), the world's largest international pre-college science competition. GEARSEF is open to all students in grades 6-12 who have advanced from their local science fair (school, county, district, or community fair) and reside within the following Alabama counties: Autauga, Barbour, Bullock, Butler, Chambers, Coffee, Crenshaw, Dale, Elmore, Geneva, Henry, Houston, Lee, Lowndes, Macon, Montgomery, Pike, Russell, and Tallapoosa. Students can be enrolled in public or private schools in the region or affiliated with a home school.

Students should present their projects at a school or county science fair and only top winners advance to GEARSEF. Local winners planning to attend GEARSEF on March 9, should complete their registration by **Friday, February 10, 2017**. The cost to participate is \$20 per project. All registrations are done online using the new Scientist system.

For more information about GEARSEF, visit our website at [www.auburn.edu/cosam/gearsef](http://www.auburn.edu/cosam/gearsef). Further questions can be directed to Josh King at 334-844-8123 or by e-mail at [josh.king@auburn.edu](mailto:josh.king@auburn.edu).

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# Upcoming Events



## 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 27 participating teams for the competition on February 4<sup>th</sup>.

### Elementary Science Olympiad – 2017 Competing Teams February 4, 2017

Auburn Classical Academy  
Beulah Elementary School  
Concord Elementary School  
Fairhope Intermediate School  
Highlands Elementary School  
Irontale Community School  
W.O. Lance Elementary School  
Montgomery Catholic Preparatory School  
Montana Street Magnet School  
Mt. Gap Elementary School

Oak Grove Elementary School  
Ogletree Elementary School  
Pick Elementary School  
Prattville Christian Academy  
Springwood School  
Thompson Intermediate School  
West Forest Intermediate School  
Wrights Mill Road Elementary School  
Yarbrough Elementary School

For more information about Science Olympiad, visit [www.auburn.edu/cosam/scienceolympiad](http://www.auburn.edu/cosam/scienceolympiad)

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## Outreach Calendar

### January

31 Science Café

### February

- 4 Elementary Science Olympiad
- 10 GEARSEF/SSI Applications Due
- 23 Science Pub
- 27 AMSTI-AU Open House Event

### Save the Dates!

#### GUTS – March 23 & April 6

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

#### High School AMP'd – April 22

The Auburn Mathematical Puzzle Challenge (AMP'd) is a problem solving challenge in which teams of 6 – 8 students work together to solve the puzzles presented to them. Look for registration information in February.

## The AU Science Café

### Now introducing “Science Pub” @ Red Clay Brewery!

Join us **each month** for a night of science, good drinks, tasty sweets, and great conversations! At the AU Science Café, you'll have the opportunity to sit down and talk about new and exciting science and technology with scientists in our community, all the while relaxing in a great local food and drink venue. Coming this February, we will be introducing Red Clay Brewery in Opelika as a new “Science Pub” location to the Science Café program.



The event is **FREE** and open to all of the public. The event is intended as **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 Dates:

January 31<sup>th</sup> – “Alchemy & Infamy” by Dr. John Gorden @ Mama Mochas  
February 23<sup>th</sup> – Dr. Jason Bond @ Red Clay Brewery

# Upcoming Events



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Summer Academy for Elementary Students

## Registration Opens February 15<sup>th</sup>

## Upcoming Events and Programs (Cont'd.)

**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 1<sup>st</sup> – 6<sup>th</sup> graders and one special course offered through the Biodiversity Learning Center for rising 7<sup>th</sup> and 8<sup>th</sup> graders.

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.

### 2017 Course Offerings by Grade

Week	1st - 2nd Grade	3rd - 4th Grade	5th - 6th Grade	7th - 8th Grade
June 5 - 9	Farm Fresh	Super Sleuth	Secret Formula	No Offering
June 12 - 16	No Offering	No Offering	Mystery at the Museum	No Offering
June 19 - 23	Opposites Attract	Bugs & Blossoms	Off the Grid	No Offering
June 26 – 30	Snap It	Crack the Code	Balloon Poppers	Change, Change, Change
July 17 – 21	Wonder of Weather	Up in the Air	Pondering Potter	No Offering
July 24 – 28	Sense and Ability	Rock and Roll	3, 2, 1 Blast Off!	No Offering

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

## Summer Science Institute

**Application Deadline Soon: February 10, 2017**

The Summer Science Institute (SSI) is for outstanding students who are currently in the 10<sup>th</sup> or 11<sup>th</sup> grades and are interested in science and mathematics. Students engage in real-world applications of science, perform experiments using cutting edge research equipment, and partner with COSAM scientists to gain lab skills not taught in high school. The program is offered at no cost to accepted students. Interested students will need to download the full application and recommendation forms online at [www.auburn.edu/cosam/ssi](http://www.auburn.edu/cosam/ssi).

For further information, visit us online or contact Mary Lou Ewald at [ewaldml@auburn.edu](mailto:ewaldml@auburn.edu) or by phone at 334-844-5745. **Applications must be postmarked by February 10 to be considered.**

## Activity of the Issue

### Disappearing Water\*

(The magic of absorbent polymers)

#### Materials:

- Clean cup
- Sodium Polyacrylate
  - This can be found on amazon in the same name or as “Water Gel” or similar names. It can also be found in disposable diapers. You will only need ~100g.
- Glass or pitcher to hold water
- Measuring cups

#### Safety:

- Do not ingest anything used in this activity.
- Wash your hands before touching your eyes after handling the sodium polyacrylate.

#### What to do:

1. This demonstration can be presented as a magic trick. You’ll want to practice a few times on your own before showing it off.
2. Pour roughly one tablespoon of sodium polyacrylate into the bottom of a cup.
3. Pour roughly 1 quarter of a cup of water onto the sodium polyacrylate. The water will be absorbed by the sodium polyacrylate forming a cool white gel.
4. Practice this a few times to figure out the best ratio of water to sodium polyacrylate so that all the water is absorbed.
5. When you’re ready to show the trick, ask a friend if they think you can make the water disappear.
6. Repeat the steps above to absorb the water and then slowly turn the cup over to show that the water has “vanished.” You may need to pat the absorbed water down a little bit before turning over to keep it from spilling.

#### How it works

Sodium polyacrylate is a super-absorbant **polymer** able to hold 500-800 times its own weight in water. This is made possible by sodium polyacrylate being made up of multiple repeating chemical units (making it a “polymer”) where each unit absorbs water. Due to its amazing absorbent ability, sodium polyacrylate is often used in disposable diapers (including those used by NASA in outer space), as artificial snow, as thickening agents in products like hair gel, and even in refreezable gel packs.

#### Extension

The project above is a DEMONSTRATION (and a magic trick!). To make it a true experiment, you can try to answer these questions:

1. Does the temperature affect the amount of water absorbed?
2. What is the maximum amount of water per weight of sodium polyacrylate that can be absorbed?
3. Does adding table salt to the mixture affect its absorbency? How so and why?



## AMSTI-AU 10<sup>th</sup> Anniversary Open House

Monday, February 27<sup>th</sup>, 2017

The Alabama Math, Science, and Technology Initiative in Auburn (AMSTI-AU) will be celebrating its 10<sup>th</sup> anniversary this February and invites members of the public to attend this fun, open house event. Join us for a fun, free evening of cake, door prizes, and lots of hands-on science and math activities for children K through 8<sup>th</sup> grade. For more information about AMSTI-AU, visit <http://amstiau.org/>. **Pre-registration for this event is required. To register, please visit <https://goo.gl/forms/llkKGZf1NNyGPBaf2>.**

# Since the last issue

## South's BEST 2016

South's BEST is a Regional Robotics Championship held each December. This year the top 58 teams competed from 16 BEST hubs in five states. Below are the overall winners.

### BEST Award Winners:

- 1<sup>st</sup> Place: W.P. Davidson High School (Jubilee BEST)
- 2<sup>nd</sup> Place: Brooks High School (Northwest Alabama BEST)
- 3<sup>rd</sup> Place: DARC (Tennessee Valley BEST)

### Robotics Winners:

- 1<sup>st</sup> Place: DARC (Tennessee Valley BEST)
- 2<sup>nd</sup> Place: Evangel Christian School (Selma BEST)
- 3<sup>rd</sup> Place: MHMS Robotics (Music City BEST)
- Finalist: Oak Mountain High School (Central AL BEST)

### Middle School Winners:

- BEST Award: Good Hope Middle School (North Alabama BEST)
- Robotics: Academy for Science and Foreign Language (Tennessee Valley BEST)

More information about South's BEST, including a full listing of event winners, can be found at [www.southsbest.org](http://www.southsbest.org).



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