



AUBURN UNIVERSITY

**COLLEGE OF SCIENCES
AND MATHEMATICS**

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$E=mc^2$

Engaging More Community Connections

A Science and Math Outreach Newsletter

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Schedule of Events

- February 6– Math-a-thon
- February 8 – G.U.T.S.
- February 26 – TEAMS
- February 27 – Middle School Science Olympiad

Please visit our website for a complete listing of all our programs!

www.auburn.edu/cosam/outreach

Upcoming Events & Programs:

G.U.T.S.

The 2010 spring sessions of Getting Under the Surface (G.U.T.S.) will begin on Monday, February 8. G.U.T.S. is a monthly program for 1st-8th graders and their parents.

Registration for the February 8 session will be available on our website, www.auburn.edu/cosam/outreach, later this month. The \$18 registration fee will include dessert and all course materials for each student/adult pair per session. Other sessions for this spring will be held on March 4, March 20, and April 21. The year-end “GUTS Backyard Bash” is tentatively scheduled for Saturday, May 1.

Auburn University Math-a-thon

On February 6, Auburn will host the 3rd annual Math-a-Thon Tournament for high school students. Teams from across the state will compete on two levels—comprehensive and Algebra II with Trigonometry. Individual tests, team tests, & ciphering will be offered during this one day event. Any school (9th-12th grade) is welcome to attend. A registration fee of \$7 per student is required for participation. For more registration information, go to www.auburn.edu/cosam/outreach and click on “Math Tournament” in the Upcoming Events section.

TEAMS

In conjunction with Engineering Day on February 26, COSAM Outreach will co-sponsor the TEAMS (Testing Engineering Aptitude, Mathematics, and Science) competition at the New Student Center for students in grades 9-12. Students work together and use the principles of engineering, math, and science while solving real world challenges. This year, the theme is “Water, Water, Everywhere.” TEAMS is sponsored by the Junior Engineering Technical Society (JETS). Pre-registration is required. For more information or to pre-register, go to www.jets.org/teams/registrationform.cfm.

Middle School Science Olympiad

Science Olympiad is a one-day academic track meet, consisting of up to 23 different competitive events. Teams of Students in grades 6-8 will converge on Auburn’s campus on February 27 to compete in events ranging from Anatomy to Robots. Winners from the middle school division qualify to compete at the state Science Olympiad. Pre-registration is required. For more information or to register, contact Dr. Steve Stuckwisch at stuckse@auburn.edu.



Upcoming Events & Programs, cont'd:



GEARSEF

On March 10, COSAM will host the 2nd annual Greater East Alabama Regional Science and Engineering Fair. Over 100 students from 20 schools across Eastern and South Alabama will compete in the fair. The winners in each division and category will be eligible to compete at the Alabama State Science and Engineering Fair in April. The top two winners in grades 9-12 will advance to compete in the Intel International Science and Engineering Fair in San Jose, CA May 9-15. If your school is interested in participating, contact Emma Seiler at ees0011@auburn.edu or 334-844-7449.



For more information about the Intel International Science & Engineering Fair, visit:

www.societyforscience.org/ISEF/

AU Explore



AU Explore is COSAM's annual Open House Day. Approximately 1500 5th– 8th grade students from all over Alabama are invited to attend this FREE event on Auburn's campus to participate.

Students will have the opportunity to experience live animals up close, as well as interact with University faculty and students at the Science and Math Expo. Make-n-Take Science Fun Shops and Demo Shows presented by Auburn's finest will also be occurring throughout the day. Also, students may catch a glimpse of Auburn's lovable mascot, "Aubie", while here on AU's campus.

Final date (tentatively scheduled for May 4) and registration information can be found in mid-February at www.auexplore.auburn.edu. Pre-registration is required. Public, private, and home school groups are invited.

Summer Programs

Details about summer programs are coming soon! We will be offering the following programs this summer:

- **NEW! Science Matters** - Summer Enrichment program for elementary students. This summer, we will offer seven science-themed weeks for students in rising 2nd through 5th grades. Sample weeklong programs will include Biz World (math and entrepreneurship), Art in Science (in collaboration with the Jule Collins Smith Museum of Art), NASA Week (design challenge), Mysterious Mixtures (chemistry), and All About Animals (biology), plus more. Each 5-day program will include dozens of hands-on activities and a field trip day, all based on the science theme for that week. Students can come just one week or all seven! Discounts will apply for multiple camp attendance. Science Matters dates are: June 1-4, June 7-11, June 21-25, June 28-July 2, July 5-9, July 19-23, and July 26-30. Each program will be limited to 40 students. Program details and pricing will be available by February 1 on our website (www.auburn.edu/cosam/outreach).
- **Summer YES** (Youth Experiences in Science) is for rising 6th—9th graders and will be held July 11-15. Residential and non-residential options will be offered. Students participate in two dynamic, hands-on courses such as Claymation Science, Physics of Toys, or Nano Nonsense.
- **BEST Summer Institute for Teachers** will be June 13-16. Teachers will get hands-on training in the use of BEST's equipment and software and learn successful strategies and practices in both the Robotics and BEST Award Divisions.
- **Advanced Placement Summer Institute** (APSI) will be June 21-25. The APSI is designed to aid the professional development of teachers, counselors, and administrators who are involved with Advanced Placement (AP) courses.

Dates, fees, and registration information will be available in the March/April issue of our newsletter and online at www.auburn.edu/cosam/outreach.

Experiment of the Issue

Snow Ice Cream

What It 's All About...

Long ago people figured out the easiest way to make ice cream is to use snow. The secret was to lower the freezing point of snow in order to freeze the cream. How? The scientific secret is *SALT!* Here's a scientific recipe that you can use at home to make your own ice cream.

Materials

- Large plastic jar, approx. 1 gallon
- Half & Half
- Snow
- Rock Salt

- 2 quart size Ziploc bags
- Vanilla extract
- Sugar
- Towel (or winter gloves)

Procedure

1. Fill the plastic jar about half full with snow.
2. Add about 6 tbsp. of rock salt to the snow. Seal the jar and shake the snow & salt for about 5 min. Wear your gloves! The temperature will get down to about 14 degrees F!
3. Use 1 quart size bag to mix the following: 1/2 cup of half & half, 1 tbsp. sugar, and 1/2 tsp of vanilla

4. Seal tightly, allowing as little air to remain in the bag as possible.
5. Place this bag inside the other quart-size bag, again leaving as little air as possible.
6. Place the two bags inside the jar with snow and seal the jar. Wrap the jar in the towel or put your gloves on and shake, rock, roll and mix that jar! Your ice cream should be ready in 15-20 min.
7. Once mixed, remove the inner bags from the jar and rinse them well with water. You don't want any salt accidentally getting into your ice cream.

The Science Behind It...

What does the salt do? Just like we use salt on icy roads in the winter, salt mixed with ice in this case also causes the ice to melt. When salt comes into contact with ice, the freezing point of the ice is lowered. The lowering of the freezing point depends on the amount of salt added. The more salt added, the lower the temperature will be before the salt-water solution freezes. For example, water will normally freeze at 32 degrees F. A 10% salt solution freezes at 20 degrees F, and a 20% solution freezes at 2 degrees F. When salt is added to the ice (or snow), some of the ice melts because the freezing point is lowered. Always remember that heat must be absorbed by the ice for it to melt. The heat that causes the melting comes from the surroundings (the warmer cream mixture). By lowering the temperature at which ice is frozen, you were able to create an environment in which the cream mixture could freeze at a temperature below 32 degrees F into ice cream.

Since last issue...

G.U.T.S.

Tuesday, November 17, marked the last session for the 2009 year. Four courses— Edible Science, taught by Paul Norgaard and Matt Obley, The G.U.T.S. of DNA taught by Ms. Erin Edmondson, Microscopic Wonders taught by Dr. Mark Jones, and Tiggers for Tigers, taught by Evi Paemelaere and Lind Pastorello of Tigers 4 Tigers— were offered at this session. A total of 41 pairs of students and parents attended.



Students and parents work together during the November session of G.U.T.S.



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Since last issue ...

South's BEST

On Saturday, December 12, 2009, Alabama Gov. Bob Riley joined over 3500 students, parents, teachers and mentors for the South's BEST Robotics Regional Championship, hosted by COSAM and the Samuel Ginn College of Engineering. "I've heard about BEST but did not fully appreciate the power of robots and this program to engage and excite." said Riley. BEST (Boosting Engineering, Science & Technology) is one of the nation's leading science, technology, engineering and math programs and is designed to pique student interest in careers in engineering and the sciences and develop the workforce of the future. Fifty-five schools from 11 hubs and 9 states competed in the championship event.

Participating Hubs included:

Blazer BEST– Birmingham, AL	North Alabama BEST– Hanceville, AL
Bulldog BEST– Starkville, MS	Music City BEST– Nashville, TN
Connecticut BEST—New Britain, CT	Philadelphia BEST– Philadelphia, PA
Emerald Coast BEST– Pensacola, FL	Tennessee Valley BEST– Decatur, AL
Georgia BEST– Marietta, GA	War Eagle BEST– Auburn, AL
Jubilee BEST– Mobile, AL	



For more information on South's BEST, go to www.southsbest.org

D.A.M.E.S.

D.A.M.E.S. (Daughters and Mothers Exploring Science) is an initiative of the Society of Women in Sciences and Mathematics (SWSM). Twenty-four pairs of mothers and daughters in grades 5-8 came together on Saturday, November 14 and participated in courses such as Buggin' Out, DNA Jewelry, Exploring the Amazon Basin, Glamour Girl Chemistry, and Shrinky Dinkin'. The event ended with a luncheon and the mother-daughter speaking team of Dr. Patricia Wade and Jessica Williams.



A mother-daughter team working together in the Glamour Girl Chemistry course.



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www.youtube.com/AUCOSAMOutreach

Keep up to date with programs and information by visiting:
www.auburn.edu/cosam/outreach