



AUBURN UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

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E=mc²

Engaging More Community Connections

A Science and Math Outreach Newsletter

Inside this Issue

Special Announcement	1
Upcoming Events and Programs	1-2
Experiment of the Month	3
Since last issue...	4

Special Announcement:

COSAM Outreach to Play a Role in NSF Marine Biology Research Grant

COSAM Outreach is pleased to announce that we are participating with Biological Sciences faculty, Dr. Ken Halanych, Dr. Kevin Fielman, and Dr. Scott Santos in a National Science Foundation funded research mission. The research will include exploring deep sea symbiosis- interactions between organisms of different species, via submersibles. This grant will impact many aspects of the community, as well as K-12 and higher education. Auburn University students and faculty, Drake Middle School students and teachers, and COSAM Outreach program participants will all have an opportunity to participate in the mission.

Drake Middle School educator and former COSAM Outreach employee, Erin Edmondson, will join the researchers onboard the research vessel in the Gulf of Mexico during the first week of October to document the mission by providing pictures, daily articles, and blog entries back to her classroom and to the mission website. Prior to the trip, researchers are planning to participate in the G.U.T.S. program (see below) and visit students at Drake to spark interest in the research topic and the mission itself. Following the trip, researchers will visit Drake for a second time and will teach a continuation of the G.U.T.S. course to explain the findings. Video from the trip will be posted on the research website and on the COSAM Outreach YouTube channel. The research website will also be equipped with a Q&A section in which questions will be sent directly to the scientists aboard the ship.

Schedule of Events

- **September 5**- Arboretum Days
- **September 15**- G.U.T.S.
- **September 27**- War Eagle BEST Mall Day
- **October 3**- Fall Y.E.S. Camp, Arboretum Days
- **October 10**- War Eagle BEST Game-day
- **October 27**- G.U.T.S.

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

www.auburn.edu/cosam/outreach

To follow the mission, please visit the research website:

www.auburn.edu/symbiosis

GUTS
Getting Under the Surface

Upcoming Events & Programs:

G.U.T.S.

The third year of Getting Under the Surface (G.U.T.S.) will begin on September 15th. Registration for the first session is available now on the COSAM Outreach website and will be due by September 11th. We are very excited to be offering brand new courses this semester. The \$18 G.U.T.S. registration fee will include dessert and all course materials for each student/adult pair per session. September 15th courses:

Grades 1-3: **Buggin' Out** and **Fossil Frenzy**

Grades 4-6: **Getting a Charge Out of Batteries** and **The GUTS of the Deep Sea, Part 1***

* Special 2 part course, \$25. By choosing this course, you are committed to attend both the Sept. 15 and Oct. 27 sessions.

Fall 2009 Dates

Tuesday, September 15th
 Tuesday, October 27th
 Tuesday, November 17th

Upcoming Events & Programs, cont'd:

Tentative Fall Y.E.S. Schedule:

8:30 am
 Course Registration
 9:15 am
 Camp begins
 11:45 am
 Lunch provided
 12:30 pm
 Camp continues
 3:00 pm
 Camp concludes

For more information
 about the Davis
 Arboretum, please
 visit

[www.auburn.edu/
arboretum/](http://www.auburn.edu/arboretum/)

Fall Y.E.S.

On Saturday, October 3rd, Outreach will present the annual Fall Youth Experiences in Science camp. Cost is set at \$15 per participant and \$10 for each additional child from the same family. Special fall related courses such as Wild About Bats and Harry Potter's Magic will be offered to students in the 7th-9th grades.

For more information or to register, please visit the outreach website or contact the Fall Y.E.S. coordinator, Lara Stubbs, at lks0001@auburn.edu.



Arboretum Days

The College of Sciences and Mathematics would like to invite science enthusiasts to participate in the Arboretum Days program occurring again this fall. Arboretum Days will occur at 9:00 am on the first Saturday of September, October, and November and will continue through the spring semester. Each Saturday will consist of a one hour nature-based activity led by AU faculty and instructors. Programs are designed for children ranging from Pre-Kindergarten to 5th grade. Pre-registration for Arboretum Days is encouraged and registration forms can be found at the Arboretum website listed to the left.

September 5th:

“Caught in the Web of Life”

October 3rd:

“Snakes, Turtles, Lizards, and Frogs”

November 7th:

“Taking Care of the River State”

War Eagle BEST Mall Day

What do robot testing, COSAM, and Dillard's have in common? BEST Mall Day! On September 27th, Colonial Mall in Auburn will play host to the 24 War Eagle BEST teams for Mall Day '09. This day occurs at the end of the 4th week of the BEST season and will be the first time that teams will have a chance to test their robot designs on a fully functional, full size playing field. Teams that have had a rough start or that are just experiencing “engineer's block” are encouraged to bring their robots (or lack thereof) and consult with other teams and mentors that will be in attendance. This will be a great chance to see the great ideas that all the teams have put together to complete this year's objective.

Teams will be able to sign-up for 30-minute timeslots beginning at 1:30 pm. The general public is welcome and encouraged to attend, but registration for participation in BEST is now closed. For more information regarding Mall Day or BEST in general, please visit the BEST Inc. website at www.bestinc.org or the War Eagle BEST site at www.wareaglebest.org.

D.A.M.E.S.

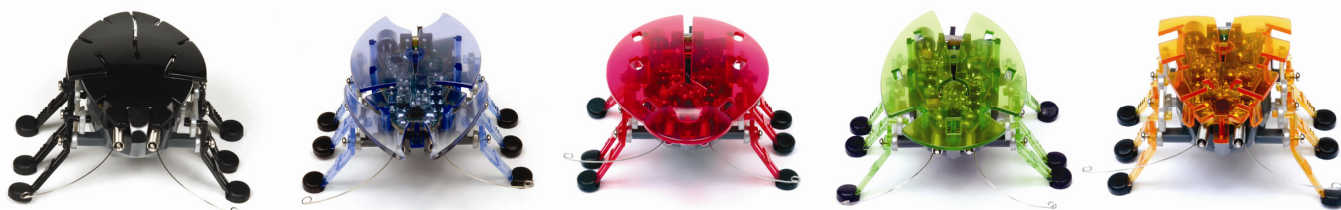
Daughters and Mothers Exploring Science (D.A.M.E.S.) will take place on Saturday, November 14th on Auburn's campus. D.A.M.E.S. will include hands-on science and math mini-courses followed by a luncheon and a mother/daughter keynote speaker team. Girls in 6th-8th grade may register by visiting the Society of Women in Sciences and Mathematics website at www.auburn.edu/academic/science_math/swsm. You may contact Mary Lou Ewald (ewaldml@auburn.edu, 334-844-5745) for more information.



HEXBUGS Are Available from COSAM Outreach!

COSAM Outreach is partnering with Innovation First, Inc. to make HEXBUGS available to outreach program participants. These robotic creatures react to touch and sound and make great gifts for scientifically minded people in your life.

HEXBUGS will be available in the COSAM Outreach office at Auburn University and at all outreach programs this fall for a \$10 donation.



Experiment of the Month

The Chemistry Behind Fall Leaf Colors

What It 's All About...

Have you ever wondered where the bright colors of fall leaves come from? Where does the green color go? This experiment will "shed some light" on these questions.

Materials

- Green leaves from 3 different trees
- 3 small drinking glasses
- Rubbing Alcohol
- Plastic Wrap
- A pan of hot water
- Coffee Filters or Filter Paper

Scissors, Tape, and 3 Pencils Procedure

1. Tear the leaves into small pieces
2. Label each glass with one type of tree, and place the leaves from that tree into the glass.
3. Add enough rubbing alcohol to each glass so that the leaf pieces are covered.
4. Let an adult place the glasses in a pan of hot water for about 30 minutes.

5. While you wait, cut 3 strip out of the center of the coffee filters. Each strip should be about 1 inch wide and one end should be cut into a point. Tape one end of the strip to the middle of the pencil
6. After 30 minutes, and once the alcohol is green, place the pencil on top of the glass so that only the point of the filter is touching the alcohol.
7. Let this rest for 30 more minutes then check to see if anything has happened. Wait about 15 more minutes to see if any change has occurred.

The Science Behind It...

Have you ever brewed a cup of tea? This experiment works in much the same way. The alcohol and hot water dissolve the chemicals that color the leaves. When you place the coffee filters in the green-colored alcohol, these chemicals are soaked up into the paper. You should have been able to see a few different shades of green. If you waited long enough, you may have even seen other colors on the coffee filter, such as orange or yellow. These are the colors that the leaf will turn in the fall!

Chlorophyll, the chemical that produces the green color, is very abundant and is found in special cells in the leaf that help it produce food through the use of sunlight. As the amount of sunlight decreases in the fall months, the production of this chemical slows. As chlorophyll moves out of the leaf, other chemicals that are usually masked by the chlorophyll, such as carotene and lycopene (yellow and orange colored), are left behind, creating the vivid colors of autumn.



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Since last issue...

Summer Y.E.S. Camps

160 rising 1st–9th graders participated in the three Summer Youth Experiences in Science camps that occurred July 6-23. Cub Camp, Tiger Camp, and Eagle Camp were highlighted by visits from the Southeastern Raptor Rehabilitation Center and trips to the Leach Science Center and Jordan Hare Stadium. COSAM Outreach would like to extend a special thanks to all the instructors that made these three weeks so successful. Videos from all 3 Summer Y.E.S. Camps can be viewed at www.youtube.com/aucosamoutreach.

War Eagle BEST Kickoff

The 6 weeks of BEST began on Saturday, August 29 on the Auburn University campus. 500 participants crowded the AU Student Center Ballroom for the first look at the 2009 game, *High Octane*. Game specific rules, returnable and consumable kits (robot parts), and HEXBUG fundraiser materials were given out to all teams that were in attendance. The highlight of the day was the unveiling of the 2009 playing field and recognition of our new technical team, engineers from Alabama Power Company.

SWSM Women's Leadership Symposium

The Society of Women in Sciences and Mathematics' 2009 Women's Leadership Symposium was, once again, a great success. 48 female students and teachers from surrounding high schools, including Lee-Scott Academy, Loachapoka, Wetumpka, and Stanhope Elmore joined AU faculty and student members of SWSM for the symposium. Through this and many other activities, SWSM fulfills its mission of being leaders and role models committed to increasing awareness of opportunities available for women in the fields of sciences and mathematics, as well as providing support to ensure success.



COSAM Seniors, Sallie Martin and Jessica Williams, were awarded scholarships at the SWSM Women's Leadership Symposium for playing a part in promoting science in their communities. They are pictured with COSAM Dean, Dr. Stewart Schneller.



Head referee, Zach Lamb, answers technical questions about the "High Octane" playing field at War Eagle BEST Kickoff.



Summer Y.E.S. participants display their camp t-shirts on the last day of each of the camps.



College of Sciences and Mathematics K-12 Outreach

315 Roosevelt Concourse
131 Science Center Classrooms
Auburn University, AL 36849
Phone: 334-844-5769
Fax: 334-844-5740
E-mail: cosam_outreach@auburn.edu



Visit our YouTube channel!! New videos will be updated following outreach programs.

www.youtube.com/AUCOSAMOutreach

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