



College of Sciences and Mathematics
Educational Outreach Program
2009 Annual Report

Table of Contents

Introduction	1
Mission Statement.....	1
Goals of COSAM Outreach	1
COSAM Outreach Summary	1
2009 Activities	1
COSAM Outreach Staff	2-4
2009 Outreach Events.....	5
2009 Outreach Programs.....	6-11
AU Explore	6
AU Math-a-thon	6
2009 BEST National Conference.....	6
D.A.M.E.S.	6
Eagle Ranch Educational Partnership.....	7
G.E.A.R.S.E.F.....	7
G.U.T.S.....	7
Science Olympiad	8
T.E.A.M.S.	8
The Y.E.S. Program	8
BEST	9-11
War Eagle BEST	9
Tennessee Valley BEST	9
The South's BEST	10-11
Other Programs Affiliated with COSAM Outreach.....	12
Advanced Placement Summer Institute for Teachers.....	12
Advanced Placement Summer Institute for Administrators	12
Arboretum Days.....	12
Women's Leadership Symposium in Science & Mathematics.....	12
Program Profiles	13-48
AU Math-a-thon	13-15
AU Science Day at Eagle Ranch.....	16
G.U.T.S. (2.19.09)	17
T.E.A.M.S.	18
Science Olympiad	19
G.E.A.R.S.E.F.....	20-21
G.U.T.S. (3.26.09)	22
Spring Y.E.S.....	23

G.U.T.S. (4.14.09)	24
AU Explore	25-26
G.U.T.S. Backyard Bash	27
2009 BEST National Conference.....	28-32
Summer Y.E.S. Cub Camp	33
Summer Y.E.S. Tiger Camp.....	34
Summer Y.E.S. Eagle Camp.....	35-36
G.U.T.S. (9.15.09)	37
War Eagle BEST	38-40
Tennessee Valley BEST	41-42
G.U.T.S. (10.27.09)	43
D.A.M.E.S.	44
G.U.T.S. (11.17.09)	45
The South's BEST	46-48
Newsletters	49-66
March/April 2009	49-50
May/June 2009	51-54
July/August 2009	55-58
September/October 2009	59-62
November/December 2009.....	63-66



Mission Statement

The College of Sciences and Mathematics at Auburn University aims to promote scientific* literacy and interest among K-12 students, teachers, and communities in our region, our state, and our nation.

Goals of the College of Sciences and Mathematics Outreach Program include:

- Encourage interest in the sciences* in K-12 students
- Actively engage K-12 students and teachers in relevant and inspiring experiences in math and science
- To motivate K-12 students to reach their full potential in science by providing them with access to exciting, hands-on laboratory activities, enthusiastic science mentors, and a supportive environment that encourages their intellectual development
- Provide opportunities for Auburn University faculty and undergraduate and graduate students to share their passion for science with a broad audience
- To provide professional development opportunities for K-12 teachers to improve the quality of math and science education.

*The use of “science” in the mission and goals statements represents both science and mathematics.

Summary

To promote careers in science and mathematics among the K-12 students of today, the College of Sciences and Mathematics at Auburn University has designed an innovative outreach program offering special activities, workshops, and programs throughout the year for the general public and K-12 students and teachers. These activities are designed to provide a continuum of programs for students in various stages of their educational development.

2009 Activities

Current outreach program efforts of the College of Sciences and Mathematics are designed to achieve the above stated goals. In 2009 - January to December - over 10,822 students, parents, and teachers were reached through these efforts. A total of 18 programs, with 50 contact days, were hosted / sponsored by COSAM’s Outreach Office. In the following pages, you will find the 2009 Outreach staff, a calendar of 2009 programs, a brief summary of each program offered (including funding sources), program reports for each program’s session, and bi-monthly newsletters sent to former outreach participants, parents, teachers, and contributors.

2009 COSAM Outreach Staff



Mary Lou Ewald

Director of Outreach

Primary Responsibilities:

- Oversees and manages all aspects of Outreach Programs including AU Explore, Y.E.S. Programs, G.U.T.S., D.A.M.E.S., Science Olympiad, G.E.A.R.S.E.F., War Eagle BEST, Tennessee Valley BEST, South's BEST Regional Robotics Championship and Math-a-Thon
- Coordinator of Eagle Ranch Educational Partnership
- Co-Director of War Eagle BEST
- Co-Director of Tennessee Valley BEST
- Co-Director of South's BEST
- Chair, 2009 BEST National Conference
- Judging Coordinator for War Eagle BEST & South's BEST Competitions
- Coordinator of AU Math-a-thon
- AU Leadership Team, Science and Mathematics Teacher Imperative
- Vice President of the Board of Directors, BEST Robotics, Inc.
- Vice President, Society of Women in Sciences and Mathematics
- Coordinating Partner, Advanced Placement Summer Institute
- Executive steering committee member, WISE Institute at AU
- Chair, Steering Committee for Math Learning Center

Emma Seiler

Assistant Director of Outreach

Primary Responsibilities:

- Assists with management of Outreach Programs and student workers
- Director of Greater East Alabama Regional Science & Engineering Fair (G.E.A.R.S.E.F.)
- Coordinator of G.U.T.S. Program (Fall 2009)
- 2009 BEST National Conference Program Chair
- Coordinator of Registration & Sales for War Eagle BEST & South's BEST Robotics Competitions



Kathy Feminella

Administrative Assistant

Primary Responsibilities:

- Responsible for all financial records and information for Outreach Office
- Coordinator of AU Explore Science EXPO
- Coordinator of Middle School and Elementary Science Olympiad competitions
- Hospitality Coordinator for War Eagle BEST & South's BEST Robotics competitions
- 2009 BEST National Conference Hospitality and Registration Chair

2009 COSAM Outreach Staff



Jesse Daniel

Office Manager/Outreach Program Coordinator

Primary Responsibilities:

- Coordinator of AU Explore
- Responsible for all Office Supply purchasing
- Judging Assistant for War Eagle & South's BEST Competitions
- Assistant Director of Summer Y.E.S. Programs
- 2009 BEST National Conference Workshop Chair
- AU Science Day at Eagle Ranch Instructor
- Creator of Program Profiles and bi-monthly newsletters

Erin Edmondson

Outreach Program Specialist

Former Student, Science Education

(Currently teaching at Drake Middle School, Auburn, AL)

Primary Responsibilities:

- Coordinator of G.U.T.S. (Spring 2009)
- 2009 BEST National Conference Housing Chair
- Summer Y.E.S. Camp Coordinator
- G.U.T.S. Instructor
- AU Science Day at Eagle Ranch Instructor
- South's BEST Hospitality Assistant



Sallie Martin

Outreach Program Specialist

Student, Biological Sciences

Primary Responsibilities:

- G.U.T.S. Instructor
- Coordinator of Spring Y.E.S.
- Summer Y.E.S. Camp Counselor
- South's BEST Hospitality & Sales Assistant

Bryan McMeen

Outreach Program Specialist

Student, Mathematics

Primary Responsibilities:

- Test preparation for 2010 AU Math-a-thon
- War Eagle BEST & South's BEST Scorekeeping Assistant



2009 COSAM Outreach Staff

Emily Newcomb

Outreach Program Specialist

Former Student, Science Education

(currently teaching at Homewood High School, Birmingham, AL)

Primary Responsibilities:

- AU Science Day at Eagle Ranch Instructor
- G.U.T.S .Instructor
- Summer Y.E.S. Camp Counselor



TJ Nguyen

Outreach Program Specialist

Student, Mechanical Engineering

Primary Responsibilities:

- War Eagle BEST Scorekeeping Assistant

Katy Prince

Outreach Program Specialist

Student, Biomedical Sciences

Primary Responsibilities:

- Summer Y.E.S. Camp Counselor
- War Eagle BEST Sales Assistant
- South's BEST Hospitality Assistant



Lara Stubbs

Outreach Program Specialist

Student, Elementary Education

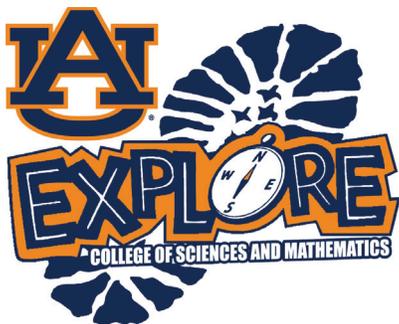
Primary Responsibilities:

- Summer Y.E.S. Camp Counselor
- Summer Y.E.S. Camp Instructor Assistant
- War Eagle BEST Registration Assistant
- South's BEST Registration Assistant
- AU Science Day at Eagle Ranch Instructor's Assistant

2009 Outreach Events

January 24, 2009	AU Math-a-thon
February 7, 2009	AU Science Day at Eagle Ranch Children's Home
February 19, 2009	G.U.T.S.
February 27, 2009	T.E.A.M.S.
February 28, 2009	Middle School Science Olympiad
March 12, 2009	Greater East AL Regional Science & Engineering Fair
March 26, 2009	G.U.T.S.
April 4, 2009	Spring Y.E.S.
April 14, 2009	G.U.T.S.
April 30, 2009	AU Explore
May 2, 2009	G.U.T.S. Backyard Bash
June 17 - June 20, 2009	BEST Robotics National Conference
June 21-26, 2009	Advanced Placement Summer Institute for Teachers
July 6 – July 9, 2009	Summer Y.E.S. Cub Camp
July 13-14, 2009	Advanced Placement Summer Institute for Administrators
July 13 – July 16, 2009	Summer Y.E.S. Tiger Camp
July 19 – July 23, 2009	Summer Y.E.S. Eagle Camp
August 29, 2009	War Eagle BEST Kickoff
September 15, 2009	G.U.T.S.
September 27, 2009	War Eagle BEST Mall Day
October 8 - 10, 2009	War Eagle BEST Judging & Game Day
October 23 – 24, 2009	Tennessee Valley BEST Judging & Game Day
October 27, 2009	G.U.T.S.
November 14, 2009	D.A.M.E.S.
November 17, 2009	G.U.T.S.
December 7, 2009	South's BEST Judging
December 9, 2009	South's BEST Judging
December 11 - 13, 2009	South's BEST

Programs Offered by COSAM Outreach



AU Explore

AU Explore is COSAM's annual Open House Day for 5th - 8th graders. On Thursday, April 30, approximately 1450 students from 31 schools all over Alabama attended this free event on Auburn's campus. Students had the opportunity to experience live animals up close, as well as interact with University faculty and students at the Science and Math EXPOs. Make-n-Take Science Fun Shops and Demo Shows presented by Auburn's finest also occurred throughout the day.

Funding Source: COSAM, Food & T-shirt sales during the event

AU Math-a-thon

The second annual AU Math-a-thon Tournament was held on Saturday, January 24, 2009. Teams of high school students from across the state competed in this one-day tournament featuring individual tests, team tests, and ciphering. A total of 130 students from 8 schools competed in the 2009 Tournament.

Funding Source: Self-supporting through participant fees

2009 BEST National Conference

The 2009 BEST National Conference was co-hosted by the College of Sciences and Mathematics and the Samuel Ginn College of Engineering in June 2009. Approximately 180 students, teachers, mentors, hub personnel and industry leaders attended this 4-day conference. Session topics included BEST practices, team management, BRAIN training, and much more. The conference included a banquet dinner with keynote speaker, Celeste Baine, Director of the Engineering Education Service Center, and a networking luncheon with industry personnel.

Funding Source: Conference Fees, BEST, Inc., Industry Sponsors



D.A.M.E.S. (Daughters and Mothers Exploring Science)

On November 14, 2009, 46 mothers and daughters came to Auburn University to experience science Auburn University style. D.A.M.E.S. aims to inspire and encourage young women to pursue careers in sciences and mathematics. D.A.M.E.S. is a one-day mini-conference that includes a variety of short hands-on courses, including Glamour Girls, DNA Jewelry, Exploring the Amazon Basin, and Shrinky-Dinkin', taught by female students and faculty and women from industry, followed by a luncheon and keynote speakers, Dr. Patricia Wade and her daughter, Jessica Williams, a senior in Biomedical Sciences in COSAM.

Funding Source: Participant Fees, SWSM Sponsorship



Eagle Ranch Education Partnership

Beginning in 2009, AU COSAM Outreach began a partnership with the Eagle Ranch Christian Children's Home in Flowery Branch, Georgia. On Saturday, February 7, 2009, seven Outreach Staff traveled to Eagle Ranch to host science courses for 38 students in grades 4-10. Courses such as Water Bugs, Genes in a Bottle, and Lemon Batteries were taught in one hour sessions throughout the day.

Funding Source: COSAM

G.E.A.R.S.E.F.

Co-hosted with the Samuel Ginn College of Engineering, the Greater East Alabama Regional Science & Engineering Fair (G.E.A.R.S.E.F.) was held on March 12, 2009. Schools from 23 counties in Southeast Alabama are eligible to compete in the fair. A total of 80 projects from students in grades 6-12 were judged at this inaugural fair. Students that placed 1st or 2nd in their division and category moved on to compete at the Alabama State Science & Engineering Fair in Huntsville in April. Two exceptional students from our region advanced with an all expense paid trip to the International Science & Engineering Fair in Reno, Nevada in May. One of G.E.A.R.S.E.F.'s Finalists, Nicholas Christensen, from Wetumpka High School, went on to win 2nd place in his category at ISEF and was chosen as one of only forty students nationwide for the Intel Science Talent Search.



Funding Source: Participant fees, COSAM, Samuel Ginn College of Engineering, Society of Women in Sciences and Mathematics, AU WISE Institute

G.U.T.S.

G.U.T.S. is a monthly program for kids in grades 1-8 and their parents or grandparents. Each evening session includes dessert followed by a 90-minute science activity featuring a "Getting Under The Surface" theme, such as the G.U.T.S. of Halloween, the G.U.T.S. of the Deep Sea, and the G.U.T.S. of DNA. In 2009, three sessions were held in the spring, and 3 sessions held in the fall. In May, to conclude the 2008-2009 school year, we held a Backyard Bash with a CrAzY cHeMisTrY Show, hosted by Dr. Suzanne Striegler, as the year-end finale. Throughout the year, a total of 594 students and parents attended a G.U.T.S. session. In October 2009, we had the highest number to date, with 50 total pairs of students and parents.



Funding source: Self-supporting through participant fees

Science Olympiad



Science Olympiad is a one-day academic track meet, consisting of up to 23 different competitive events. On February 28, 2009, thirty teams of 15 students each in grades 6-9 converged on Auburn's campus to compete in events ranging from Anatomy to Robots. Winners from the middle school division qualify to compete at the state Science Olympiad.

Funding Source: COSAM, T-shirt donation from AU Bookstore

T.E.A.M.S. (Tests of Engineering Aptitude, Mathematics, and Science)

COSAM Outreach and the Samuel Ginn College of Engineering co-sponsored the T.E.A.M.S. competition for students in grades 9-12 held on February 27, 2009. Eighty-one students from 10 schools worked together as teams and used the principles of engineering, math, and science to solve real world challenges. T.E.A.M.S. is sponsored by the Junior Engineering Technical Society (JETS).



Funding Source: School-based fees, Corporate Sponsorship (Southern Company)

The Y.E.S. Program (Youth Experiences in Science)

Spring Y.E.S. was held on Saturday, April 4, 2009. Spring Y.E.S. is a free program offered every spring for students in grades 3-6. Hands-on courses for the 2009 Spring Y.E.S. included Carnivorous Plants, Kitchen Chemistry, Earning Your Stripes and Getting a Jolt Out of Juice. A total of 91 students attended the 2009 event.

Summer Y.E.S. 2009 consisted of three 4-day camps for rising 1-9 graders.

Cub Camp, for rising 1-3 graders, had 54 students with three courses - Clue Seekers, Mysterious Mixtures, and Slimy Science and was held July 6-9, 2009. Camp ended on Thursday, July 9 with a small ceremony for participants and their parents.

Tiger Camp, for rising 4-6 graders, had 67 students attending and offered 4 courses - CHAOS (CHemistry And Other Sciences), Forensic Investigators, LEGO Mania, and Soda Pop Science. Tiger Camp was held July 13-16, 2009.

Eagle Camp, for rising 6-9 graders, was held July 19-23 and had a total of 41 participants. Students were offered 4 courses - Claymation Science, Nano-Nonsense, Physics of Toys, and River Creatures. Participants were allowed to take one morning and one afternoon course throughout the week.

Funding Source: Participant fees





Boosting Engineering, Science, and Technology (BEST) Robotics

What do you get when you cross robots, a playing field, referees, cheerleaders, and pep bands? The BEST competition ever! BEST is an organization whose mission is to inspire middle and high school students to pursue careers in engineering, science and technology through a sports-like, science- and engineering-based competition. Started in 1993 with 14 schools and 221 students, today BEST has 35 hubs with over 650 middle and high schools and over 12,000 students participating each year. In 2009, Auburn University was named the national headquarters for BEST Robotics and hosted the first-ever BEST National Conference. BEST Robotics at Auburn University is a partnership between COSAM, the Samuel Ginn College of Engineering, and the College of Architecture, Design, and Construction.

War Eagle BEST

Formerly Alabama BEST, War Eagle BEST had 25 schools compete in 2009. Kickoff was held on August 29, 2009 in the new Student Center Ballroom, where teams were given the game theme - High Octane - and the task for this year - make iso-octane from other elements on the playing field. Five weeks later, on September 27, 2009 a practice “Mall Day” was held at Auburn / Opelika Colonial University Mall. On Saturday, October 10, approximately 600 students came together to compete in “High Octane”. The BEST Award winner was Wetumpka High School, while the Game winner was Lee-Scott Academy of Auburn.



Tennessee Valley BEST

Tennessee Valley BEST, hosted by Calhoun Community College, had 19 schools compete in 2009. Kickoff was held on Saturday, September 12, 2009. Teams were given the task for this year - make iso-octane from other elements on the playing field. Five weeks later, on October 11, 2009 a practice “Mall Day” was held. On Saturday, October 24, approximately 600 students came together to compete in “High Octane”. The BEST Award winner was the Decatur Austin Robotics Coalition, while the Game winner was Life Christian Academy. TV BEST is a partnership between Auburn University and Calhoun Community College in Decatur, AL.





The South's BEST

On Saturday, December 12, 2009, Alabama Governor Bob Riley joined the crowd of over 3500 students, teachers, parents, and industry mentors at the 2009 South's BEST Regional Robotics Championship. South's BEST hosted 55 teams from 9 hubs and 11 states over the weekend of December 11-12, 2009. Notebook judging began on Monday, December 7 and continued on Wednesday, December 9. The 3rd annual Women in Science and Engineering Luncheon, sponsored by the WISE Institute and Toyota Motor Manufacturing, was held on Friday, December 11 and had over 160 attendees. The Friday night "Celebrate BEST" activities included a team video competition and a trivia challenge. Students answered trivia questions related to Auburn University, BEST Robotics, and general science and math while watching videos sent in from competing schools. Over \$5000 in door prizes were also given out to students and teachers throughout the evening. The top four winners advanced on to the first BEST National Championship to be held in April 2010 in Dallas, Texas. The 2009 BEST Award winners were: 1st Place - Wetumpka High School (War Eagle BEST), 2nd place - W.P. Davidson High School (Jubilee BEST), and 3rd place - Wheeler High School (Georgia BEST). The 2009 Game winners were: 1st place - McFadden School of Excellence (Music City BEST), 2nd place - Milton High School (Emerald Coast BEST), and 3rd place - Decatur Austin Robotic Coalition (Tennessee Valley BEST).



"I must say that I am absolutely shocked at what I've seen today," said Riley, who addressed the group. "I've heard about BEST but did not fully appreciate the power of robots and this program to engage and excite. I am proud that Auburn and the State of Alabama are supporters of a program of this caliber."

2009 Sponsors

Platinum Level (\$5,000 - \$14,999)

Alabama Power (Auburn)
Alabama Power Generations (Birmingham)
Auburn University, Vice President for Outreach
Briggs & Stratton Foundation (Auburn)
Donaldson Foundation (Auburn)
Hyundai Motor Manufacturing of Alabama (Montgomery)
Neptune Technology Group (Tallassee)
Southern Company (Atlanta)
Southern Nuclear Company (Birmingham)
Wiregrass Foundation (Dothan)



Gold Level (\$2,500 - \$4,999)

Brasfield & Gorrie Construction (Birmingham)
First Year Program, School of Architecture, Auburn University
Honda Motor Manufacturing (Lincoln)
South's BEST Robotics Participating Hub Sites:
Calhoun Community College, Decatur (Tennessee Valley BEST)
David Lipscomb University, Nashville (Music City BEST)
Jubilee BEST (non-profit organization)
Mississippi State University, Starkville (Bulldog BEST)
School District of Philadelphia, PA (Philadelphia BEST)
Southern Polytechnic State University, Marietta (Georgia BEST)
University of Alabama at Birmingham (Blazer BEST)
University of West Florida, Pensacola (Emerald Coast BEST)
Wallace State Community College, Hanceville (North Alabama BEST)

Silver Level (\$1,250 - \$2,499)

Auburn-Opelika Tourism Bureau
CAD Academy (Surprise, AZ)
DEPCO (Dependable Education Products Company, Pittsburg, KS)
Rheem Manufacturing (Montgomery)
Technical Training Aids (Pelham)
Toyota Motor Manufacturing (Huntsville)
VWR International (West Chester, PA)

Bronze Level (\$500 - \$1,249)

Dr. George Blanks, Ginn College of Engineering, Auburn University
GEARS Educational Systems (Hanover, MA)
GKN Aerospace (Tallassee)
Hoar Construction (Birmingham)
Instrumentation Society of America (Birmingham Chapter)
SERVO Magazine (Corona, CA)
Women in Science and Engineering (WISE) Institute, Auburn University

Other Programs Affiliated with COSAM Outreach

Advanced Placement Summer Institute for Teachers

COSAM partnered with the Outreach Program Office and the Truman Pierce Institute to offer 10 different Advanced Placement workshops to 250 high school teachers during the week of June 22-26.

Funding Source: COSAM offers an in-kind sponsorship of facility space for the workshops and staff time to coordinate the program.

Advanced Placement Summer Institute for Administrators

COSAM partnered with the Outreach Program Office and the Truman Pierce Institute to offer an institute for administrators and counselors planning an Advanced Placement curriculum. The institute was held July 13-14, 2009.

Funding Source: COSAM offers an in-kind sponsorship of facility space for the workshops and staff time to coordinate the program.

Arboretum Days

Fall Arboretum Days were held once a month on Saturdays in September, October, and November. Programs targeted students in grades K - 5, and were nature-based events and lasted approximately 1 hour. There is no fee for the programs, but registration is recommended.

Funding Source: COSAM

Women's Leadership Symposium in Science & Mathematics

Held on August 21, 2009, the Women's Leadership Symposium hosted 50 local high school girls at the Auburn University Hotel and Dixon Conference Center. Students participated in a panel discussion lead by female COSAM alumni and current students. Following the panel discussion, students had the opportunity to join the panelists in roundtable discussions. The day was capped off with a luncheon and keynote speaker, Dr. Kathy Pearson, Senior Consultant and Director of Executive Education for Decision Strategies International, Adjunct Associate Professor at the Wharton School, and Auburn University mathematics alumna from 1984.

Funding Source: Society of Women in Sciences and Mathematics; internal and external sponsorship.

Program: Math-a-Thon

Date: Saturday, January 24, 2009; 8:00am- 3:30 pm

Description: Math Tournament including Individual Test, Ciphering, School Bowl, and Aubie Bowl (Interschool Competition)

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Bonnie Wilson, Tiffany Ostertag, Erin Edmondson, Emily Newcomb, Sallie Martin, Jesse Daniel, Laura Stubbs, Tyler Henderson, Andras Bezdek, Dean Hoffman, Krystyna Kuperberg, Edward Slaminka
- **Non-AU:** N/A

Schools Impacted: Auburn High, Grissom High, Hanceville High, Handley High, Homewood High, Hoover High, Minor High, Vestavia Hills High

- **Total Number of Students:** 130
- **Age Range:** 9th- 12th grade

Facilities: SCA, SCC, Parker Hall

School Statistics

- Auburn High School
 - Number of Students: 7
 - Age Range: 11th-12th grade
 - Individual Test Scores
 - Highest:88; Lowest: 42 (Range of 46)
 - Average: 72.8
- Grissom High School
 - Number of Students: 33
 - Age Range: 9th-12th grade
 - Individual Test Scores
 - Highest:100; Lowest: 15 (Range of 85)
 - Average: 62.7
- Hanceville High School
 - Number of Students: 7
 - Age Range: 12th grade
 - Individual Test Scores
 - Highest: 60; Lowest: 19 (Range of 33)
 - Average: 37
- Handley High School
 - Number of Students: 12
 - Age Range: 10th-12th grade
 - Individual Test Scores
 - Highest: 45; Lowest: 10 (Range of 35)
 - Average: 26.8
- Homewood High School
 - Number of Students: 18
 - Age Range: 10th-11th grade
 - Individual Test Scores
 - Highest: 102; Lowest: 37 (Range of 65)
 - Average: 68.0
- Hoover High School



- Number of Students: 17
- Age Range: 10th-12th grade
- Individual Test Scores
 - Highest: 110; Lowest: 35 (Range of 75)
 - Average: 70.7
- Minor High School
 - Number of Students: 2
 - Age Range: 12th grade
 - Individual Test Scores
 - Highest: 23; Lowest: 21 (Range of 2)
 - Average: 22
- Vestavia High School
 - Number of Students: 34
 - Age Range: 10th-12th grade
 - Individual Test Scores
 - Highest:110; Lowest: 33 (Range of 46)
 - Average: 69.3



Individual Test

- 75 minute, multiple choice test
- 50% of Overall Team Score
- Results:
 - Division I
 - 1st- Kyle Julian; Vestavia Hills
 - 2nd- Eugene Wu; Hoover
 - 3rd- Shushma Boppana; Vestavia Hills
 - 4th- Xinke Guo; Hoover
 - 5th- Suyoung Jang; Vestavia Hills
 - 6th- Jimmy Nakamura; Homewood
 - 7th-Patrick Voytek; Grissom
 - 8th- Owen Scott; Vestavia Hills
 - 9th- Nikhil Goel; Grissom
 - 10th-Nitish Aggarwal; Vestavia
 - Division II
 - 1st- Ben Burkhart; Hanceville
 - 2nd- Audrey Quick; Hanceville
 - 3rd- Rob Harper; Handley
 - 4th- Jarrod Brown; Hanceville
 - 5th- Cassie Tankersley; Hanceville

Ciphering

- Four rounds of 5 timed questions
- 25 % of Overall Team Score
- Results:
 - Division I
 - 1st- Grissom High School Team I
 - 2nd- Vestavia Hills High School Team I
 - 3rd- Vestavia Hills High School Team II
 - Division II
 - 1st- Handley High School

School Bowl

- 75 minute, group question
- 25% of Overall Team Score

Aubie Bowl

- Optional full team test
- Results
 - 1st- Homewood High School Team 1
 - 2nd- Hoover High School
 - 3rd- Auburn High School



Overall Team Awards

- Results:
 - Division I
 - 1st- Grissom High School Team I
 - 2nd- Vestavia Hills High School Team I
 - 3rd- Hoover High School
 - Division II
 - 1st- Hanceville High School

Program: Auburn University Science Day at Eagle Ranch Children’s Home

Date: Saturday, February 7, 2009; 10:00 am - 1:30 pm EST

Description: 3 one hour courses, each offered twice

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Erin Edmondson, Emily Newcomb, Sallie Martin, Jesse Daniel, Lara Stubbs
- **Non-AU:** N/A

Schools Impacted: Eagle Ranch

- **Total Number of Students:** 38
- **Age Range:** 4th - 10th grade

Facilities: Schoolhouse at Eagle Ranch

Genes in a Bottle

- Instructed by: Erin Edmondson
- Number of Students: 24 total (23 reporting on survey)
- Student Satisfaction Ranking: 4.6 (out of 5)
- Age Range: 5th - 10th grade
- Pre-Test: 66% Correct
- Post-Test: 71% Correct
- Top new concept learned: Structure of DNA
- Other new concepts learned: Facts about DNA; DNA extraction process

Lemon Battery

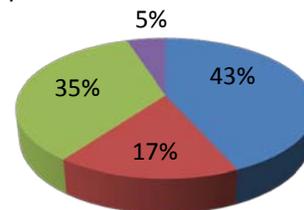
- Instructed by: Emily Newcomb
- Number of Students: 23 Total (18 Reporting)
- Student Satisfaction Ranking: 4.3 (out of 5)
- Age Range: 4th-8th Grade
- Pre-Test: 56% Correct
- Post-Test: 72% Correct
- Top new concept learned: Voltage can be created with a combination of fruit (electrolyte) and metal (electrodes)
- Other new concepts learned: Voltage facts; How voltage is measured

Water Bugs

- Instructed by: Jesse Daniel
- Number of Students: 22 Total (19 Reporting)
- Student Satisfaction Ranking: 4.1 (out of 5)
- Age Range: 4th-10th grade
- Pre-Test: 36% Correct
- Post-Test: 67% Correct
- Top new concept learned: The variety of microscopic organisms present in water samples
- Other new concepts learned: Ecosystem, Food Chain, and Food Web facts; How to use a dissecting microscope

Pursuit of a Scientific Career
(from post program survey)

■ Maybe ■ Yes ■ No ■ No Response



Science Career Interests:

Animal Science, Biology, Electrical Engineering, Genetics



Program: Getting Under the Surface (G.U.T.S)

Date: Thursday, February 19, 2009; 6:00 pm - 8:00 pm

Description: Parent/ Child teams act as lab partners in a 75-90 minute science activity.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Sallie Martin, Lara Stubbs, Jesse Daniel, Cathy Miller, Paul Norgaard
- **Non-AU:** Chris McDuffie- Alabama State Dept. of Ed.

Schools Impacted: N/A

- **Total Number of Students:** 21
- **Total Number of Parents:** 22
- **Age Range:** K-6th Grade

Facilities: Parker Hall 307, SCL

Strawberry Genes

- Developed by: Erin Edmondson, Instructed by: Sallie Martin
- Number of Students: 11 total (11 reporting on survey)
- Student Satisfaction Ranking: 4.6 (out of 5)
- Parent Satisfaction Ranking: 4.5 (out of 5)
- Age Range: K-3rd Grade



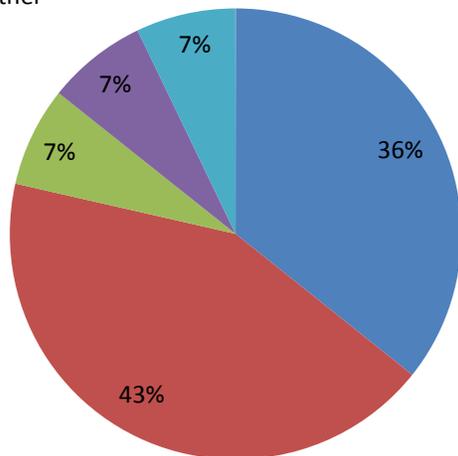
Getting a Charge Out of Batteries

- Instructed by: Paul Norgaard, Cathy Miller, and Chris McDuffie
- Number of Students: 10 total (4 reporting on survey)
- Student Satisfaction Ranking: 4.75 (out of 5)
- Parent Satisfaction Ranking: 4.75 (out of 5)
- Age Range: 4th-6th Grade



How did you hear about G.U.T.S.?

- AU Daily
- University Employee
- Other
- Other E-mail
- No Response



Program: Tests of Engineering Aptitude, Mathematics, and Science (TEAMS) Competition

Date: Friday, February 27, 2009; 12:00 pm- 5:00 pm

Description: Tests provided by the Junior Engineering Technical Society (JETS)

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, George Blanks
- **Non-AU:** n/a

Schools Impacted: Carroll High School, Central Education Center, Columbus High School, Hewitt Trussville High School, Northside High School, Prattville High School, Priceville High School, Grissom High School, Zion Chapel

- **Total Number of Students:** 82
- **Age Range:** 10th – 12th grade

Facilities: AU Student Center Ballroom

Sponsorship: Southern Company (\$1000)



Program: Science Olympiad- Middle School

Date: Saturday, February 28, 2009; 7:30 am- 4 pm

Description: 25th Anniversary Regional Middle School Olympiad

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Dr. Steve Stuckwisch, Erin Edmondson, Sallie Martin, Jesse Daniel, Lara Stubbs, Craig Guyer, Chris Sunderman, Larissa Parsley, Maggie Han, Allen Landers, Cathy McVay, Ashraf Uddin, Brian Helms, Dimitry Glotov, Rik Blumenthal, Ron Lewis, Mike Fogle, JJ Dong, Holly Ellis, Doug Goodwin, Minseo Park, William Maddox, Josh Inwood, Stuart Loch, Virginia Davis, TY Tam, Huajan Huang, Erkan Nane, Yanzaho Cao, Mike Miller
- **Non-AU:** N/A

Schools Impacted: Auburn Junior High, Bagley Junior High, Baldwin Arts and Academic Magnet, Bottenfield Middle, Clanton Middle, Carver Magnet, Drake Middle School, Fultondale High, Girard Middle, Geneva Middle, Marion Academy, McAdory Middle, Opelika Middle, Zora Ellis Junior High

- **Total Number of Students:** approx. 450
- **Age Range:** 5th-8th grade

Facilities: Student Activities Center, Parker Hall, SCL, SCC, Rouse Life Sciences, Petrie Hall, Haley Center



Program: Greater East Alabama Regional Science and Engineering Fair

Date: Thursday, March 12, 2009; 8:00 am - 3:00 pm

Description:

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, George Blanks, Kathy Feminella, Erin Edmondson, Sallie Martin, Jesse Daniel, Lara Stubbs, Major Hesterman- Marine ROTC, Navy ROTC Personnel, Marine ROTC Personnel, Air Force ROTC Personnel
- **Non-AU:** N/A

Schools Impacted: Capitol Heights Junior High School, East Memorial Christian Academy, Eastwood Presbyterian Church School, Eclectic Middle School, Elmore County High School, Glenwood School, Holtville Middle School, Millbrook Middle/ Junior High School, Wetumpka High School, Wetumpka High School, Wetumpka Intermediate School, Wetumpka Junior High School

- **Total Number of Students:** 80
- **Age Range:** 6th-12th grade

Facilities: Student Center Ballroom A&B

Special Awards

- US Air Force
 - James Hendrix
 - Nicholas Christensen
 - Jesse Vahjen
 - Sarah Sumner
- Yale Science & Engineering Association
 - Nicholas Christensen
- Intel Excellence in Computer Science
 - Nicholas Christensen
- National Society of Professional Engineers
 - Nicholas Christensen
- American Psychological Association
 - Christian Gholson
- Ricoh Sustainable Development Award
 - Austin William
- US Metric Association
 - Sarah Sumner
- Association of Women Geoscientists
 - Jessie Hammett
- Mu Alpha Theta
 - Samuel Sumner
- National Oceanic & Atmospheric Association
 - Haviland Harden
- Dauphin Island Sea Lab
 - Austin Williams
 - Laine Kelly
 - Alec Boulware
 - Haviland Harden



ISEF Finalists- to represent the region at ISEF in Reno, NV

- Kelly Lynn, Wetumka High School
 - Gold Dust: An Alternative to Commercial Sunscreens, A Spectrometric & Ultraviolet Light Study Using *Lumbricus terrestris*
- Nicholas Christensen, Wetumpka High School
 - Do You 'Ear What I 'Ear? Lowering Voice Frequencies in Real Time to Revolutionize Hearing Assistance Technology
- Parker Caviness & Todd Thrash, Wetumpka High School
 - A Shocking Twist



Program: Getting Under the Surface (G.U.T.S)

Date: Thursday, March 26, 2009; 6:00 pm - 8:00 pm

Description: Parent/ Child teams act as lab partners in a 75-90 minute science activity.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Sallie Martin, Lara Stubbs, Jesse Daniel,
- **Non-AU:** Gina Watkiss- The Heritage School; Newnan, GA

Schools Impacted: N/A

- **Total Number of Students:** 23
- **Total Number of Parents:** 23
- **Age Range:** 1st-6th Grade

Facilities: Parker Hall 307, SCL 310, SCL 302

Multiplying Microbes

- Instructed by: Erin Edmondson
- Number of Students: 9 total (9 reporting on survey)
- Student Satisfaction Ranking: 4.8 (out of 5)
- Parent Satisfaction Ranking: 4.8 (out of 5)
- Age Range: 4th-6th Grade



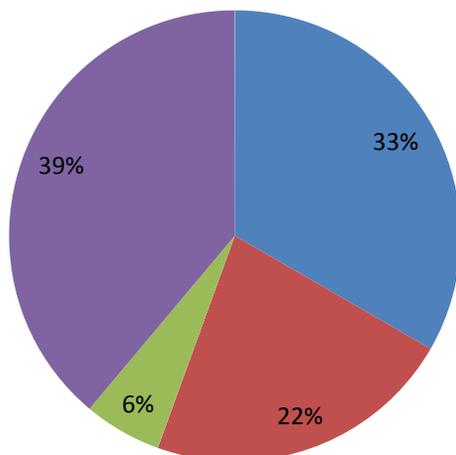
Slimy Science

- Instructed by: Gina Watkiss
- Number of Students: 14 total (9 reporting on survey)
- Student Satisfaction Ranking: 4.5 (out of 5)
- Parent Satisfaction Ranking: 4.7 (out of 5)
- Age Range: 1st -3rd Grade



How did you hear about G.U.T.S.?

- AU Daily
- Other E-mail
- University Employee
- Other



Program: Spring YES

Date: Saturday, April 4th 2009; 8:00am- 12:00 pm

Description: Each child will participate in hands-on, make-and-take activities related to specific fields of science and math in a half-day academy.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Erin Edmondson, Sallie Martin, Jesse Daniel, Laura Stubbs, Emily Newcomb, Jennifer Trusty, Tug Kessler, Evi Paemelaere, Linda Pastorello
- **Non-AU:** n/a
- **Schools Impacted:** n/a
- **Total Number of Students:** 91
- **Age Range:** 3rd-6th Grade

Facilities: Parker Hall

Carnivorous Plants

- **Instructors:** Dr. Jennifer Trusty and Dr. Tug Kessler, AU College of Forestry and Wildlife Sciences
- **Number of Students:**51
 - Course 1-25 students
 - Course 2- 26 students



Earning Your Stripes

- **Instructors:** Evi Paemelaere and Linda Pastorello, Tigers for Tigers
- **Number of Students:**47
 - Course 1- 24 students
 - Course 2- 23 students



Kitchen Chemistry

- **Instructor:** Emily Newcomb, AU College of Education
- **Number of Students:**52
 - Course 1- 26 students
 - Course 2- 26 students

Getting a Jolt Out of Juice

- **Instructors:** Mary Lou Ewald and Erin Edmondson, COSAM Outreach
- **Number of Students:**32
 - Course 1- 16 students
 - Course 2- 16 students

Program: Getting Under the Surface (G.U.T.S)

Date: Tuesday, April 14th 2009; 6:00 pm - 8:00 pm

Description: Parent/ Child teams act as lab partners in a 75-90 minute science activity.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Sallie Martin, Lara Stubbs, Jesse Daniel, Paul Norgaard, Cathy Miller, 5 Alpha Epsilon Delta volunteers
- **Non-AU:** Gina Watkiss- The Heritage School; Newnan, GA

Schools Impacted: N/A

- **Total Number of Students:** 36
- **Total Number of Adults:** 37
- **Age Range:** 1st-6th Grade

Facilities: Parker Hall 307, SCL 310, SCL 302, Parker 112

Buggin' Out

- Instructed by: Sallie Martin
- Number of Students: 11 (8 reporting on survey)
- Student Satisfaction Ranking: 4.75
- Parent Satisfaction Ranking: 4.75
- Age Range: 1st-3rd Grade

Slimy Science

- Instructed by: Gina Watkiss
- Number of Students: 13
- Student Satisfaction Ranking: n/a
- Parent Satisfaction Ranking: n/a
- Age Range: K-3rd Grade

Edible Chemistry

- Instructed by: Paul Norgaard & Cathy Miller
- Number of Students: 12 (5 reporting on survey)
- Student Satisfaction Ranking: 4.8
- Parent Satisfaction Ranking: 5
- Age Range: 4th- 6th Grade



Program: AU Explore

Date: Thursday, April 30, 2009, 8:00 am- 3:00 pm

Description: The College of Sciences and Mathematics science open house

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, George Blanks, Erin Edmondson, Jesse Daniel, Sallie Martin, Lara Stubbs, Dan McDougall, Ed Slaminka, Anne Gorden, Cathy Miller, Craig Guyer, Jennifer Cox, John Gorden, Pam Pearson, Paul Norgaard, Roy Crowe, Thomas Webb, Marlin Simon, Dave Patrick, Matt Jones, Stuart Loch, Wayne Strickland, Kristy Mann, Patrick Barrineau, Mack Martin, Wei Zhan, Wendall Sandlin, Bob Lishak, Mark Liles, Christine Sundermann, Laura Suh, Sang-Jin Suh, Tony Moss, Brian Helms, Molli Newman, Kat Milly West, Patrick Thompson, approx. 50 departmental graduate and undergraduate volunteers
- **Non-AU:** n/a

Schools Impacted: A2Z Homeschool, Bearcreek Christian School, Cary Woods Elementary, Community Fellowship School, Cornerstone Christian Academy, Dark Horse Station, Dixie Elementary, Eagle Ranch, Everest Academy (Birmingham), Everest Academy (Georgiana), Golden Acres Christian School, Golden Flower School, Hall of Literacy, J.F. Drake Middle School, Kean Homeschool, Kirkland Homeschool, Lee-Scott Academy, McGahey Homeschool, Montgomery Academy, Northside Intermediate, Outlook Academy, Phenix City Intermediate, Rainey Homeschool, South Girard School, Stewart Homeschool, The Little French Academy, West Forest Intermediate, Whitehouse Academy, Wooten Homeschool, Wrights Mill Road Elementary, Yarbrough Elementary



- **Total Number of Students:** approx. 1450
- **Age Range:** 5th- 8th grade

Facilities: Parker Hall, SCL, Chemistry Building, Rouse Life Sciences, Saunders Lawn

The EXPO- 9:00 - 12:00 - The EXPO is a series of dozens of interactive displays sponsored by each of the departments that comprise the College of Sciences and Mathematics (COSAM) at Auburn – Math/Statistics, Physics, Biology, Chemistry/Biochemistry, and Geology/Geography. Students are invited to browse the displays at their own pace and be prepared to see, touch, hear, and smell the many wonders of science and math! Don't miss the Live animal displays, featuring snakes, lizards, turtles, spiders, insects, and many more fascinating creatures!



- SCL, Chemistry Building, Saunders Lawn

Science Fun Shops- 8:30 - 2:00- The "Science Fun Shops" are short, hands-on mini-courses focused on a particular topic. The courses typically last about 45 minutes and will have 25-40 participants. These courses will be ticketed courses and pre-registration is required. Tickets for unfilled courses will be available at the Information Tent.

- All About Eyeballs
 - Instructed by: Bob Lishak
 - 1, 45 minute course: capacity 36
- Build a Kaleidoscope
 - Instructed by: Marllin Simon
 - 3, 45 minute courses: capacity 26
- Build a Motor
 - Instructed by: Matt Jones
 - 3, 45 minute courses: capacity 26
- Cartesian Diver
 - Instructed by: Dave Patrick
 - 3, 45 minute courses: capacity 40
- Chemistry of Glass Blowing
 - Instructed by: Wendall Sandlin
 - 2, 45 minute courses: capacity 100
- Davis Arboretum
 - Instructed by: Patrick Thompson
 - 3, 45 minute courses: capacity 30
- Fly Over Alabama
 - Instructed by: Mack Martin and Patrick Barrineau
 - 4, 45 minute courses: capacity 44
- Genes in a Bottle
 - Instructed by: Mark Liles
 - 2, 45 minute courses: capacity 24
- The Great Race
 - Instructed by: Wayne Strickland and Kristy Mann
 - 2, 90 minute courses: capacity 40
- Invisible Chefs
 - Instructed by: Laura and Sang-Jin Suh
 - 1, 45 minute courses: capacity 30
- Medical Technology
 - Instructed by: Kat Milly West
 - 3, 45 minute courses: capacity 60
- Microscopic Wonders
 - Instructed by: Christine Sundermann
 - 2, 45 minute courses: capacity 24
- Palm Pipes
 - Instructed by: Stuart Loch
 - 3, 45 minute courses: capacity 75
- River Creatures
 - Instructed by: Brian Helms and Mollie Newman
 - 3, 45 minute courses: capacity 24
- The Science of Glow
 - Instructed by: Wei Zhan
 - 2, 45 minute courses: capacity 150
- Silly Cilia
 - Instructed by: Tony Moss
 - 3, 45 minute courses: capacity 30

Demo Shows- 9:00 - 1:30

- Wet-n-Wild Science Show- 9:00, 11:00
 - 1 hour sessions, Parker 307 – seating capacity 250
 - Hosted by Auburn University Science in Motion
- Stinky Science Show- 9:00, 10:00
 - 30 minute sessions, Chemistry 151– seating capacity 200
 - Dr. Thomas Webb, Professor Emeritus, Dept. of Chemistry/Biochemistry
- Pyro-Mania Show- 9:30, 11:00
 - 30 minute sessions, Graves Amphitheater – seating capacity approx. 500 (In case of rain, cancelled)
 - Drs. Anne & John Gorden, Dept. of Chemistry/Biochemistry
- Herps- Up Close with Snakes, Lizards, and More!- 10:15
 - 30 minute session, Graves Amphitheater– seating capacity approx. 500 (In case of rain, moved to Chemistry 134)
 - Dr. Craig Guyer, Dept. of Biological Sciences
- Birds of Prey- 11:00, 11:45, 1:00
 - 30 minute sessions, Chemistry 151– seating capacity 200
 - Southeastern Raptor Center



Program: G.U.T.S. Backyard Bash

Date: Saturday, May 2, 2009, 5:30pm- 8:30pm

Description: End of the year celebration for all G.U.T.S. participants which included:

- Burger and hot dog dinner served on Saunders Lawn
- Liquid nitrogen ice cream demonstration
- Dr. Susanne Striegler's 1 hour organic chemistry show

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Susanne Striegler, Erin Edmondson, Jesse Daniel, Sallie Martin, Paul Norgaard, Cathy Miller, Katie Prince
- **Non-AU:** Brandon Mayfield, Lauren Bailey

Schools Impacted: n/a

- **Total Number of Participants:** 140
 - 66 students
 - 74 adults
- **Age Range:** 3-13 years

Facilities: Saunders Lawn, Chemistry Building



Program: BEST National Conference 2009

Date: Wednesday, June 17- Saturday, June 20, 2009

Description: The first annual national conference for BEST Robotics, Inc.

Personnel:

- **AU:** Mary Lou Ewald, George Blanks, Emma Seiler, Kathy Feminella, Erin Edmondson, Emily Newcomb, Katy Prince, Jesse Daniel, Sallie Martin, Lara Stubbs, Stephen Haddock
- **Non-AU:** Workshop presenters and instructors from nation-wide BEST hubs (see attached schedule)

Facilities: Parker Hall, SCL, SCC, The Hotel at Auburn University & Dixon Conference Center

Impact:

- **Attendees:** approx. 180; including middle and high school students, teachers, mentors, heads of industry, and university faculty and staff.
- BEST actively engages over 10,000 students, thousands of industry sponsors and mentors, various school districts and state departments of education, and 19 colleges and universities from across the United States.
- Hubs Represented:

- Alabama BEST**-Auburn, AL
- Bison BEST**-Fargo, ND
- Blazer BEST**-Birmingham, AL
- Brazos BEST**-College Station, TX
- Bulldog BEST**-Starkville, MS
- Capitol BEST**-Austin, TX
- Costal Bend BEST**-Kingsville, TX
- Collin County BEST**-McKinney, TX
- Connecticut BEST**-New Britain, CT
- Cowtown BEST**-Fort Worth, TX

- Crowley's Ridge BEST**-Jonesboro, AR
- Dallas BEST**-Dallas, TX
- Denton County BEST**-Denton, TX
- Emerald Coast BEST**-Pensacola, FL
- Frontier Trails BEST Championship**-Fort Smith, AR
- Galveston BEST**-Galveston, TX
- Georgia BEST**-Marietta, GA
- Golden Lions BEST**-Pine Bluff, AR
- Heartland BEST**-Alva, OK
- Hot Springs BEST**-Hot Springs, AR
- Jubilee BEST**-Mobile, AL
- Kansas BEST**-Wichita, KS
- Little Rock BEST**-Little Rock, AR
- Mid-South BEST**-West Memphis, AR
- Music City BEST**-Nashville, TN
- New Mexico BEST**-Las Cruces, NM
- North Alabama BEST**-Hanceville, AL
- North Houston BEST**-Houston, TX
- North Texas BEST**-Sherman, TX
- Northark BEST**-Harrison, OK
- Philadelphia BEST**-Philadelphia, PA
- River Valley BEST**-Fort Smith, AR
- San Antonio BEST**-San Antonio, TX
- South's BEST Championship**-Auburn, AL
- Space City BEST**-Houston, TX
- Tennessee Valley BEST**-Decatur, AL
- Texas BEST Championship**-Sherman, TX
- West Texas BEST**-Lubbock, TX





Schedule and Details

Wednesday, June 17, 2009 - Pre-Conference Workshops

8:15 – 8:45	Workshop Registration/Check-in – SCA Lobby			
9:00 - 12:00	Starting a BEST Hub <i>(Paul George, Blazer BEST & Nancy Rossland, Bison BEST)</i> SCL 231	New BEST Teachers <i>(Robin Fenton, Jubilee BEST)</i> SCL 310	Intro to SolidWorks <i>(Jeremy Standlee, Technical Training Aids)</i> Parker Hall 126	
12:00 - 1:00	LUNCH BREAK			
1:00 - 4:00	Starting a BEST Hub (cont.) <i>(Paul George, Blazer BEST & Nancy Rossland, Bison BEST)</i> SCL 231	Advanced BEST Teachers <i>(Robin Fenton, Jubilee BEST)</i> SCL 231	Advanced SolidWorks <i>(Bobby Conrad, Technical Training Aids)</i> Parker Hall (TBA)	BRAIN Workshop <i>(Greg Young, Capital BEST; Terry Grimley, San Antonio BEST; Paul Bilke, Brazos BEST)</i> NOTE: Workshop ends at 5:00pm SCC 129
4:00 – 6:00	Conference Registration (AUHCC Pre-function Foyer)			

Thursday, June 18, 2009

7:00 – 5:00	Conference Registration Open (AUHCC Pre-Function Foyer) Continental Breakfast provided			
8:00 – 12:00	BRAIN Workshop (SCC 129)			
8:00 - 11:30	8:00 - 9:00	Cultivating Community Partners for Your BEST Team (R. Fenton) Seminar Room	First Steps to an Engineering Academy (M. Fletcher) Governor's Room	Introduction to Computer Science with BEST (E.T. Hammerand) Ballroom A-Left
	9:15 - 10:15	Care and Feeding of Rechargeable Batteries (S. Marum) ~~~ BEST Return Kit Basics (W. Cutshall & J. Cutshall) Seminar Room	Organizing Large Teams for Successful Student Involvement (L. Matheson) ~~~ Advantages and Disadvantages of a Large Multi-Discipline Technical Center-Based BEST Robotics Team (D. Goodson) Governor's Room	Q&A for 2009 New Hubs and Future New Hubs (G. Blanks) Ballroom A-Left
	10:30 - 11:30	Using Participatory Design Techniques to Analyze the BEST Game (T. Powell) Seminar Room	Fostering an Engineering Culture at Your School (B. Rosenstiel, M. Fletcher, F. Stillwell, J. Rosen) Governor's Room	Connecting with Middle School BEST Teachers (M.L. Ewald & R. Fenton) Ballroom A-Left
11:30 - 1:30	LUNCH (on your own)			
12:30 – 4:30	Hyundai Plant Tour (Assemble at Registration)			
1:30 - 2:30	BRAIN Basics (B. Rosenstiel) Seminar Room	42 Days of BEST (J. Robertson) Governor's Room	The CAD Academy Overview (R. Mickelson) Ballroom A-Left	
2:30 - 3:00	Networking Break (PF)			
3:00 - 4:30	BEST Award Panel Discussion (Moderator: J. Martini) Ballroom A-Left	Advanced BRAIN Diagnostic Techniques using the STEM Board (W. Polanco) Governor's Room		
5:00 – 6:30	Wine and Cheese Reception (followed by dinner on your own) AUHCC Pre-Function Foyer			

Friday, June 19, 2009

7:00 – 5:00	Conference Registration Open (AUHCC Pre-Function Foyer) Continental Breakfast provided			
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8:00 - 11:30	8:00 - 9:00	Managing the BEST Return Kit (J. Cutshall & W. Cutshall) Seminar Room	BEST and Workforce Development: Finding Funding in Your State (G. Blanks) ~~~ Large Companies as Sponsors (G. Ackerman) Ballroom B-Right	Sublimation and the BEST Award (D. Gross) Governor's Room	
	9:15 - 10:15	An Overview of BEST Game Scoring Software (T. Grimley) Seminar Room	Judging Compliance and Resources for Hubs (M.L. Ewald, J. Ackerman, G. Young) Ballroom B-Right	SolidWorks Basics (B. Conrad) Governor's Room	
	10:30 - 11:30	Building a BEST Focused Community (R. Fenton) Seminar Room	The BEST Advantage to Social Media (G. Young) Ballroom B-Right	A Project and Design Oriented Innovative Electrical Engineering Program (M. Varanasi, O. Garcia, T. Fitzmaurice) Gov. Room	Universities: The Gateway to Mentors, In-kind Donations, and Long-Lasting Partnerships (V. Morris, R. Stein) Ballroom B-Left
11:30 - 1:30	Networking Luncheon and Guest Speaker, Dr. Ken Berry (Ballroom A)				
1:45 - 4:30	1:45 - 2:45	Engineering Design Process (M. Conner) Seminar Room	Educational Partnerships and Programs: Cultivating the Engineering Workforce (S. Custer, J. Coleman & M. Teller) Ballroom B-Right	The CAD Academy Overview (R. Mickelson) Governor's Room	
	3:00 - 4:30	Event Management and Compliance (Moderator: T. Grimley) Ballroom B-Right	BRAIN Basics (B. Rosenstiel) Ballroom B-Left	Building Robots with LEGO Mindstorm Kits: Hands-on Session (S. Mitchell) Governor's Room	
3:00 - 4:30	Advisory Council & Board of Directors Meeting (Seminar Room)				
5:00 - 6:00	Reception (PF)				
6:00 - 8:00	Banquet and Guest Speaker, Celeste Baine (Ballroom A)				

Saturday, June 20, 2009

7:00 - 2:00	Conference Registration Open (AUHCC Pre-Function Foyer) Coffee Service Provided
8:30 - 10:00	Plenary Session <i>Insights from BEST Advisory Council members followed by an opportunity for Q & A</i> Ballroom A

10:00 - 10:15	BREAK			
10:15 - 11:45	Break Out Sessions			
	Collaborating on BEST Grants Facilitator: T. Fitzmaurice Ballroom A Right	Teacher Training Initiative Facilitator: R. Fenton Ballroom A Left	BEST as a K-12 Pipeline Program Facilitator: G. Blanks Governor's Room	Building on our uniqueness: Establishing a National K-12 STEM Education Presence for BEST Facilitators: P. George and N. Rosland Ballroom B Right
12:00	Conference concludes for teachers and other non-hub personnel			
12:00 - 2:00	Lunch and Hub Council Meeting Ballroom A			

Conference concludes at 2:00pm

Teachers	Hub Personnel	General Session
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Program: Summer Youth Experiences in Science (Y.E.S.) Cub Camp

Date: Monday, July 6th - Thursday July 9th 2009

Description:

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Erin Edmondson, Jesse Daniel, Sallie Martin, Emily Newcomb, Lara Stubbs, Kat West, Lara Adams, Emily Davis, Katherine Glynn, Shane Lake, Doyeon Lim, Kate Roberts, Morgan Wallis, Brenda Wood
- **Non-AU:** Rebecca Balkcom- Auburn Junior High School; Gina Watkiss- The Heritage School; Brandon Mayfield- Lee Scott Academy

Schools Impacted: N/A

Total Number of Students: 54

- **Age Range:** rising 1st-3rd grade
 - **Turtle Group:** 18 students in 1st and 2nd grade
 - **Butterfly Group:** 18 students in 2nd and 3rd grade
 - **Frog Group:** 18 students in 3rd grade

Facilities: SCL, Parker Hall

Courses

Clue Seekers

- Instructed by: Kat Milly West
- Number of Students: 54 total in 3 courses
- Age Range: 1st – 3rd grade

Mysterious Mixtures

- Instructed by: Rebecca Balkcom
- Number of Students: 54 total in 3 courses
- Age Range: 1st – 3rd grade

Slimy Science

- Instructed by: Gina Watkiss
- Number of Students: 54 total in 3 courses
- Age Range: 1st – 3rd grade



Program: Summer Youth Experiences in Science (Y.E.S.) Tiger Camp

Date: Monday, July 13th- Thursday, July 16th 2009

Description: Each child will participate in hands-on, make-and-take activities related to specific fields of science and math in this 4 day academy.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Erin Edmondson, Jesse Daniel, Sallie Martin, Emily Newcomb, Lara Stubbs, Kat West, Lara Adams, Matthew Baccus, Kate Roberts, Morgan Wallis, Brenda Wood
- **Non-AU:** Rebecca Balkcom- Auburn Junior High School; Gina Watkiss- The Heritage School; Frank Ware- Samford Middle School; Brandon Mayfield- Lee-Scott Academy

Schools Impacted: The Baylor School, Cary Woods Elementary, Dean Road Elementary, Drake Middle School, Lee Scott Academy, Northside Elementary, Ogletree Elementary, Pryor Middle School, Richland Elementary, Village Montessori School, Wright’s Mill Road Elementary, Yarbrough Elementary

- **Total Number of Students:** 67
- **Age Range:** rising 4th-6th grade

Facilities: SCL, Parker Hall

CHAOS

- Instructed by: Gina Watkiss
- Number of Students: 50 (26 surveys)
- Average Student Satisfaction Ranking: 1.88 (out of 3: 1 being the best)
- Age Range: 4th- 6th grade



Forensic Investigators

- Instructed by: Kat Milly West
- Number of Students: 39 Total (21 surveys)
- Average Student Satisfaction Ranking: 1.38 (out of 3: 1 being the best)
- Age Range: 4th-6th Grade



LEGO Mania

- Instructed by: Frank Ware
- Number of Students: 48 Total (22 surveys)
- Average Student Satisfaction Ranking: 1.72 (out of 3: 1 being the best)
- Age Range: 4th-6th Grade

Soda Pop Science

- Instructed by: Rebecca Balkcom
- Number of Students: 62 Total (31 surveys)
- Average Student Satisfaction Ranking: 2.58 (out of 3: 1 being the best)
- Age Range: 4th-6th Grade

Program: Summer Youth Experiences in Science (Y.E.S.) Eagle Camp

Date: Sunday, July 19th - Thursday July 23rd 2009

Description: Each child will participate in hands-on, make-and-take activities related to specific fields of science and math in this 4 day academy. 12 students took advantage of the residential option that included overnight stays in AU dorms and nightly activities.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Erin Edmondson, Jesse Daniel, Sallie Martin, Emily Newcomb, Lara Stubbs, Brian Helms, Virginia Davis, Mollie Newman, Shane Lake, Brenda Wood, Katerine Glynn, Emily Davis, John Kidd, Doyeon Lim
- **Non-AU:** Mike Smith- Auburn Junior High School; Gina Watkiss- The Heritage School; Brandon Mayfield- Lee-Scott Academy

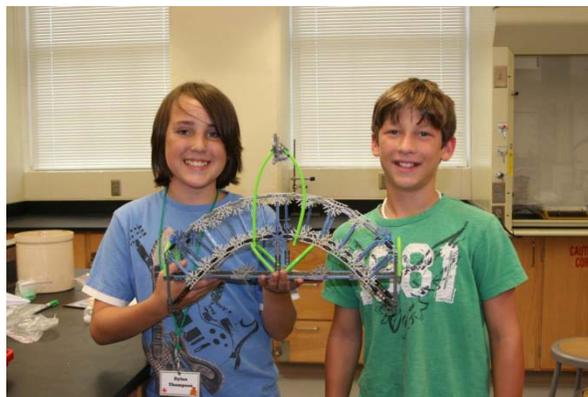
Schools Impacted: Auburn Junior High School, Bragg Middle School, Dauphin Junior High School, Drake Middle School, Greenville Middle School, Lilburn Middle School, Lithonia Middle School, Mint Hill Middle School, Morgan Academy, Northview High School, Opelika Middle School, Sanford Middle School, Smith’s Station High School, Tallassee School System, Woodham Middle School, Zora Ellis Junior High School

- **Total Number of Students:** 41
- **Age Range:** rising 7th-9th grade

Facilities: SCL, Parker Hall

Claymation Science

- Instructed by: Mike Smith
- Number of Students: 23 total (21 reporting on survey)
- Student Satisfaction Ranking: 4.19 (out of 5)
- Age Range: 7th- 9th grade
- New concepts learned (student reported): How to use Movie Maker© software
- New vocabulary learned (student reported): Claymation



Nano-Nonsense

- Instructed by: Virginia Davis
- Number of Students: 16 Total (15 Reporting)
- Student Satisfaction Ranking: 3.86 (out of 5)
- Age Range: 7th-9th Grade
- New concepts learned (student reported): Understanding static electricity and nano and pico measurement
- New vocabulary learned (student reported): Picometer, Particle Accelerator, Carbon Nano Tubes, Electron Microscope



Physics of Toys

- Instructed by: Gina Watkiss
- Number of Students: 24 Total (Reporting)
- Student Satisfaction Ranking: 4.36 (out of 5)
- Age Range: 7th-9th grade
- New concepts learned (student reported): How to make polymers and how to carry out scientific experiments

- New vocabulary learned (student reported): Liquid Crystal, Polymer, Friction, Fusion

River Creatures

- Instructed by: Brian Helms and Molli Newman
- Number of Students: 14 Total (14 Reporting)
- Student Satisfaction Ranking: 4.64 (out of 5)
- Age Range: 7th - 9th grade
- New concepts learned (student reported): Methods of identifying of aquatic organisms and determining turbidity of water samples
- New vocabulary learned (student reported): Hellgrammite, Riparian, Watershed



Program: Getting Under the Surface (G.U.T.S)

Date: Tuesday, September 15, 2009; 6:00 pm - 8:00 pm

Description: Parent/ Child teams act as lab partners in a 75-90 minute science activity.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Lara Stubbs, Jesse Daniel, Paul Norgaard, TJ Nguyen, Ken Halanych, Kevin Fielman, Scott Santos, Sallie Martin
- **Non-AU:** Mark Jones, Erin Edmondson
- **Schools Impacted:** N/A
- **Total Number of Students:** 36
- **Total Number of Parents:** 37
- **Age Range:** K-6th Grade

Facilities: Parker Hall 112 & 307, SCL 231 & 310

Buggin' Out

- Instructor: Sallie Martin
- Number of Students: 5 total (3 reporting on survey)
- Student Satisfaction Ranking: 4.6 (out of 5)
- Parent Satisfaction Ranking: 4.6 (out of 5)
- Age Range: 2nd -3rd Grade



Fossil Frenzy

- Instructor: Mark Jones
- Number of Students: 12 total (7 reporting on survey)
- Student Satisfaction Ranking: 5 (out of 5)
- Parent Satisfaction Ranking: 5 (out of 5)
- Age Range: 1st -3rd Grade

Getting a Charge Out of Batteries

- Instructed by: Paul Norgaard
- Number of Students: 7 total (3 reporting on survey)
- Student Satisfaction Ranking: 4.6 (out of 5)
- Parent Satisfaction Ranking: 5 (out of 5)
- Age Range: 4th-6th Grade

The G.U.T.S of the Deep Sea- Part 1

- Instructors: Dr. Ken Halanych, Dr. Kevin Fielman, Dr. Scott Santos, and Erin Edmondson
- Number of Students: 12 total (8 reporting on survey)
- Student Satisfaction Ranking: 4.75 (out of 5)
- Parent Satisfaction Ranking: 4.56 (out of 5)
- Age Range: 4th-6th Grade



Program: War Eagle BEST

Date: Saturday, August 29, 2009- Kick Off
Sunday, September 27, 2009- Mall Day
Thursday, October 8- Saturday October 10, 2009- Judging and Gameday

Description: A middle and high school robotics competition, open to teams in the East Alabama region.

Personnel:

- **Co-Directors-** Dr. George Blanks and Mary Lou Ewald
- **Awards & Judging/Schools Coordination-** Mary Lou Ewald, Emma Seiler, Jesse Daniel
- **Coordination Assistants-** Katy Prince, TJ Nguyen
- **General Coordination-** George Blanks
- **Floor Boss-** Sid Stubbs (Huntingdon College)
- **Head Judge-** Peter Jones
- **Head Referee-** Zach Lamb
- **Hospitality (Food and Facilities)-** Kathy Feminella
- **Media/Communication-** Tim Meeks, Cheryl Cobb
- **Pit Boss-** Joey Giuliano (Honda Manufacturing of Alabama)
- **Pit Crew (student organization members)-** Cupola Engineering Society, Alpha Epsilon Delta, Tau Beta Pi, Society of Women Engineers
- **Registration-** Kathy Feminella, Lara Stubbs
- **Scoring-** Stephen Haddock, Brian McMeen
- **Signage/Graphics-** Aileen Broaddus, Wally Ridgway
- **Staging-** Paul Norgaard, Roger Birkhead
- **Technical Crew (The "A" Team)-** Michael Carroll, Stephen Haddock, William Woodall, Zach Lamb, Alabama Power Employees: Beth Suttle, Brian Mitchell, Clint Foster, James White, John Cook, Kevin Wiley, Mike McCraney, T.J. Pruitt
- **Volunteers-** Jesse Daniel
- **Webmaster-** Tyler Patterson



Schools Impacted: Auburn High School, Benjamin Russell High School, Beulah High School, Beverlye Magnet School, Brewbaker Technology Magnet High School, Chambers County Career Technology Center, Dothan Technology Center, East Memorial Christian Academy, Eastwood Schools, Episcopal Day School, First Baptist Opelika Christian, Holtville High School, LAMP High School, Lee-Scott High School, Loachapoka High School, Millbrook Middle Jr. High School, Northside High School, Opelika High School, Opelika Middle School, Randolph County Schools, Southside Middle School, Stanhope Elmore High School, Wetumpka High School, Zion Chapel School

- **Total Number of Students:** approx. 600
- **Age Range:** K-12th grade

Facilities: AU Student Center Ballroom, Ross Hall Conference Rooms, Student Activities Center, Auburn/ Opelika Colonial University Mall

2009 Game Description

- **Goal:** Create a robot that is able to produce hydrocarbon fuels by collecting the following constituent game pieces:
 - **Water**- represented by a blue raquet ball
 - **Catalyst**-represented by a yellow tennis ball
 - **Energy**-represented by a small metal can
 - **Carbon Dioxide**- represented by a small beach ball

2009 Game Winners

BEST Award

- 1st: Wetumpka H.S. – 25
- 2nd: Episcopal Day School – 11
- 3rd: Stanhope Elmore H.S. - 24

Best Oral Presentation Award

- 1st: Episcopal Day School - 11
- 2nd: Eastwood Schools - 10
- 3rd: Lee Scott Academy - 15

Best Table Display and Interview Award

- 1st: Wetumpka H.S. - 25
- 2nd: Eastwood Schools - 10
- 3rd: Stanhope Elmore H.S. - 24

Best Project Engineering Notebook Award

- 1st: Brewbaker Technology Magnet H.S. - 5
- 2nd: Wetumpka H.S. - 25
- 3rd: Eastwood Schools - 10

Best Spirit and Sportsmanship Award

- 1st: Wetumpka H.S. - 25
- 2nd: Loachapoka H.S. - 16
- 3rd: Stanhope Elmore H.S. - 24

Founders Award for Creative Design: (given in honor of the two founders of BEST, Steve Marum and Ted Mahler)

- 1st: Stanhope Elmore H.S. - 24
- 2nd: Lee Scott Academy - 15
- 3rd: Chambers Co. Career Technology Center - 7

Most Elegant Robot: (the machine that makes you say “Wow”!)

- 1st: Stanhope Elmore H.S. - 24
- 2nd: Episcopal Day School - 11
- 3rd: Southside Middle School - 23

Most Robust Robot: (needed the least amount of repairs)

- 1st: Lee Scott Academy - 15
- 2nd: Millbrook Jr. High School - 17
- 3rd: Stanhope Elmore H.S. - 24

Most Photogenic Robot: (the beauty contest)

- 1st: Chambers Co. Career Technology Center - 7
- 2nd: Millbrook Jr. High School - 17
- 3rd: Benjamin Russell High School - 2



SPONSOR'S CHOICE AWARDS: The Alabama Power Teacher Leadership Award- As the primary sponsor of War Eagle BEST program, Alabama Power will present this award to the teacher that has consistently shown leadership, teamwork, respect for humanity and continuous improvement, and has truly boosted engineering, science and technology education with their students.

- Mr. Steve Ballard – Brewbaker Technology Magnet High School

The 2009 War Eagle BEST Mentor Award

- Mr. Bob Bryan – Wetumpka High School

Best Web Page Design

- 1st: Episcopal Day School – 11
- 2nd: Wetumpka H.S. - 25
- 3rd: Brewbaker Technology Magnet H.S. - 3

Best T-shirt design

- 1st: Chambers Co. Career Technology Center – 7
- 2nd: Stanhope Elmore High School - 24
- 3rd: Beverlye Magnet School - 4

igus Top Gun Award

- Lee Scott Academy - 15

Solid Works CAD Design Award

- Eastwood Schools - 10

Table Display Design and Construction Award

- Stanhope Elmore High School - 24

Blood, Sweat, and Duct Tape Award

- Beulah H.S. - 3

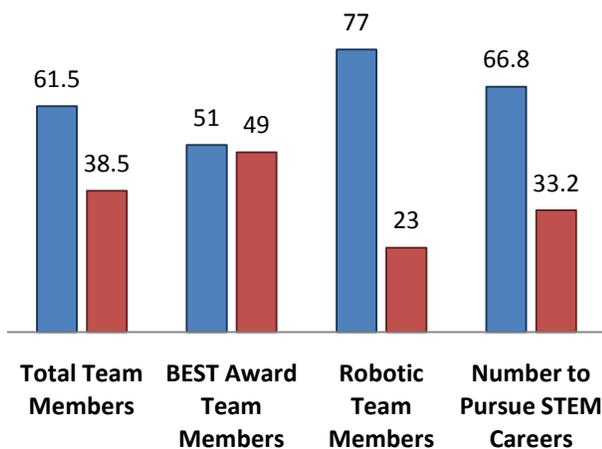


Team Demographics

Participant Breakdown

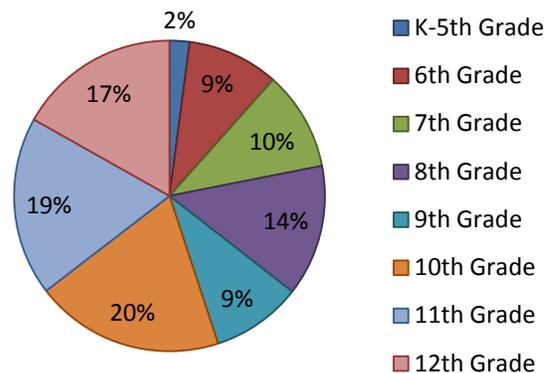
Gender

■ % Male ■ % Female



Participant Breakdown

Grade



Program: Tennessee Valley BEST

Date: October 23rd and 24th, 2009

Description: A middle and high school robotics competition, open to teams in the North Alabama/Tennessee Valley region.

Personnel:

- **Co-Directors-** Sue Mitchell, Dr. George Blanks, and Mary Lou Ewald
- **Head Judges-** LaRonda Conley- Missile Defense Agency, Lanny Upton- NASA, and Allen Wooten- Dynetics
- **Head Referee-** Ed Green- Hexcel
- **Hospitality-** Lynn Lamb- FPC of Huntsville
- **Photographer-** Don Morgan- MITRE
- **Pit Boss-** Joey Giuliano (Honda Manufacturing of Alabama)
- **Playing Field-** Rob Ball- KBR Construction, Leslie Edwards- KBR Construction, Kirt Mitchell, Stephen Mitchell
- **Scoring-** Stephen Haddock- AU, Courtney Spivey- ADT-IT, William Gephart- Radiance Technology
- **Technical Crew (The "A" Team)-** Willie Fitzpatrick- U.S. Army, Bob Robinson- Boeing, Eric Grigorian- ADT-IT, Frank Parris- MSFC/ NASA, Jim Covington- SAIC, Joshua Eliser- UAH, Keith Jadus- U.S. Army, Rene Robinson- Jones Valley Elementary, Theresa Covington, Wayne Kendrick- Digital Fusion, William Woodall- AU, Zach Lamb- AU



Schools Impacted: Academy for the Arts and Sciences, Athens Bible School, Athens Middle School, Bob Jones High School, Buckhorn High School, Covenant Christian Academy/ Excalibur Christian School, Decatur Austin Robotic Coalition, Faith Christian Academy, Huntsville Middle School, Life Christian Academy, Madison Academy, Oak Park Middle School, Priceville High School, Redstone Robotics, Riverside Christian Academy, Russellville Middle School, Sparkman High School, Sparkman Middle School, Virgil I. Grissom High School

- **Total Number of Students:** approx. 600
- **Age Range:** K-12th grade

Facilities: Noble Russell Building and Kelley Gym- Calhoun Community College

2009 Game Description

- **Goal:** Create a robot that is able to produce hydrocarbon fuels by collecting the following constituent game pieces:
 - **Water-** represented by a blue raquet ball
 - **Catalyst-** represented by a yellow tennis ball
 - **Energy-** represented by a small metal can
 - **Carbon Dioxide-** represented by a small beach ball

2009 Game Winners

BEST Award

- 1st: Decatur Austin Robotics Coalition- 217
- 2nd: Priceville High School- 224
- 3rd: Redstone Robotics- 225

Robotics

- 1st: Life Christian Academy - 221
- 2nd:Riverside Christian Academy - 226
- 3rd:Decatur Austin Robotics Coalition – 217

Table Displays

- 1st: Priceville High School - 224
- 2nd:Redstone Robotics - 225
- 3rd:Decatur Austin Robotics Coalition – 217

Spirit and Sportsmanship

- 1st: Decatur Austin Robotics Coalition – 217
- 2nd: Redstone Robotics - 225
- 3rd:Fatih Christian Academy - 218

Oral Presentations

- 1st: Decatur Austin Robotics Coalition – 217
- 2nd: Priceville High School - 224
- 3rd: Redstone Robotics - 225

Engineering Notebooks

- 1st: Priceville High School - 224
- 2nd: Athens Bible School - 212
- 3rd: Decatur Austin Robotics Coalition – 217

Program: Getting Under the Surface (G.U.T.S)

Date: Tuesday, October 27 2009; 6:00 pm - 8:00 pm

Description: Parent/ Child teams act as lab partners in a 75-90 minute science activity.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Lara Stubbs, Jesse Daniel, Ken Halanych, Kevin Fielman, Scott Santos
- **Non-AU:** Erin Edmondson, Gina Watkiss, Mark Jones, Rebecca Balkcom

Schools Impacted: N/A

- **Total Number of Students:** 50
- **Total Number of Parents:** 50
- **Age Range:** K-8th Grade

Facilities: Parker Hall 305 & 104, SCL 231, 310, &232

The GUTS of the Deep Sea: Part II

- Instructors: Dr. Ken Halanych, Dr. Kevin Fielman, Dr. Scott Santos, Erin Edmondson
- Number of Students: 10 total (6 reporting on survey)
- Student Satisfaction Ranking: 4.6 (out of 5)
- Parent Satisfaction Ranking: 4.6 (out of 5)
- Age Range: 4th-6th Grade



The GUTS of Halloween

- Instructor: Gina Watkiss
- Number of Students: 13 total (7 reporting on survey)
- Student Satisfaction Ranking: 4.7 (out of 5)
- Parent Satisfaction Ranking: 4.7 (out of 5)
- Age Range: 4th-6th Grade



The Blood of Life

- Instructor: Dr. Mark Jones
- Number of Students: 5 total (5 reporting on survey)
- Student Satisfaction Ranking: 4.6 (out of 5)
- Parent Satisfaction Ranking: 4.6 (out of 5)
- Age Range: 6th-8th Grade

Mystifying Mixtures

- Instructor: Rebecca Balkcom
- Number of Students: 22 total (5 reporting on survey)
- Student Satisfaction Ranking: 4.6 (out of 5)
- Parent Satisfaction Ranking: 4.4 (out of 5)
- Age Range: K-3rd Grade



Program: Daughters and Mothers Exploring Science (DAMES)

Date: Saturday, November 14, 2009; 8:00 am- 2:00 pm

Description: A series of hands on mini courses in science and math followed by a luncheon and keynote speakers. Sponsored by the Society of Women in Science & Math

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Sallie Martin, Lara Stubbs, Katy Prince, Beth Hickman, Jessica Williams, Lesley de Souza, AWIS
- **Non-AU:** Erin Edmondson- Drake Middle School, Dr. Patricia Wade, MD- East Alabama Internal Medicine
- **Schools Impacted:** N/A
- **Total Number of Students:** 24
- **Total Number of Parents:** 22
- **Age Range:** 5th - 8th grade

Facilities: SCL 102, 105, & 310; SCC 115; Student Center Ballroom

Overall Student Satisfaction Ranking: 4.75

Overall Parent Satisfaction Ranking: 4.7

Good Value for Cost: 100% Yes
(\$10 per student, adults free)



Buggin' Out- 9:50 am

- Instructor: Sallie Martin
- Number of Participants: 14

DNA Jewelry- 8:50 am & 11:00 am

- Instructor: Erin Edmondson
- Number of Participants: 30

Explore the Amazon Basin- 11:00 am

- Instructors: Lesley de Souza
- Number of Participants: 30

Glamour Girl Chemistry- 8:50 am & 9:50 am

- Instucted by: AWIS
- Number of Participants: 40



Shrinky Dinkin'- 8:50 am & 9:50 am

- Instucted by: Beth Hickman
- Number of Participants: 32



Program: Getting Under the Surface (G.U.T.S)

Date: Tuesday, November 17, 2009; 6:00 pm - 8:00 pm

Description: Parent/ Child teams act as lab partners in a 75-90 minute science activity.

Personnel:

- **AU:** Emma Seiler, Kathy Feminella, Jesse Daniel, Lara Stubbs, Katy Prince, TJ Nguyen, Paul Norgaard, Matt Obley, Linda Pastorello, Evi Paemelaere
- **Non-AU:** Mark Jones- Auburn High School, Erin Edmondson- Drake Middle School

Schools Impacted: N/A

- **Total Number of Students:** 41
- **Total Number of Parents:** 41
- **Age Range:** 1st-6th Grade

Facilities: Parker Hall 305,120, &122, SCL 310 & 231

Edible Science

- Instructed by: Paul Norgaard and Matt Obley
- Number of Students: 13 total (10 reporting on survey)
- Student Satisfaction Ranking: 4.9 (out of 5)
- Parent Satisfaction Ranking: 5 (out of 5)
- Age Range: 1st-3rd Grade

The G.U.T.S. of DNA

- Instructed by: Erin Edmondson
- Number of Students: 11 total (10 reporting on survey)
- Student Satisfaction Ranking: 4.9 (out of 5)
- Parent Satisfaction Ranking: 4.8 (out of 5)
- Age Range: 4th-6th Grade

Microscopic Wonders

- Instructed by: Mark Jones
- Number of Students: 6 total (4 reporting on survey)
- Student Satisfaction Ranking: 5 (out of 5)
- Parent Satisfaction Ranking: 5 (out of 5)
- Age Range: 4th-6th Grade

Tiggers for Tigers

- Instructed by: Linda Pastorello and Evi Paemelaere
- Number of Students: 11 total (3 reporting on survey)
- Student Satisfaction Ranking: 5 (out of 5)
- Parent Satisfaction Ranking: 5 (out of 5)
- Age Range: 1st -3rd Grade



Program: The South's BEST

Date: December 11-12, 2009

Description: A middle and high school robotics competition open to winning teams from other hubs in the region.

Personnel:

- **Co-Directors-** Dr. George Blanks and Mary Lou Ewald
- **Awards & Judging/Schools Coordination-** Mary Lou Ewald, Jesse Daniel
- **Coordination Assistants-** Katy Prince, TJ Nguyen
- **General Coordination-** George Blanks
- **Floor Boss-** Sid Stubbs (Huntingdon College)
- **Head Judge-** Peter Jones
- **Head Referee-** Zach Lamb
- **Hospitality (Food and Facilities)-** Kathy Feminella
- **Media/Communication-** Tim Meeks, Cheryl Cobb
- **Pit Boss-** Joey Giuliano (Honda Manufacturing of Alabama)
- **Pit Crew (student organization members)-** Cupola Engineering Society, Alpha Epsilon Delta, Tau Beta Pi, Society of Women Engineers
- **Registration/Sales-** Emma Seiler, Lara Stubbs, Sallie Martin
- **Scoring-** Stephen Haddock, Brian McMeen
- **Signage/Graphics-** Aileen Broaddus, Wally Ridgway
- **Staging-** Paul Norgaard, Roger Birkhead, Matt Obley
- **Technical Crew (The "A" Team)-** Michael Carroll, Stephen Haddock, William Woodall, Zach Lamb, Alabama Power Employees: Beth Suttle, Brian Mitchell, Clint Foster, James White, John Cook, Kevin Wiley, Mike McCraney, T.J. Pruitt
- **Volunteers-** Jesse Daniel
- **Webmaster-** Tyler Patterson
- **Women's Luncheon** – Bonnie Wilson, Speaker – Kathy Black, SABIC Innovative Plastics

Special Guest Speaker: Alabama Governor Bob Riley

Schools Impacted: Auburn H.S., Episcopal Day School, Lee-Scott Academy, Southside M.S., Stanhope Elmore H.S., Wetumpka H.S., Briarwood Christian H.S., Hewitt-Trussville H.S., Homewood H.S., Oak Mtn. H.S., Shades Valley Technical Academies, Spain Park H.S., Starkville Christian Home Educators, Oak Grove H.S., Lausanne Collegiate School, Athens Christian School, Wheeler H.S., North Cobb Christian School, Georgia Robotics Alliance, West Forsyth H.S., Kennesaw Mtn. H.S., Manteno H.S., McFadden School of Excellence, Merrol Hyde Magnet School, Mt. Juliet M.S., New Britain H.S., Glastonbury H.S., William H. Hall H.S., Roosevelt M.S. STEM Academy, Northeast H.S., Swenson Arts & Technology H.S., CCA Baldi M.S., Murrell Dobbins CTE, Central H.S., Bergen Arts & Science Charter School, Green Power, Decatur Austin Robotic Coalition, Life Christian Academy, Priceville H.S., Redstone Robotics, McGill-Toolen Catholic H.S., W.P. Davidson H.S., Praise Christian School, Spanish Fort H.S., St. Paul's Episcopal School, St. Vincent de Paul Catholic School, Avalon M.S., Woodham M.S., Milton H.S. Pace H.S., Woodlawn Beach M.S., Seaside Neighborhood School, Arab H.S., Marshall Technical School, Hartselle J.H.S.

Total Number of Students: approx. 2500

- **Age Range:** K-12th grade

Facilities: AU Student Center, Ross Hall Conference Rooms, Beard-Eaves Memorial Coliseum

2009 Game Description

- **Goal:** Create a robot that is able to produce hydrocarbon fuels by collecting the following constituent game pieces:
 - **Water-** represented by a blue raquet ball
 - **Catalyst-**represented by a yellow tennis ball
 - **Energy-**represented by a small metal can
 - **Carbon Dioxide-** represented by a small beach ball

2009 Championship Winners

BEST Award

- 1st: Wetumpka H.S. – War Eagle
- 2nd: W.P. Davidson H.S. - Jubilee
- 3rd: Wheeler H.S. - Georgia

Game Winners

- 1st: McFadden School of Excellence – Music City
- 2nd: Milton H.S. – Music City
- 3rd: Decatur Austin Robotic Coalition – TN Valley
- 4th: Life Christian Academy – TN Valley

Best Oral Presentation Award

- 1st: Wetumpka H.S. – War Eagle
- 2nd: W.P. Davidson H.S. - Jubilee
- 3rd: Lee Scott Academy – War Eagle

Best Table Display and Interview Award

- 1st: W.P. Davidson H.S. - Jubilee
- 2nd: Wetumpka H.S. – War Eagle
- 3rd: Merrol Hyde Magnet School – Music City

Best Project Engineering Notebook Award

- 1st: Wheeler H.S. - Georgia
- 2nd: W.P. Davidson H.S. - Jubilee
- 3rd: Episcopal Day School – War Eagle
- 3rd: Priceville High School – TN Valley

Best Spirit and Sportsmanship Award

- 1st: Wheeler H.S. - Georgia
- 2nd: Wetumpka H.S. – War Eagle
- 3rd: West Forsyth H.S. – Georgia

Founders Award for Creative Design: (given in honor of the two founders of BEST, Steve Marum and Ted Mahler)

- 1st: Stanhope Elmore H.S. – War Eagle
- 2nd: Avalon Middle School – Emerald Coast
- 3rd: McFadden School of Excellence – Music City

Most Elegant Robot: (the machine that makes you say “Wow”!)

- 1st: Life Christian Academy – TN Valley
- 2nd: Merrol Hyde Magnet School – Music City
- 3rd: St. Vincent de Paul Catholic School - Jubilee

Most Robust Robot: (needed the least amount of repairs)

- 1st: St. Vincent de Paul Catholic School - Jubilee
- 2nd: Milton High School – Emerald Coast
- 3rd: W.P. Davidson H.S. - Jubilee



Most Photogenic Robot: (the beauty contest)

- 1st: McFadden School of Excellence – Music City
- 2nd: Merrol Hyde Magnet School – Music City
- 3rd: Woodlawn Beach Middle School – Emerald Coast

Best Web Page Design

- 1st: W.P. Davidson H.S. - Jubilee
- 2nd: Decatur Austin Robotic Coalition – TN Valley
- 3rd: Oak Mtn H.S. - Blazer

Best T-shirt design

- 1st: St. Vincent de Paul Catholic School - Jubilee
- 2nd: Redstone Robotics – TN Valley
- 3rd: Mt. Juliet M.S. – Music City

igus Top Gun Award

- McFadden School of Excellence – Music City

Solid Works CAD Design Award

- 1st: W.P. Davidson H.S. – Jubilee
- 2nd: Praise Christian School – Jubilee
- 3rd: Wetumpka H.S. – War Eagle

Table Display Design and Construction Award

- 1st:Shades Valley Technical Academies – Blazer
- 2nd: Stanhope Elmore H.S. – War Eagle
- 3rd: W.P. Davidson H.S. - Jubilee

Middle School BEST Award

- Mt. Juliet Middle School – Music City

Middle School Robotics Award

- McFadden School of Excellence – Music City

Southern Company “Southern Style” Award – determined by ballot and through consultation with Southern Co. employees who were present. Awarded to the team who exhibits the qualities of the Southern Company – honesty, respect, fairness, integrity, safety, teamwork, and diversity.

- Wetumpka High School – War Eagle





AUBURN UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

March/ April 2009

Volume 1, Issue 1

E=mc²

Engaging More Community Connections

A Science and Math Outreach Newsletter

Upcoming Events & Programs for Parents

Spring Y.E.S. 2009

Spring Youth Experiences in Science (Y.E.S.) is a Saturday science camp offered free to 100-200 students in grades 3-6. Students have the opportunity to explore hands-on, minds-on activities in mini-courses like Astronomy, Kitchen Chemistry, Geometry of Puzzles and Games, and Carnivorous Plants.

This year's program is slated for **Saturday, April 4th** from 9:00am -12:00pm, with sign-in beginning at 8:00am. To register for the camp, participants must submit a registration form to the COSAM Outreach office before March 13th. During the week of March 23rd, participants will be notified of ac-

ceptance and will receive specific information on the courses offered. Registration for camp course assignments will begin at 8:30 on the morning of April 4th.

Courses will include:

Earning Your Stripes

-Tigers for Tigers

Kitchen Chemistry

-Emily Newcomb, Master's student in the College of Education

Soda Pop Science

-Miss Gina Watkiss, Heritage School of Newnan, GA

Carnivorous Plants

-Dr. Jen Trusty and Dr. Tug Kessler, Forestry and Wildlife Sciences.

Registration forms and further information can be found at www.auburn.edu/cosam/outreach.



Students participate in hands-on, minds-on activities at Spring Y.E.S.

Getting Under the Surface- G.U.T.S.

G.U.T.S. is a great way for parents and their kids to learn something new about the world together. Parents and children team up as lab partners to "get under the surface" of the everyday objects. The evening begins at 6:00 pm with a quick dessert and introduction followed by a 1.5 hour science activity. Activity topics range from demystifying DNA to tangling with toasters. This semester, sessions will be held on March 26, April 14, and May 2 (Grand Finale).

Summer Y.E.S. 2009

Updated course information, schedules, and registration can be found by following the Summer YES link at www.auburn.edu/cosam/outreach.

Inside this Issue

Spring YES 2009	1
AU Explore	1
G.U.T.S	1
Experiment of the Month	2
So far this Semester...	2

Schedule of Events

- **March 12-** Greater Eastern Alabama Regional Science and Engineering Fair (GEARSEF)
- **March 26-** Getting Under the Surface (G.U.T.S.)
- **March 28-** Elementary Science Olympiad
- **April 4-** Spring Y.E.S.
- **April 14-** G.U.T.S.
- **April 30-** AU Explore
- **May 2-** G.U.T.S. Finale

For Teachers:

AU Explore



AU Explore is the COSAM Open House Day. Approximately 1500 5th- 8th grade students from all over Alabama are invited to Auburn's campus on April 30th to participate.

Students will have the opportunity to experience live birds of prey, reptiles, and insects up close, as well as interact with University faculty and students at the Science 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 the lovable Aubie while here on AU's campus.

Registration forms can be downloaded at www.auexplore.auburn.edu. E-mail, fax, or mail the completed form to the Outreach office to receive further information.



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Experiment of the month: Density Lava Lamp

What 's It About...

This experiment is perfect for 3rd-5th grade students. The main idea for kids in this experiment is density. Particularly the idea that things with a higher density than a surrounding liquid will sink and things with a lower density than a surrounding liquid will float.

Materials

- Alka-Seltzer tablets
- Vegetable Oil
- Water
- Tall clear plastic container (1 or 2 liter bottle)
- Food Coloring (neon works well!)

Procedure

1. **Fill the bottle 2/3 full with oil.**
2. **Add 4-5 drops of food coloring to the top of the oil.**
3. **Fill the rest of the bottle with water (but not to the brim!)**
4. **Add 1 Alka-Seltzer tablet to the bottle and observe what happens!**



Students get a visit from Aubie at the Math-a-thon awards ceremony.

The Chemistry Behind It...

Initially, the oil will float on the colored water because it is less dense. Oil and water don't mix because the molecules are not attracted.

When the Alka-Seltzer is dropped in, it sinks to the bottom because it is more dense than both the oil and water. Once it reaches the water layer, the chemicals inside react with the water to produce carbon dioxide gas. As the gas increases, the combination of water and gas becomes less dense than the surrounding water and oil causing it to float to the top. As the bubble reaches the surface, the carbon dioxide escapes and the water returns to its normal density, thus descending back through the oil and into the water.

So far this Semester...

Math-a-thon

130 students from 8 different high schools across Alabama descended upon Auburn's campus on January 24th to take part in the annual Math Tournament sponsored by COSAM. Students took part in individual tests, ciphering, and group tests as well as the ever popular Aubie Bowl. The overall winners for each division were Grissom High School (1st place, Division I), Vestavia Hills High School (2nd place, Division I), Hoover High School (3rd place, Division I), and Hanceville High School (1st place, Division II).

Eagle Ranch

The COSAM Outreach staff traveled to the Eagle Ranch Children's Home north of Atlanta, GA on Saturday,

February 7, 2009. Around 40 resident's of the home took part in a mini-camp similar to camps offered on Auburn's campus. Courses were taught by exceptional COSAM students and included: Genes in a Bottle, instructed by Erin Edmondson; Lemon Battery, instructed by Emily Newcomb; and Water Bugs, instructed by Jesse Daniel.

G.U.T.S.

February 19th's Getting Under the Surface served 21 student parent teams. A dessert was followed by two courses taught by the Science in Motion Specialists and our very own Sallie Martin. Course content included building a battery to take home and DNA extraction from strawberries.

Middle School Science Olympiad

Despite battling extreme weather conditions including early morning torrential rain and tornado warnings, the 2009 Middle School Science Olympiad was considered a great success. 27 teams of approximately 15 students each participated in the 25th anniversary Olympiad on February 28th. University faculty and students administered 23 events for the competition that covered topics ranging from Anatomy to Robo-Cross and everything in between. Teams from Auburn Jr. High School, Drake Middle School, and Carver Magnet School will be advancing to the state finals in Montgomery, AL.



A student participates in the Lemon Battery course at Eagle's Ranch Children's Home.

COSAM Outreach

315 Roosevelt Concourse
131 Science Center Classrooms

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Fax: 334-844-5740

E-mail: cosam_outreach@auburn.edu

Keep up to date with programs and information by visiting:

www.auburn.edu/cosam/outreach



AUBURN UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

May/ June 2009

Volume 1, Issue 2

E=mc²

Engaging More Community Connections

A Science and Math Outreach Newsletter

Inside this Issue

Upcoming Events for Parents	1
Upcoming Events for Teachers	2-3
Experiment of the Month	3
So far this Semester...	4

Schedule of Events

- **April 30-** AU Explore
- **May 2-** G.U.T.S. Backyard Science Bash
- **June 17- 20-** BEST National Conference
- **July 6-9-** Summer Y.E.S. Cub Camp
- **July 13-16-** Summer Y.E.S. Tiger Camp
- **July 20-23-** Summer Y.E.S. Eagle Camp
- AP Summer Institute

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

www.auburn.edu/cosam/outreach



Upcoming Events & Programs for Parents:

Backyard Science Bash

In the fall of 2007, the College of Sciences and Mathematics embarked on a mission to promote scientific literacy throughout our community. The result... Getting Under The Surface (GUTS), a parent-child team approach to science education in which kids and their parents join together to participate in engaging, hands-on science courses taught at night throughout the school-year. Beginning with just fifteen parent/child pairs on September 4, 2007 in two short years the GUTS science program has impacted over 250 people in the community. In celebration of the huge success of the GUTS science program, we are hosting our first annual Backyard Science Bash on Saturday, May 2, 2009.



The bash, which will begin at 5:30pm, will open with a grilled hamburger and hotdog dinner, followed by a delicious science-inspired dessert, and a special presentation of the cRaZy ChEmIsTrY Show. The show which will be performed by organic chemist, Dr. Susanne Striegler, will be sure to delight all! For registration and further information please visit www.auburn.edu/cosam/outreach.

Summer Y.E.S. Camps 2009

Summer YES (Youth Experiences in Science), now in its 9th year, is expanding! For the first time ever, summer camps will be offered both to elementary and middle school aged kids (rising 1st-9th graders). Summer YES Camps provide kids the opportunity to experience science through hands-on courses in a relaxed, enjoyable environment on the Auburn University campus. Camps are designed for kids who have high interest or aptitude in science, math, or technology-related subjects and feature courses such as Slimy Science, Forensic Investigators, LEGO Mania, Claymation Science, and much more!

- **Cub Camp** (rising 1st-3rd graders): July 6-9, 2009, 8:30am-3:00pm (extended childcare services available until 5:00pm)
- **Tiger Camp** (rising 4th-6th graders): July 13-16, 2009, 8:30am-3:00pm (extended childcare services available until 5:00pm)
- **Eagle Camp** (rising 7th-9th graders): July 20-23, 8:30am-4:45pm (residential stay begins on Sunday, July 19 2009 and 24-hour supervision is provided)

For more information about Summer YES including course descriptions and registration materials visit our website at www.auburn.edu/cosam/outreach or contact us at COSAM_Outreach@auburn.edu.

Upcoming Events & Programs for Teachers:

BEST Robotics National Conference



From its humble beginnings in 1993, BEST has now grown across the nation and is the second largest educational robotics program in the United States. BEST actively engages over 10,000 students, thousands of industry sponsors and mentors, various school districts and state departments of education, and 19 colleges and universities. Hub representatives from all 32 BEST competition sites around the country will be present at the conference. Don't miss this opportunity to share your expertise or learn from the experts.

Conference Highlights

- *Hands-on workshops on SolidWorks, our BRAIN control system, mastering the Returnables Kit, and more...*
- *Pre-conference workshops*
- *BEST practices in the classroom*
- *Engineering/Pre-engineering/Technology education curricula*
- *Nationally recognized speakers*
- *Exhibitors and vendors with a focus on STEM education*
- *Networking Luncheon*
- *How to succeed in the BEST Award division*

- *Poster session and panel discussions*
- *Plenary session with the BEST Advisory Board*
And much, much more....

Conference Schedule:

Wednesday, June 17th

- Pre-Conference Workshops

Thursday June 18th

- 8:00 am - 11:15 am General Sessions
- 11:30 am - 1:15 pm Networking Luncheon
- 1:30 pm - 5:00 pm General Sessions
- 5:00 pm - 7:00 pm Exhibitors Wine & Cheese Social and Poster Session

Friday June 19th

- 8:00 am - 11:30 am General Sessions
- 2:00 pm - 5:00 pm General Sessions
- 5:30 pm Reception and Conference Banquet

Saturday June 20th

- 9:00 am - 10:30 am Plenary Session
- 10:30 am - 11:00 am Break
- 11:00 am - 12:00 pm Teacher Forum/ Hub Council Meeting
- 12:00 pm General Conference Concludes
- 12:00 pm - 2:00 pm Hub Council Lunch and Break Out Sessions
- 2:00 pm Conference Concludes

Additional information as well as registration forms can be found at:

www.bestinc.org/best_national_conference

Advanced Placement Summer Institute (APSI)

The AP Summer Institute is designed for the professional development of teachers, counselors, and administrators involved in Advanced Placement (AP) courses as well as teachers and administrators who are involved in implementing vertically aligned curricula that prepare 6th-12th grade students for AP courses. Auburn University in cooperation with the College Board will host workshops in the following areas:

- *Biology & Advanced Biology*
- *Calculus AB*
- *Chemistry*
- *English Language & Composition*
- *English Literature & Composition*
- *Advanced English Literature & Composition*
- *U.S. History*
- *Pre-AP Vertical Team Training - English, Math, & History*

For more information, please visit

www.auburn.edu/apsi

2009 Dates

June 22 - 26

AP Summer Institute and Vertical Team Training

- Tuition: \$500 per workshop and \$50 lab fee for science workshops (includes instruction, breaks, & course materials)

July 13 - 14

AP Administrators and Counselors Summer Institute

- Tuition: \$325 (includes instruction, breaks, lunch, & course materials)

This AP Summer Institute has been endorsed by



BEST Robotics

Registration is now open for BEST - Boosting Engineering, Science & Technology – in Alabama.

BEST is a middle and high school robotics competition held each fall at 35 different locations across the country. BEST is currently the second largest educational robotics program in the U.S., with over 12,000 students at 700+ schools participating. This fall, schools in Alabama can participate at one of five different competition sites. The program is FREE to schools, thanks to generous sponsorship from higher education institutions and industry in Alabama. If you are interested in signing up a team, please see below for the contact person for each location.



Blazer BEST (Birmingham)

UAB School of Engineering
Schools in Jefferson County, Shelby County, and
outlying areas

To register: contact Paul George,
pgeorge@uab.edu



Tennessee Valley BEST (Decatur)

A Partnership between Calhoun Community Col-
lege and Auburn University
Schools in North Alabama

To register: contact Dr. Sue Mitchell,
sue@calhoun.edu



Jubilee BEST (Mobile)

Exploreum Science Center
Schools in South Alabama
To register: contact Robin Fenton,
rffenton@comcast.net



War Eagle BEST (Auburn)- formerly Alabama BEST

Auburn University's College of Sciences and
Mathematics and Samuel Ginn College of Engi-
neering

Schools in Central and Southeast Alabama
To register: contact Mary Lou Ewald,
ewaldml@auburn.edu



North Alabama BEST (Hanceville)

Wallace State Community College
Schools in North Alabama

To register: contact Phillip Cleveland,
phillip.cleveland@wallacestate.edu

Find out more about
BEST at

www.bestinc.org

Experiment of the Month

Human Conductor

What It 's All About...

This experiment is great for scientists of any age! Get ready to see the power behind ordinary static electricity. Who knew it had so much potential?!

Materials

- Fluorescent Bulb
- Balloon

Procedure

1. Darken the room.
2. Hold the balloon in one hand and the bulb in the other.

3. Rub the balloon vigorously on your hair.
4. Bring the balloon near the bulb and observe what happens!
5. Slowly touch the balloon to the bulb and see if a spark will jump between the two.

The Science Behind It...

Negatively charged particles called electrons are relatively free to jump from the atoms of one object to the atoms of another. Some objects facilitate this transfer better than others due to the arrangement of their atoms. A balloon is an example one of these objects. Electrons easily jump from your hair to the balloon and stick there.

Inside the fluorescent bulb, electrons collide with mercury vapor that fills the glass tube. This causes the vapor to emit ultraviolet light which is invisible to the human eye. Coating the inside of the glass tube is a white substance that contains phosphors. When phosphors are bombarded with ultraviolet light, they give off visible light.

Electrons are usually supplied to the fluorescent bulb via electric current, but in this case they are carried from your hair to the bulb via the balloon.



AUBURN UNIVERSITY
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So far this Semester...

Greater East Alabama Regional Science and Engineering Fair (GEARSEF)

On March 12, 2009, over 80 6th-12th grade students from 12 schools around east Alabama converged on Auburn University's campus for the 1st annual Greater East Alabama Regional Science and Engineering Fair. Over 20 awards were given out including special awards sponsored by the U.S. Air Force, the Yale Science and Engineering Association, the National Oceanic & Atmospheric Association, as well as many, many others.

Three finalists were selected to represent our region at the Intel International Science & Engineering Fair in Reno, NV May 10-15, one of which is being sponsored by the Auburn University Women In Science and Engineering (WISE) Institute and the College of Sciences and Mathematics' Society of Women in Science and Mathematics (SWSM). The finalists are as follows:

Kelly Lynn

Wetumpka High School

- Gold Dust: An Alternative to Commercial Sunscreens, A Spectrometric & Ultraviolet Light Study Using *Lumbricus terrestris*

Nicholas Christensen

Wetumpka High School

- Do You 'Ear What I 'Ear? Lowering Voice Frequencies in Real Time to Revolutionize Hearing Assistance Technology

Parker Caviness & Todd Thrash

Wetumpka High School

- A Shocking Twist

Spring Youth Experiences in Science (Y.E.S)

The annual Spring Y.E.S. occurred on Saturday, April 4th. Over 90 students from area elementary and middle schools had the opportunity to participate in 4 courses that were taught by some of the finest instructors Auburn University has to offer. Courses included:

Carnivorous Plants

- Instructors: Dr. Jennifer Trusty and Dr. Tug Kesler, AU College of Forestry and Wildlife Sciences

Earning Your Stripes

-Instructors: Evi Paemelaere and Linda Pas-torello, AU Tigers for Tigers

Getting a Jolt out of Juice

- Instructors: Mary Lou Ewald and Erin Edmondson, COSAM Outreach

Kitchen Chemistry

- Instructor: Emily Newcomb, AU College of Education



Intel finalist, Nicholas Christensen presents his project at GEARSEF 2009.



Students receive instruction in Getting a Jolt Out of Juice at Spring Y.E.S 2009.

College of Sciences and Mathematics K-12 Outreach

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AUBURN UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

July/ August 2009

Volume 1, Issue 3

E=mc²

Engaging More Community Connections

A Science and Math Outreach Newsletter

Inside this Issue

Upcoming Events for Parents	1
Upcoming Events for Teachers	2
Experiment of the Month	3
Since last issue...	3-4

Schedule of Events

- **July 6-9**- Summer Y.E.S. Cub Camp
- **July 13-16**- Summer Y.E.S. Tiger Camp
- **July 13-14**- Administrators AP Institute
- **July 20-23**- Summer Y.E.S. Eagle Camp
- **August 21**- SWSM Women's Leadership Symposium
- **August 29**- War Eagle BEST kickoff

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

www.auburn.edu/cosam/outreach

Upcoming Events & Programs for Parents:

Y.E.S. Camps 2009

YES Camps provide kids the opportunity to experience science through hands-on courses in a relaxed, enjoyable environment on the Auburn University campus. Camps are designed for kids who have high interest or aptitude in science, math, or technology-related subjects and feature courses such as River Creatures, Polymer Chemistry, Forensics, Geometry of Puzzles and Games, and many others.

Summer Y.E.S. Camp

The three Summer Youth Experiences in Science (Y.E.S.) camps are set to begin on July 6th and will continue through July 23. The 4 day camps will bring students ranging in age from rising 1st graders to rising 9th graders to Auburn University. We are excited to have had such a great turn out this year with all camps being completely filled.

Fall Y.E.S. Camp

Fall Y.E.S. Camp, an all-day Saturday camp, is scheduled for October 3, 2009. This year, courses will be geared toward 7th-9th grade students. Check back next issue for registration and course information. To see information from last year's camp, please visit the outreach website, click on All Programs, and scroll down to the Fall Y.E.S. link..

G.U.T.S.

This fall will mark the 3rd year of Getting Under the Surface (G.U.T.S.). G.U.T.S. is a semi-monthly evening program for 1st-6th grade students and their parents. Dessert is followed by a 90-minute activity focused on the "guts" of every day objects, processes, and scientific concepts. Registration for each session is generally on the outreach website 2-3 weeks before the event.

Fall 2009 Tentative G.U.T.S. Schedule

- Wednesday, September 9th
- Tuesday, September 29th
- Thursday, October 29th
- Tuesday, November 17th

Getting Under the Surface
GUTS

Other Upcoming Events & Programs:

SWSM Women's Leadership Symposium

The College of Sciences and Mathematic's Society of Women in Sciences and Mathematics (SWSM) will hold the 4th annual Women's Leadership Symposium on Friday, August 21, 2009 at The Hotel at Auburn University & Dixon Conference Center from 8:30am - 2:00pm. The Symposium will include a networking breakfast, panel discussion, and lunch including keynote speaker, Dr. Kathy Pearson.

Keynote Speaker and Panelists

Dr. Kathy Pearson '84– Keynote

Dr. Pearson is a senior consultant and the Director of Executive Education for Decision Strategies International (DSI), a management consulting firm focused on scenario-based strategic planning and decision-making. Dr. Pearson also serves as an adjunct associate professor in the Operations and Information Management Department at The Wharton School.

Brittany Barnes '09– Panelist

Pharmacy Student , Auburn University

Erin Edmondson '07– Panelist

Life Science Teacher, Auburn City Schools

Dr. Andrea Hardwick '00– Panelist

Optometrist, Hardwick Vision Center

Janayah Hudson '96– Panelist

Director of Surgical Technology Program, Aiken Technical College

Symposium Schedule:

- 8:30 am- Networking Breakfast
- 9:30 am– Registration
- 10:00 am– Panel Discussion
- 11:15 am– Roundtable
- 12:00 pm– Lunch and Program including keynote

Fifty high school girls will be invited to attend this special event. For more information about applying to attend, please contact Mary Lou Ewald at ewaldml@auburn.edu.

BEST Robotics Registration

Registration continues to be open for **BEST** across Alabama. BEST is a fully inclusive, national robotics competition that is presented at little or no cost to its middle and high school teams. For further information, please feel free to contact our office or see the last issue of **E=mc²** for local contacts at each of the 5 hubs across the state.

War Eagle BEST Kickoff

Alabama BEST will start it's first season under the new name War Eagle BEST on the August 29th Kick-off Day. Kick-off will take place in the Student Center Ballroom on Auburn University's campus. On this much anticipated day, teams will receive all game-specific rules and will get their first look at this season's challenge during the big reveal of the 2009 playing field. War Eagle BEST Kick-off begins the "6 weeks of BEST" that will culminate in War Eagle BEST Gameday on October 10th.

To find out more about BEST, please visit

www.bestinc.org

Please visit
www.auburn.edu/academic/science_math/swsm/
 for more information
 about SWSM



Experiment of the Month

Colorful Carnations

What It 's All About...

Where does the water go when a plant is watered? With this experiment, young scientists can discover for themselves how essential the functions of roots and stems are to plant growth. As the colored water is absorbed, students will be able to see how the water is absorbed into the plant and the petals of the carnation change color.

Materials

- 6 white carnations
- 4 plastic cups
- Food coloring (red, blue, green, and yellow)
- Knife
- Water

Procedure

1. Fill each cup half full with water
2. Add 20-30 drops of food coloring to each cup of water (More is better!)

3. Trim the stem of each of the flowers at an angle to create a fresh cut.
4. Place one freshly cut carnation in each of the cups of colored water.
5. For the remaining two carnations, split the stems straight down the middle and put each half of the stem into a cup of different colored water (try red and blue for a patriotic carnation— great for the 4th of July) .
6. Check back in a couple of hours to see how things are going. It could take as much as 24 hours for the color to make it up to the petals.

The Science Behind It...

Plants “drink” water from the ground through their roots and up their stems to nourish their leaves and flowers. Inside the leaves, the plants use the water to make their own food. When you cut a flower, it no longer has its roots, but the stem still pulls water towards the leaves.

Two things work together to move water through plants — **transpiration** and **cohesion**. When water evaporates from the leaves, buds, and petals of a plant (**transpiration**), it pulls water up the stem.. This works in a way that’s very similar to sucking on a straw. Water molecules stick together very easily (**cohesion**), so as water evaporates, it “pulls” other molecules up to fill the space that’s left. This movement of water up the stem is called **capillary action**.

Coloring the water with food dye doesn’t harm the plant in any way, but chemicals and pollutants that are dissolved in the water found in nature may be pulled into plants in the same way, resulting in contamination.

Since last issue...

AU Explore

Over 1,500 5th-8th grade students, teachers, and parents came to Auburn’s campus on April 30th to participate in COSAM’s annual open house, AU Explore. Students were given the opportunity to participate in hands-on Science Fun Shops instructed by Auburn University faculty and staff, the Science EXPO that included interactive booths from each department within the college, and large scale Demo Shows which included the ever-popular Pyromania and Wet and Wild Science Show.

COSAM Outreach would like to thank the countless volunteers that make AU Explore such a success every year.



Area students enjoy up-close, hands-on encounters in the AU Explore Science Fun Shops.



AUBURN UNIVERSITY
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AND MATHEMATICS

Since last issue... cont'd

Backyard Science Bash

Forty families attended the G.U.T.S. Backyard Science Bash on Saturday, May 2nd. A cookout was followed with a liquid nitrogen ice cream demonstration by COSAM Outreach and Science in Motion staff members. Organic chemist, Dr. Susanne Striegler's presentation of the cRaZy ChEmIs'TrY show finished off the two hour event .



Outreach staff prepare liquid nitrogen ice cream for the participants of the Backyard Science Bash.

BEST National Conference 2009

Between June 17th and June 20th, over 175 teachers, students, and industry representatives were on Auburn's campus for the 1st annual BEST National Conference. The decision of the College of Sciences and Mathematics and the Ginn College of Engineering to host the inaugural conference was due in part to the relocation of the headquarters of BEST Robotics, Inc. to Auburn University. Highlights from the conference were keynotes from Celeste Baine, director of the Engineering Education Service Center based in Springfield, Oregon, and Dr. Ken Berry, Assistant Director to the Science and Engineering Education Center (SEEC) at the University of Texas at Dallas.

AP Institute

COSAM, in partnership with the Auburn University Outreach Program Office, hosted the Advanced Placement Institute and Vertical Team Training for AP teachers during the week of June 22nd. Classrooms, laboratory facilities, and staff were provided by the College of Sciences and Mathematics for the Chemistry, Biology, Social Studies, and Calculus workshops. The final institute will take place July 13th and 14th for AP administrators and counselors.



Attendees of the BEST National Conference troubleshoot programming of the BEST Robotics Advanced Instruction Node (BRAIN) during the Pre-conference Workshops .

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AUBURN UNIVERSITY

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September/ October 2009

Volume 1, Issue 4

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/

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:	October 3rd:	November 7th:
“Caught in the Web of Life”	“Snakes, Turtles, Lizards, and Frogs”	“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 there of) 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 strips 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.



AUBURN UNIVERSITY
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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.



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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



AUBURN UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

November/ December 2009

Volume 1, Issue 5

E=mc²

Engaging More Community Connections

A Science and Math Outreach Newsletter

Inside this Issue

Upcoming Events and Programs 1-2

Experiment of the Issue 3

Since last issue... 3-4

Schedule of Events

- **November 12**- ISEF Teacher Workshop
- **November 14**- DAMES
- **November 17**- G.U.T.S.
- **December 11 & 12**- South's BEST Robotics Competition
- **January 23**- Math-A-Thon Tournament

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

www.auburn.edu/cosam/outreach

Upcoming Events & Programs:

International Science and Engineering Fair Workshop

In preparation for the Greater East Alabama Regional Science and Engineering Fair (GEARSEF) coming up in March, COSAM Outreach will hold an ISEF teacher workshop on November 12 on Auburn's Campus. Topics covered at the workshop will include GEARSEF and ISEF rules and regulations, information on how to get students involved, and awards that will be given at GEARSEF. A \$10 registration fee is required to attend. If you are interested in being a part of the ISEF workshop or getting involved with GEARSEF, feel free to contact Emma Seiler via e-mail at ees0011@auburn.edu or by phone at 334-844-7449.

D.A.M.E.S.

Daughters and Mothers Exploring Science (D.A.M.E.S.) will take place on Saturday, November 14th. 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 download a registration form by visiting the Society of Women in Sciences and Mathematics website at www.auburn.edu/academic/science_math/swsm. You may also contact Mary Lou Ewald (ewaldml@auburn.edu, 334-844-5745) for more information.

G.U.T.S.

The final session of Getting Under the Surface (G.U.T.S.) for the fall semester will occur on Tuesday, November 17th at 6:00 pm. Registration is now open and forms can be found on the outreach website under the G.U.T.S. link. Courses will include Tiggers 4 Tigers and Edible Science for 1st- 3rd graders and The GUTS of DNA and Microscopic Wonders for 4th- 6th graders. Seating is limited and a completed registration form is required for participation. Completed forms are due by Friday, November 13, 2009. Please contact Emma Seiler at ees0011@auburn.edu for more information.

Getting Under the Surface
GUTS

Upcoming Events & Programs, cont'd:

South's BEST



The College of Sciences and Mathematics and the Ginn College of Engineering will host the high school and middle school robotics championship, South's BEST, on December 11th and 12th. 50 teams from 8 states will be in attendance, totaling around 3,000 participants. Approximately 250 volunteers including students, faculty and staff from Auburn as well as other colleges and universities, industry personnel from around the U.S., and government employees will give their time to help make this program a success. Teams will arrive in Auburn beginning on Thursday, December 10th to prepare for driving practice that will take place on Friday.

The public is invited to attend the competition on Saturday, December 12th at Beard Eaves Memorial Coliseum beginning at 9:00 am. There is no fee to attend. In addition, Alabama governor Bob Riley is scheduled to address the audience between 11:00 and 11:45 am.

Participating Hubs will include:

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

For more information, please visit the South's BEST website at www.southsbest.org. Individuals interested in volunteering should contact Jesse Daniel at danielrj@auburn.edu or 334-703-3130.

Math-A-Thon

On January 23rd, 2010, Auburn will host the 3rd annual Math-a Thon Tournament. Teams from across the state will compete in individual tests, team tests, ciphering and more 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, please contact the outreach office at 334-703-3130.

HEXBUGS

HEXBUGs are still available in the COSAM Outreach office and at all outreach programs this fall for a \$10 donation. These robotic creatures react to touch and sound and make great gifts for scientifically minded people in your life. Stop by and pick one up before they're gone!



Experiment of the Issue

Kitchen Goo

What It 's All About...

If you're working in the kitchen this holiday season and feel the need to delve into some chemistry while waiting for those cookies to finish baking, use this simple recipe to create an interesting concoction.

Materials

- 16 oz box of cornstarch
- Pitcher of water
- Food coloring
- Large mixing bowl

- Cookie Sheet
- Spoon
- Gallon size Ziploc bag
- Newspaper or drip cloth

Procedure

1. Pour approximately 1/4 of the box of cornstarch and 1/2 cup of water into the mixing bowl and stir.
2. Continue slowly adding water and cornstarch until you get the consistency honey (eventually you should end up

adding about 1-2 cups of water to the entire box of cornstarch.

3. Pour the mixture into the cookie sheet.

4. Now have fun! Stir the mixture with your finger, sink your entire hand in and try to grab it and pull it up, and try to roll it into a ball. You can even hold your hand flat over the mixture and slap the liquid as hard as you can and it will stay in place (if not you may need to add more cornstarch!).

The Science Behind It...

*Why does this strange liquid feel like a solid when you squeeze it, yet it flows like honey off of your hand? How can something act like a solid and a liquid? This is an example of a **Non-Newtonian fluid**, meaning that it's a liquid that defies Isaac Newton's law of viscosity. All fluids have the property of viscosity- a measurement of their resistance to flow. Take water and honey for example: water has a very low viscosity and flows easily while honey has a higher viscosity, causing it to flow slowly. Viscosity can be easily altered by changing the temperature (shown by honey flowing more easily when warm). In Non-Newtonian fluids, the viscosity can also be changed by adding pressure. So when you squeeze and hit the mixture, the viscosity will increase, causing it to act as a solid for a second, then return to a liquid form when the pressure is released.*

Since last issue...

G.U.T.S.

Tuesday, October 27 marked the largest attendance for any Getting Under the Surface (G.U.T.S.) with 55 student/ parent teams participating. Two new courses- The Guts of Halloween, taught by Ms. Gina Watkiss and The Blood of Life, taught by Dr. Mark Jones- were also introduced at this session. The Guts of the Deep Sea sequence continued as Ms. Erin Edmondson, Dr. Ken Halanych, Dr. Kevin Fielman, and Dr. Scott Santos presented their observations from the October research trip to the Gulf of Mexico. Ms. Rebecca Balkcom rounded out the session with her mystifying mixtures course.



Students and parents work as laboratory partners at the October 27th session of G.U.T.S.





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Since last issue cont'd...

War Eagle BEST

On Saturday, October 10th 24 teams from the surrounding area came to Auburn's campus for War Eagle BEST, a high school and middle school robotics competition. Teams have been preparing for War Eagle BEST since the August 29th kickoff. Winners from War Eagle BEST, as well as 9 other competition sites from across the Eastern United States will come to Auburn's campus for the South's BEST championship in December. Teams advancing to South's BEST include: Auburn High School, Episcopal Day School, Lee-Scott Academy, Southside Middle School, Stanhope Elmore High School, and Wetumpka High School.



Students compete at War Eagle BEST in the Student Activity Center. South's BEST will be held December 11th and 12th in Beard Eaves Memorial Coliseum.

NSF Marine Biology Research Trip

Students, teachers, and research scientists from all over the United States, and even the world, took part in a National Science Foundation funded research trip in the Gulf of Mexico October 6th-11th. Scientists from Auburn, Bowdoin College, Penn State University, and Temple University were aboard the R/V *Seward Johnson* for the 5 day research cruise. Students, teachers, and community members from all over the world were kept up-to-date with the research mission via daily blog articles from Drake Middle School teacher Erin Edmondson, who was also aboard the research vessel. The *Johnson Sea-Link II* deep sea submersible was used to explore tubeworm colonies at the bottom of the Gulf of Mexico. Please visit the research website at www.auburn.edu/symbiosis.



Ms. Erin Edmondson peers out of a porthole of the Johnson Sea-Link II submersible (left) before embarking on a dive from the R/V Seward Johnson (right).

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