

ANNUAL REPORT

2012

College of Sciences and Mathematics Outreach



The College of Sciences and Mathematics Office of Outreach 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.



23.8 %

increase in # of Science Matters students



7,903

on-campus, student participants



70,000

off-campus, student participants

About COSAM Outreach

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 division 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.

The year 2012 was a great year for the College of Sciences and Mathematics Office of Outreach. Over 10,000 students, parents, and teachers participated in an outreach function on-campus. Additionally, over 70,000 students and teachers were impacted through Alabama Science in Motion and the Alabama Math, Science, and Technology Initiative (AMSTI).

In addition to high impact numbers, two new programs were added to the outreach arsenal to better impact our community. The Summer Science Institute and the Auburn Mathematical Puzzle Challenge (AMP'd Challenge) increased COSAM's ability to reach a wide range of audiences.

The Summer Science Institute was initiated by a COSAM Faculty member, Dr. Allen Landers. His vision was to create a summer science program for high achieving math and science students in 11th and 12th grades from our region. 26 students with a significant interest in entering a science or mathematics college career path from Alabama and Georgia were accepted in this week-long event which was provided at no cost to students through a competitive grant from the Auburn University V.P. of

Outreach Office. Students learned from faculty members representing all five departments in COSAM and engaged in activities ranging from gel electrophoresis to biological field work, and from geologic isotopic dating to electron diffraction from crystals. This high impact program was a huge success in its ability to deeply increase student's understanding of basic scientific research

AMP'd is a uniquely themed math event for 7th-8th grade students in which students attempt to 'crack the case' by solving a series of hands-on math challenges. Through the incorporation of technology and well-developed characters and theme, middle school students were thoroughly engaged in an entire Saturday full of math and, as many of them stated in

This high impact program was a huge success in its ability to deeply increase student's understanding of basic scientific research and careers related to the sciences.

and careers related to the sciences.

In addition to the Summer Science Institute, the first (and 2nd) ever AMP'd Challenge were held in the 2012 year. Dr. Chris Rodger, Associate Dean for Research and two graduate students from the Department of Mathematics and Statistics at Auburn University initiated and aided in the development of this middle school problem solving event.

their survey, they "Would love to come back any time!"

These two programs definitely add great depth of learning in both math and science. They only represent a fraction of what occurred during 2012. Please take a moment to review our annual report for more information on this past year's success.

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Dear fellow stakeholders

This has been an exciting year for COSAM Outreach as we continue to expand and impact larger audiences with our innovative programs. Along with the 15 or so programs we continue support each year, we initiated three new programs in 2012, including the AU-Summer Science Institute, Kidz-sized SCIENCE, and the AMP'd Challenge for high schools.

I'm often asked, "How do you know you're making a difference"? Truthfully, it's not always immediately apparent that our programs make a difference, or what that difference might be for a young person. But, we believe in what we are doing and every so often, we get a glimpse into how one of our programs has impacted a young person. The following excerpts are from an unsolicited letter we received from a student who participated in our Summer Science Institute:

By the end of my week at Auburn, after visiting and learning from so many professors, counselors, graduates, and undergraduates, I finally understood what it meant to not work a day in your life. As I have heard from advisable others, "Do something you love, and you'll never have to work a day in your life." I did not truly understand how you could possibly be working, yet enjoy it. But when I attended AU-SSI, all that I could acknowledge was people who loved what they taught others, learned for themselves, explained, and experienced. And that was enough to give me optimism to figure out my own path, so thank you to the people of Auburn University. Your Science Institute was literally the most amazing adventure that I have ever experienced. Please, never drop AU-SSI, no matter what happens. It has changed my life for the better, as well as the lives of the other twenty-five students who attended the Institute during the summer of 2012 with me. I had never considered Auburn University as a college that I wanted to attend before, but now I feel drawn to make it my first application.

Thank you so much.

Summer Science Institute participant (11th grader)

Are the weeks of planning and crazy hours my staff endures worth it? Every second of it! We are looking forward to another great year in 2013 and hope you will join us in our efforts to inspire the next generation of scientists and mathematicians.

Mary Lou Ewald,



Staff and Temporary Employees



Mary Lou Ewald
Director of Outreach

As the Director of Outreach for the College of Sciences and Mathematics, Mary Lou's primary responsibilities include: oversight and management of all aspects of Outreach Programs, the Director of AU Science in Motion, Co-PI, AU-AMSTI, and the campus-wide outreach representative for COSAM (WISE Institute, Minors on Campus committee, grant proposal development).



Erin Percival
Assistant Director of Outreach

Erin's primary office responsibilities include assisting in management of Outreach programs, management of student employees, and curriculum development oversight. This year she directly coordinated SI, GUTS, AMP'd Challenge, GEARSEF, AU Explore Science EXPO, Science Matters, War Eagle BEST teacher and judges communications, Kidz-sized Science, and South's BEST teacher facilitation.

In addition to her day-to-day operations, Erin assists Mary Lou in grant proposal development and served on the Climate Change Education Proposal Team for COSAM in 2012.



Kathy Feminella
Administrative Assistant

Kathy's responsibilities during the 2012 year included: financial record keeping, coordination of middle school and elementary school Science Olympiad competitions and hospitality coordination for War Eagle BEST.

Sadly, Kathy retired this past October. She left our office after ten years with Auburn University and six years as a member of the COSAM Outreach Staff.



Kristen Bond
Program Manager (TES)

Kristen joined the COSAM Outreach team in June of 2012 as a part-time, Temporary Employment Services (TES) employee. She learned quickly and assisted Kathy with financial record keeping, payment and procurements, and served as the primary hospitality coordinator for the annual South's BEST competition.

Kristen comes to us with a background in event management and has strong administrative and management skills. We welcome her to our team.

Temporary and Student Employees



Tj Nguyen
Student Program Coordinator

Tj, a senior in mechanical engineering at Auburn University, served as the most senior-level student staff member during the 2012 year. In his fourth year as a member of COSAM Outreach he worked diligently and served in a leadership role. During the fall semester, Tj served as the Technical Director for both War Eagle and South's BEST, a position traditionally held by faculty. He developed curriculum and taught teachers at our annual BEST Teacher-Mentor Workshop in August and managed all technical questions from the 25 teams participating in BEST this past fall.



Donna Raiford
Program Coordinator

Donna joined the COSAM Outreach team as a part-time employee in August of 2012. Her primary responsibilities included: South's BEST hospitality coordination under the direction of Kristen Bond, and War Eagle BEST preparations.



Chelsea Harrison
Student Program Coordinator

Chelsea, a senior in Industrial and Systems Engineering. She worked in the COSAM Outreach office for four years. During her time in the office her primary responsibilities included: Outreach website updates and maintenance, Science Matters Room Director, War Eagle & South's BEST Judge's Assistant, and the coordination of Spring Youth Experiences in Science (Spring YES).



Allison Holt
Student Program Coordinator

Allison is a senior in Software Engineering at Auburn University and has worked in the COSAM Outreach office for four years. In 2012, Allison co-op'd in both the Spring and Fall of 2012. During the summer she served as a Science Matters counselor and assisted in our Summer Science Institute.

Temporary and Student Employees



Molly Folkerts
Student Program Coordinator

Molly, a senior in Zoology at Auburn University, was a valuable member of our program during the 2012 year. Her primary responsibilities included: Science Matters coordination, War Eagle BEST and South's BEST, GUTS coordinator, and Science Investigations assistant.

Molly graduated in December of 2012 and will pursue a masters degree in Biology at LSU-Shreveport.



Molly McCartney
Student Program Assistant

Molly is a sophomore in Industrial and Systems Engineering. In 2012, she served as the judging assistant at both War Eagle BEST and South's BEST Robotics Competitions. In addition, she served as a Science Matters Extended Care Assistant, and was involved in the Science Investigations and Kidz-sized Science programs.



Allison Tjelmeland
Student Program Assistant

Allison, a graduate student in biological sciences at Auburn University spent the Spring of 2012 working as a Science Matters Registration Coordinator and assistant with the Science Investigations program. Then, in the summer she served as a Summer Science Institute counselor and Science Matters counselor.



Lara Stubbs
Outreach Specialist

Lara is a recent graduate of the department of mathematics at Auburn University. In her part-time work as a member of the COSAM Outreach team her primary duties included: Science Matters Room Director, Summer Science Institute assistant, and South's BEST Registration and hospitality.

2012 Outreach Calendar

January 13	Science Investigations
January 20	Science Investigations
January 21	AP Study Day (Math)
January 26	Getting Under the Surface (GUTS)
February 4	Auburn Mathematical Puzzle Challenge (AMP'd) – Middle School
February 4	AP Study Day (Science)
February 10	Science Investigations
February 13	Getting Under the Surface (GUTS)
February 17	Science Investigations
February 24	Tests of Engineering Aptitude, Mathematics and Science
February 25	Science Olympiad- Division B (Middle School)
March 3	AP Study Day (Science)
March 7	Greater East Alabama Regional Science and Engineering Fair
March 10	AP Study Day (Math)
March 20	Getting Under the Surface (GUTS)
April 11	Getting Under the Surface (GUTS)
April 21	Science Olympiad- Division A (Elementary School)
April 22	GUTS Backyard Bash
April 26	AU Explore
April 28	AP Study Day (Science)
June 4 – 8	Science Matters
June 11 – 15	Summer Science Institute (SSI)
June 18 – 22	Science Matters
June 18 – 22	AP Summer Institute for Teachers
June 25 – 29	Science Matters
July 9 – 13	Science Matters
July 16 – 20	Science Matters

July 30 – August 3	Science Matters
August 6 – 7	BEST Robotics Teacher Workshop
August 30	War Eagle BEST Kick-Off Day
September 15	Tennessee Valley BEST Kick-Off Day
September 20	Getting Under the Surface (GUTS)
September 29	Auburn Mathematical Puzzle Challenge (AMP'd) – Middle School
September 30	War Eagle BEST Mall Day
October 13	War Eagle BEST Game Day
October 23	Getting Under the Surface (GUTS)
October 27	Tennessee Valley BEST Game Day
December 1 – 2	South's BEST Robotics Championship
December 15	AP Study Day (Math)



Program Descriptions



Auburn Mathematical Puzzle Challenge

Funding Source: COSAM and participant fees

The Auburn Mathematical Puzzle Challenge, or AMP'd Challenge for short, is an all-new event for 7th – 8th grade students. This themed Saturday event allows teams of 6 – 8 students to work together to 'solve a crime' by solving real mathematical puzzles. Each year 'the AMP'd Commissioner' challenges the AMP'd Squad (the students) to use their critical thinking skills and creative problem solving techniques to solve a series of questions that lead to the culprit of the crime. This year, Auburn hosted two AMP'd challenges for middle school students.



AU Explore

Funding Source: COSAM

AU Explore is COSAM's annual Open House Day for 5th - 8th graders. On Thursday, April 26th, 1132 students as well as parents and teachers from 18 schools in Alabama and Georgia and 127 home school groups 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.



Greater East Alabama Regional Science & Eng. Fair

Funding Source: COSAM, Samuel Ginn College of Engineering, and fees

GEARSEF is a regional affiliate fair of the Intel International Science and Engineering Fair (Intel ISEF), the world's largest international pre-college science competition. ISEF, the premiere science competition in the world, annually provides a forum for millions of students from over 50 countries, regions, and territories to showcase their independent research. GEARSEF hosted 100 6th – 12th grade projects. Two exceptional high school students from GEARSEF advanced to the Intel ISEF in Philadelphia, PA this past May to compete against the top 1500 students in the world for nearly \$4 million dollars in prizes and scholarships.



Getting Under The Surface (GUTS)

Funding Source: Participant fees

GUTS is a program for kids in grades 1-6 and their parents or grandparents. Each evening session includes dessert followed by a 90-minute science activity featuring a "Getting Under The Surface" theme that focuses on a scientific topic or technique. In 2012, four sessions were held in the spring, and one session in the fall. Throughout the year, a total of 210 students and parents attended a GUTS session.

Program Descriptions



Kidz-sized Science

Funding Source: Participant fees

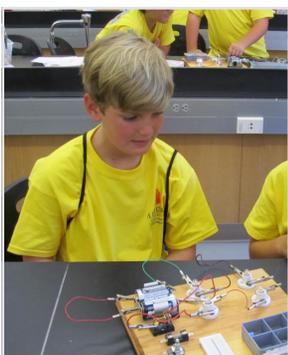
This fall, COSAM piloted the Kidz-sized Science Program. Kidz-sized science is a monthly program for pre-kindergarten and kindergarten students. This Auburn University hosted event, takes place each month occurs at the Village Mall in Auburn. In October the kids learned about the science of pumpkins while in November they explored the topic of birds. During each session, kids engaged in a good book, explored the science behind the theme, and created a take-home project.



Science Investigations

Funding Source: Participant fees

Science Investigations provides a meaningful science laboratory experience for home-schooled students in grades 6-8. The program includes monthly sessions for 8 months and is designed to be a learning continuum throughout the year. The main objective of the program is to provide students with an overview of various types of laboratory techniques, policies, procedures, and equipment. Participants designed their own "science investigation" in conjunction with the Intel Science and Engineering Fair and presented their results at the Greater East Alabama Regional Science and Engineering Fair (GEARSEF).



Science Matters

Funding Source: Participant fees

Science Matters is a summer enrichment program for elementary students offering youngsters a supercharged science experience. The program allows participants to explore the world of science through authentic experiments, local field trips, constructive play, technology, art projects, and hands-on, make-n-take activities. 18 different courses were designed by master educators in the region and offered during six weeks in the summer. 204 students in grades 1-6 filled a total of 394 seats. The program saw a great increase in filling capacity with 94% of the seats filled during the 2012 year.



Science Olympiad

Funding Source: COSAM, AU Bookstore

Science Olympiad is a one-day academic track meet, consisting of up to 23 different competitive events.

- Division B (middle) was held on February 25, 2012, when 20 teams of 15 students each (270 students total) in grades 6-9 converged on Auburn's campus to compete. Winners from the middle school division qualify to compete at the state Science Olympiad.
- Division A (elementary) was held on April 21, 2012. A total of 515 students from 17 different Alabama schools participated in the event.

Program Descriptions



Summer Science Institute

Funding Source: VP Office of Outreach

The Summer Science Institute at Auburn University is a new summer science program for rising 11th-12th grade students with a high aptitude and interest in the fields of science and math. The program partners students with experienced AU Science and Math research faculty to explore topics more advanced than what is typically taught in a public or private high school environment. This year, 26 outstanding students were chosen to participate from Alabama and Georgia.



Society of Women in Sciences and Math Symposium

Funding Source: Sponsorships and Participant Fees

The annual Women's Leadership Symposium and Luncheon offers women at all stages of their careers in science and mathematics the opportunity to network with one another through panel discussions, career awareness break-out sessions, and a luncheon with Keynote address from the Marie W. Wooten Distinguished Speaker. In order to meet the Society's mission, 75 high school girls were invited to participate. The young women engaged in a panel discussion led by women graduate students in the College of Sciences and Mathematics. Additionally, they participated in career awareness break-out sessions led by COSAM staff and graduate students followed by a Keynote address from, Anda Ray, a woman recognized in her field of physics.



Tests of Engineering Aptitude, Math, and Science

Funding Source: Participant Fees

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 24, 2012. Sixty-four students from 6 schools used the principles of engineering, math, and science to solve real world challenges.



Youth Experiences in Science-Spring program

Funding Source: COSAM

Spring Y.E.S. was held on Saturday, March 3, 2012. Spring Y.E.S. is a free program offered every spring for students in grades 3-6. Hands-on courses for the 2012 Spring Y.E.S. included SCATS, Stop Think Draw!, Density Detectives, Swingin' From the Vines. A total of 101 students attended the 2012 event.

Program Descriptions



BEST Robotics

What is BEST?

What do you get when you cross robots, a playing field, referees, cheerleaders, and pep bands? The BEST competition ever! BEST - Boosting Engineering, Science, and Technology is an all-volunteer organization whose mission is to inspire middle and high school students to pursue careers in engineering, science, technology, and mathematics through a sports-like, science- and engineering-based competition. Started in 1993 with 14 schools and 221 students, today BEST has 45 hubs in 16 states with over 733 middle and high schools and over 14,325 students participating each year.



War Eagle BEST

Funding Source: Sponsorships, COSAM and Samuel Ginn College of Engineering

War Eagle BEST hosted 24 schools from South Central Alabama and West Georgia. Kickoff was held on August 30 in the Student Center Ballroom, where teams were given the game theme – WARP XX – and the task for this year's challenge. Four weeks later, on September 30, a practice "Mall Day" was held at Auburn Village Mall. On Saturday, October 13th approximately 1,000 students, parents, teachers, and judges came together for "Warp XX!" at Smiths Station High School. Five local teams advanced to the regional championship, South's BEST.



Tennessee Valley BEST

Funding Source: Calhoun Comm. College, COSAM and Samuel Ginn College of Engineering

Tennessee Valley BEST, 14 schools from North Alabama in 2012. Kickoff was held on Saturday, September 15th, when teams were given the game theme – WARP XX! - and the task for this year's challenge. On Saturday, October 27th approximately 800 students, parents, teachers, and judges came together for the WARP XX competition. TV BEST is a partnership between Auburn University and Calhoun Community College in Decatur, AL.



South's BEST

Funding Source: Sponsorships, COSAM and Samuel Ginn College of Engineering

In December, a crowd of over 3,500 students, teachers, parents, and industry mentors assembled at Auburn University for the 2012 South's BEST Regional Robotics Championship. South's BEST hosted 56 teams from 18 hubs and 8 states over the weekend of December 1-2. The 5th annual Women in Science and Engineering Luncheon, sponsored by the WISE Institute, Toyota Motor Manufacturing, and TV BEST, was held on Saturday, December 1st and hosted 189 attendees. A Science and Engineering Exhibit Fair was hosted on Saturday during the event.

Program: Science Investigations

Description: A meaningful science lab experience for home-schooled students which culminates in a Science and Engineering Fair Research Project.

Date: Friday, January 13th and 20th; 9:00 AM - 11:00 AM

Facilities: SCL 231

Personnel:

AU: Erin Percival, Mary Lou Ewald, Sallie Martin, Allison Tjelmeland, Chelsea Harrison

Student Impact:

Number of Students: 40

Grade Range: 6th -8th

Schools Served: NA

Class Information:

Instructed by:

- Erin Percival
- Sallie Martin

Activities:

This two-part lesson introduced students to biology lab skills and basic research skills.

Specific topics included:

- The scientific naming process
- How to use a dichotomous key
- Dissecting microscope technique
- Measuring lab
- Graphing Skills



Program: Getting Under the Surface (GUTS)

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

Date: Thursday, January 26th; 6:00 PM - 8:00 PM

Facilities: Parker Hall, SCC 115, SCL 231, SCL 310

Personnel:

AU: Mary Lou Ewald, Erin Percival, Molly McCartney, Molly Folkerts

Non-AU: Rebecca Balkcom (Auburn Junior High School), Wayne Strickland (AMSTI)

Student Impact:

Number of Students: 16

Grade Range: 1st -6th

Schools Served: NA

Course: Making Music

Have you ever composed music at the dinner table using your mom's water glasses? It probably didn't make her very happy, but if you have, you will be well practiced for one of our challenges! This all-new course will allow you to explore the science of sound through a series of hands-on learning stations. Kids and parents will learn about the science of sound, and will even have the chance to make an instrument of their own!

Grades: 1 - 3

Developed by: Rebecca Balkcom & Erin Percival

Number of Students: 7 (5 reporting on survey)

Average Student Satisfaction: 5 (out of 5)

Average Parent Satisfaction: 5 (out of 5)

**Course: Engineering Magic**

Have you ever been mystified by a magic trick? Stumped by an unbelievable magician? Put on your thinking caps and sharpen your observation skills as you watch increasingly complex magic tricks and develop your own explanations! A good magician never reveals his secrets, but I am not a good magician, so afterwards you will see the 'tricks' of the trade!

Grade Range: 4 - 6

Developed by: Wayne Strickland

Number of Students: 9 (6 reporting on survey)

Student Satisfaction: 5 (out of 5)

Parent Satisfaction: 5 (out of 5)

Program: Auburn Mathematical Puzzle Challenge (AMP'd)

Description: A math puzzle-based challenge in which kids deepen their critical thinking skills through a series of applied math problems in a thematic setting.

Date: Saturday, February 4th; 9:00 AM - 4:00 PM

Facilities: Parker Hall, SCA, SCC 115, SCC 118, SCC 122, SCL 231

Personnel:

AU: Mary Lou Ewald, Erin Percival, Kathy Feminella, Allison Tjelmeland, Chelsea Harrison, Tj Nguyen, Braxton Carrigan, Steven Clontz, Bryan McMeen

Math Dept.: Mary Claire Thompson, John Asplund, PJ Couch, James Hammer, David Pritchard, Chris Krizan, Jessica Godwin, Rachel Watson, Michael McMeen, Sally Thompson, Jamie Willoughby, Megan Reynolds, Amanda Chu, Abby Noble, Haley Stegar, Holly Steger, Kristin Courtney, Corinna Hinkson, Matthew Echeverria, Daniel Brice, Joseph Chaffee, Scott Varagona, Alan Bertl, Jennifer Aust, Maegan Neufeldt, Brandon Baker, Yesenia Perez

Student Impact:

Number of Students: 46

Grade Range: 7th -8th

Schools Served:

- Auburn Junior High School
- Opelika Middle School (2 teams)
- Russell County Middle School
- Sanford Middle School
- Southside Middle School (2 teams)



If you could change one thing about AMP'd what would it be and why?

“I would make it longer and with more puzzles.”

“I would make it in the 9th and 10th grade too.”

I wouldn't change anything because it's perfect”

“I really wouldn't change anything it was an awesome experience! ;)”

“I would make it for grades up to 9th grade”

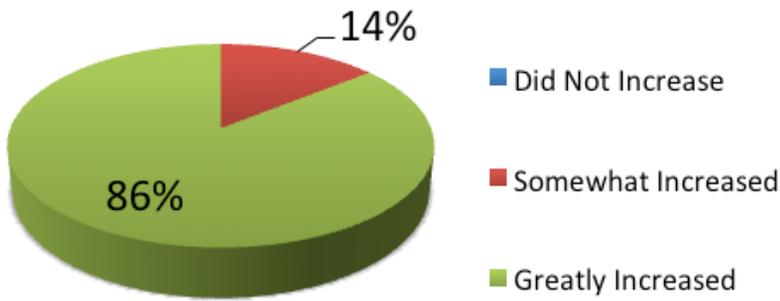
“Nothing it was fabulous, I would love to come back anytime!”

“I wouldn't change anything. It was awesome.”

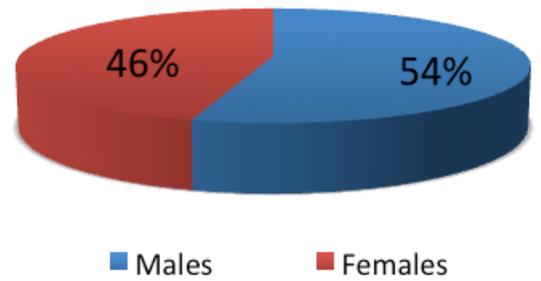
“I would change the fact that it ended and there was only one day for it. It was fun.”

From the AMP'd Student Survey

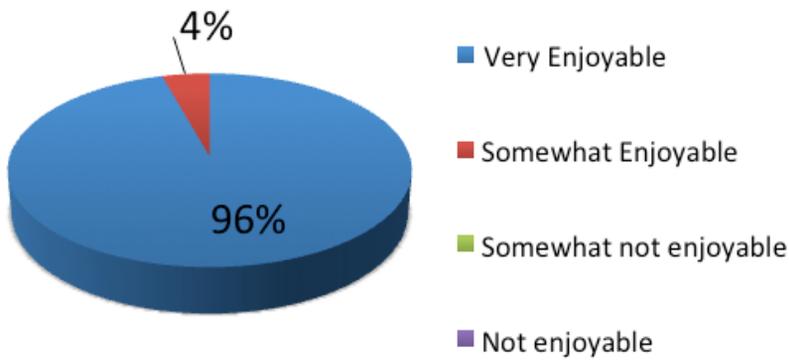
As a result of participating in AMP'd, my students ability to problem solve



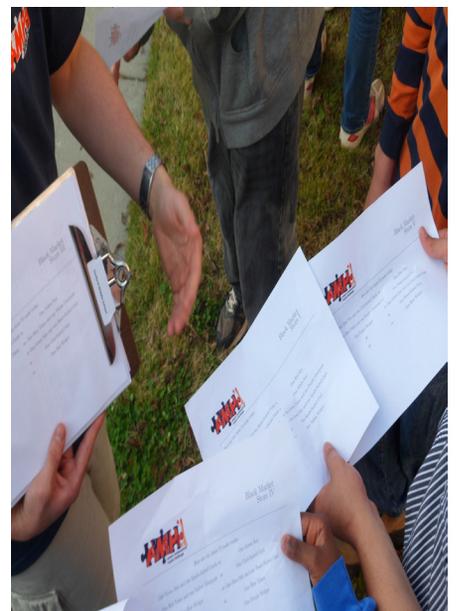
Participants (by gender)



Rank your enjoyment of AMP'd Challenge



Results from 2012 AMP'd Student Survey



Program: Science Investigations

Description: A meaningful science lab experience for home-schooled students which culminates in a Science and Engineering Fair Research Project.

Date: Friday, February 10th and 17th; 9:00 AM - 11:00 AM

Facilities: SCL 231

Personnel:

AU: Erin Percival, Mary Lou Ewald, Allison Tjelmeland, Chelsea Harrison

Student Impact:

Number of Students: 40

Grade Range: 6th -8th

Schools Served: NA

Class Information:

Instructed by:

- Erin Percival

Activities:

This lesson built student's microscope technique and allowed students use the measurement and graphing skills they acquired at the end of the last lesson. Specific activities included:

- Calculating the heart rate for *Daphnia sp.*
- Viewing microbes on a compound microscope
- Viewing microbes on a dissecting scope
- Calculating the effect of caffeine on *Daphnia sp.*
- Creating a graph to represent data



Program: Getting Under the Surface (GUTS)

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

Date: Monday, February 13th; 6:00 PM - 8:00 PM

Facilities: SCC 115, SCL 102, SCL 231, SCL 310

Personnel:

AU: Mary Lou Ewald, Erin Percival, Kathy Feminella, Molly Folkerts, Sallie Martin, Dr. Elizabeth Lipke

Non-AU: Karin Fuller (Auburn Junior High School)

Student Impact:

Number of Students: 21

Grade Range: 1st -6th

Schools Served: NA

Course: Potato Picasso

Before crayons were sold in boxes of 120, what products were used for coloring? Fruits and veggies make an excellent pallet of colors for creating beautiful, creative works of art. Join me, as we experiemtent with a variety of natural coloring tools; create our own artwork, and learn plant science along the way!

Grades: 1 - 3

Developed by: Karin Fuller

Number of Students: 11 (8 reporting on survey)

Average Student Satisfaction: 4.75 (out of 5)

Average Parent Satisfaction: 4 (out of 5)



Course: Your Healthy Heart

Beating over 100,000 times per day for decades, you heart never gets a break! Come learn how your heart works to keep your body supplied with oxygen, what you can do to help it stay healthy, and how heart repair may someday be possible.

Grade Range: 4 - 6

Developed by: Dr. Elizabeth Lipke

Number of Students: 10 (5 reporting on survey)

Student Satisfaction: 4.8 (out of 5)

Parent Satisfaction: 4.6 (out of 5)

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

Description: Students work collaboratively in teams of 4-8 students to solve real-world engineering challenges, applying their math and science skills in practical, creative ways in this annual competition.

Date: Friday, February 24th; 1:00 PM - 4:00 PM

Facilities: Student Center Ballroom

Personnel:

AU: Mary Lou Ewald, Erin Percival, George Blanks, Chelsea Harrison, Molly McCartney

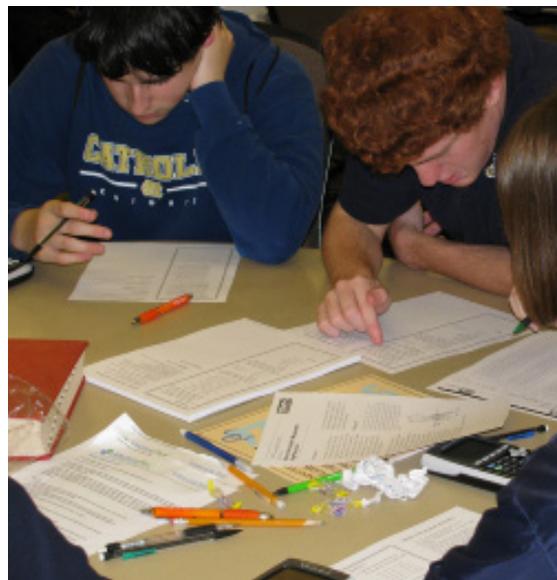
Student Impact:

Number of Students: 64

Grade Range: 9th -12th

Schools Served:

- Virgil I. Grissom High School
- Montgomery Catholic High School
- The Randolph School
- Hanceville High School
- Columbus High School
- Central Educational Center



Program: Middle School Science Olympiad (Division B)

Description: An annual one-day sports-like science competition for students in grades 6 - 9.

Date: Saturday, February 25th; 7:30 AM - 4:00 PM

Facilities: Student Center Ballroom, Parker Hall, SCC, SCL, Rouse Life Sciences, Haley Center, Petri Hall

Personnel:

AU: Mary Lou Ewald, Erin Percival, Kathy Feminella, Lara Stubbs, Allison Tjelemeland, Molly McCartney, additional AU Personnel listed below

Student Impact:

Number of Students: 270

Grade Range: 6th - 9th

Schools Served:

- Auburn Junior High School
- Baldwin Arts & Sciences Academy
- Beverlye Magnet School
- Carver Magnet School
- The Corner School
- Fultondale High School
- Geneva Middle School
- J.F. Drake Middle School
- Montgomery Catholic Preparatory School
- St. James School
- The Altamont School

Event Supervisors:

Dr. Ming-Kuo Lee	Awesome Aquifer
Dr. Xiaoying Han	Compute This
Kyle & Nathan Paris	Forestry
Dr. Molli Newman	Disease Detectives
Dr. Brian Helms	Water Quality
Dr. Tom Webb	Experimental Design
Dr. Mark Liles	Microbe Mission
Dr. Peter Nylan	Bottle Rocket
Dr. Chris Sundermann	Anatomy
Dr. Bob Lishak	Write It Do It
Dr. Ashraf Uddin	Dynamic Planet
Dr. Dmitry Glotov	Towers
Dr. Huajun Huang	Mouse Trap Vehicles
Dr. Luke Marzen	Road Scholars
Dr. John Hawkins	Rocks & Minerals
Dr. Erkane Nane	Storm the Castle
Dr. Virginia Davis	Science Crime Busters
Daniel Smith	Food Science
Dr. Minseo Park	Optics
Dr. David Maurer	Keep the Heat
Dr. Mike Fogle	Meteorology
Dr. Stuart Loch	Mission Possible
Dr. Bill Maddox	Reach For the Stars



Program: Spring Youth Experiences in Science (YES)

Description: Children engage in hands-on, make-and-take activities related to specific fields of science and math in a half-day academy.

Date: Saturday, March 3rd; 8:00 AM - 12:00 PM

Facilities: SCA, Parker 112, Parker 122, SCL 231, SCL 310

Personnel:

AU: Mary Lou Ewald, Erin Percival, Kathy Feminella, Molly Folkerts, Chelsea Harrison, Allison Tjelemeland, Emily Dunavant, and Andrew Henley

Non-AU: Amy Rutherford (J.F. Drake Middle School), Gina Watkiss (The Heritage School)

Student Impact:

Number of Students: 101

Grade Range: 3rd - 5th

- Course: SCATS!
Developed by: Gina Watkiss
- Course: Stop, Draw, Think!
Developed by: Andrew Henley
- Course: Density Detectives
Developed by: Amy Rutherford
- Course: Swingin' from the Vines
Developed by: Emily Dunavant



Program: Greater East Alabama Regional Science and Engineering Fair (GEARSEF)

Description: An Intel ISEF regional science and engineering fair in which students present science fair projects to a panel of university faculty.

Date: Wednesday, March 7th; 8:00 AM - 3:00 PM

Facilities: Student Center Ballroom, SC 2216, SC 2218, SC2222, SC 2223, SC2225

Personnel:

AU: Mary Lou Ewald, Erin Percival, Kathy Feminella, George Blanks, Sallie Martin, Allison Tjelmeland, Molly Folkerts, and Molly McCartney, additional AU Personnel listed below

Non-AU: Smita Mohanty, Tom Powell, Chelsea Ward (AUM), Ty Lucy (AMSTI), Wayne Strickland (AMSTI)

Student Impact:

Number of Students: 130

Grade Range: 6th - 12th

Schools Served:

- Auburn High School
- Autaugaville School
- Central High School
- Elmore County High School
- Glenwood School
- Hayneville Middle School
- Redland Elementary School
- Science Investigations Homeschool
- Stanhope Elmore High School
- The Calhoun School
- Wetumpka Middle School

AU Faculty and Grad. Students:

COSAM

Caley Allen
Nanette Chadwick
Roland Dute
Shobnom Ferdous
Maggie Han
Hayaa Hasemi
Shawn Jacobsen
Steven Jaret
Eli Kosnicki
Allen Landers
Dana Lashley
Billy McCann
Stephen Sefick
Daniel Smith
Chris Sundermann

Engineering

Judith Bailey
Swathi Bathula
Sree Vishal Chapalamadugu
Devin Cook
Virginia Davis
Yang Liu
Bill Josephson
Golbahar Mirhossenini
Hema Ramsurn
Jonathan Ryan
Vaishali Sharda
Martina Svyantek

Other

Kayla Cole (College of Education)
Yewande Fasina (College of Education)
Molli Newman (College of Agriculture)
Amirreza Sharifi (School of Forestry)



Program: Getting Under the Surface (GUTS)

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

Date: Tuesday, March 20th; 6:00 PM - 8:00 PM

Facilities: Parker Hall, SCC 115, SCL 231, SCL 310

Personnel:

AU: Mary Lou Ewald, Erin Percival, Kathy Feminella, Molly McCartney, Jason Bond, Sallie Martin

Non-AU: Gina Watkiss (The Heritage School)

Student Impact:

Number of Students: 17

Grade Range: 1st -6th

Schools Served: NA

Course: Spring Fling

Spring is a great time of year; flowers are beginning to bloom, the beach is on everyone's minds and Easter is on its way. Kick-off this spring with a collection of spring-themed chemistry and physics experiments. Use bubbles to discover how spring rainbows are formed, create your own eggs and explore the properties of sand, shells, and suntan lotion in this spring-themed course!

Grades: 1 - 3

Developed by: Gina Watkiss

Number of Students: 8 (5 reporting on survey)

Average Student Satisfaction: 5 (out of 5)

Average Parent Satisfaction: 5 (out of 5)



Course: Along Came a Spider

Did you know that you are rarely ever more than six feet away from a spider and that spider silk is one of the strongest natural fibers known? And, with over 40,000 species, spiders are among the most abundant predators on the planet! Come discover spiders and learn how they benefit humans, how they make and use silk, how spider venom aids them, and how to recognize spiders common to your backyard. Put your fears aside as we explore this important, remarkable, and diverse group of animals.

Grade Range: 4 - 6

Developed by: Dr. Jason Bond

Number of Students: 9 (5 reporting on survey)

Student Satisfaction: 5 (out of 5)

Parent Satisfaction: 4.8 (out of 5)

Program: Getting Under the Surface (GUTS)**Description:** Parent/child teams act as lab partners in a 75 - 90 minute science activity.**Date:** Wednesday, April 11th; 6:00 PM - 8:00 PM**Facilities:** Parker Hall, SCC 115, SCL 231, Parker 112**Personnel:**

AU: Mary Lou Ewald, Erin Percival, Kathy Feminella, Molly Folkerts, Allison Tjelme-land, Paul Norgaard

Non-AU: Rebecca Balkcom (Auburn Junior High School)

Student Impact:

Number of Students: 15

Grade Range: 1st -6th

Schools Served: NA

Course: Butterflies in my Window

Come learn how butterflies complete their life cycle as they grow and change from an egg into beautiful butterfly. You will discover how the anatomy of a butterfly allows the insect to endure its diverse life cycle, and even have the opportunity to build your own butterfly house! Then, at home, you can watch your egg, from your window as it hatches from its cocoon and transforms into a beautiful butterfly.

Grades: 1 - 3

Developed by: Rebecca Balkcom

Number of Students: 7 (2 reporting on survey)

Average Student Satisfaction: 5 (out of 5)

Average Parent Satisfaction: 5 (out of 5)



Course: Cheesy Chocolate Chemistry

Formerly "Edible Science," this course will allow students to understand how science makes foods tasty! Come learn how to harness the forces of nature to make extraordinary edible delights like candy and hot chocolate. We'll stimulate and excite your taste buds while using things like liquid nitrogen to make something "cool". Bring your hunger for sweets and science!!

Grade Range: 4 - 6

Developed by: Dr. Paul Norgaard

Number of Students: 8 (7 reporting on survey)

Student Satisfaction: 5 (out of 5)

Parent Satisfaction: 4.7 (out of 5)

Program: Elementary School Science Olympiad (Division A2)

Description: An annual one-day sports-like science competition for students in grades 3 - 6.

Date: Saturday, April 25th; 7:30 AM - 4:00 PM

Facilities: Student Center Ballroom, Parker Hall, SCC, SCL

Personnel:

AU: Dr. Greg Harris, Mary Lou Ewald, Erin Percival, Kathy Feminella, Lara Stubbs, Allison Tjelemeland, Molly Folkerts, Chelsea Harrison, Molly McCartney, additional AU Personnel listed below

Non-AU: Science teachers from participating schools

Student Impact:

Number of Students: 515

Grade Range: 3rd - 6th

Schools Served:

- Brighton Elementary School
- Dean Road Elementary School
- Cary Woods Elementary School
- Excalibur Christian School
- Geneva Middle School
- Highlands Elementary School
- Hillview Elementary School
- Hueytown Elementary School
- Kelly Springs Elementary School
- W.O. Lance Elementary School
- Mt. Gap Elementary School
- James Mulkey Elementary School
- Ogletree Elementary School
- Richland Elementary School
- St. Luke's Episcopal School
- Wright's Mill Rd. Elementary School
- Yarbrough Elementary School



Program: AU Explore**Description:** COSAM's annual science and mathematics open house**Date:** Thursday, April 26th; 8:00 AM - 3:00 PM**Facilities:** Parker Hall, SCL, SCC, SCA, Chemistry Building, Rouse Life Sciences, Parker Lawn, and Amphitheater**Personnel:**

AU: Mary Lou Ewald, Kathy Feminella, Erin Percival, Allison Tjelmeland, Lara Stubbs, Chelsea Harrison, Molly Folkerts, Molly McCartney, Kristy Mann, Wayne Strickland; additional AU personnel listed below

Student Impact:

Number of Students: 1132

Grade Range: 5th - 8th**Schools Served:**

- Bay Minette Middle School
- Chambers Academy
- Dean Road Elementary School
- Dozier Elementary School
- J.F. Drake Middle School
- Eagle Ranch
- Meadowland Elementary School
- Northside Intermediate School
- Ogletree Elementary School
- Smiths Station Junior High School
- South Girard School
- St. Paul's Episcopal School
- Veritas Christian Academy
- Victory Baptist School
- Victory Christian School
- Wacoochee Elementary School
- Wright's Mill Rd. Elementary School
- Yarbrough Elementary School
- 127 homeschool students

Science EXPO: The Science EXPO is a series of dozens of interactive displays sponsored by each of the 4 science departments that comprise the College of Sciences and Mathematics (COSAM) at Auburn - Physics, Biological Sciences, Chemistry & Biochemistry, and Geography & Geology. Students browse the displays at their own pace and were able to see, touch, hear, and smell the many wonders of science! Included in the Science EXPO are live animal displays, featuring snakes, lizards, turtles, spiders, insects, and many more fascinating creatures!

- Jon Armbruster and graduate students
- Jason Bond
- Nanette Chadwick and graduate students
- Debbie Folkerts
- Ken Halaynch and graduate students
- Shawn Jacobsen
- Steven Jaret
- Donna Raiford
- Aaron Rashotte and graduate students
- Scott Santos and graduate students
- Chris Goldsmith
- Susanne Striegler and graduate students
- John Simms and graduate students
- Allen Landers and graduate students
- Ed Thomas and graduate students



Science Fun Shop: The Science Fun Shops are short, hands-on mini-courses focused on a particular topic. The courses typically last 45 minutes.

- **All About Eyeballs**
Instructed by: Bob Lishak
2, 45 minute courses
Number of students: 52
- **Build a Kaleidoscope**
Instructed by: Erica Snipes
3, 45 minute courses
Number of students: 62
- **Build a Motor**
Instructed by: Jonathan McFadden
3, 45 minute courses
Number of students: 68
- **Carnivorous Plants**
Instructed by: Dee Smith
2, 45 minute courses
Number of students: 55
- **Cartesian Diver**
Instructed by: Dave Patrick
3, 45 minute courses
Number of students: 105
- **Fly Over Alabama**
Instructed by: Chandana Mitra
2, 45 minute courses
Number of students: 69
- **Fur, Feathers, and Fins**
Instructed by: Matt Kearly
2, 45 minute courses
Number of students: 49
- **Genes in a Bottle**
Instructed by: Mark Liles
2, 45 minute courses
Number of students: 51
- **Hoo Eats Who?**
Instructed by: Chris Sundermann, Roland Dute
2, 45 minute courses
Number of students: 47
- **iSpy Mathematics**
Instructed by: Kristy Mann
2, 45 minute courses
Number of students: 75
- **Medical Technology**
Instructed by: Kat Milly West
3, 45 minute courses
Number of students: 140
- **Physics of Music and Atoms**
Instructed by: Stuart Loch
3, 45 minute courses
Number of students: 178
- **Science Magic**
Instructed by: Wayne Strickland
3, 45 minute courses
Number of students: 88
- **Silly Cilia**
Instructed by: Tony Moss
2, 45 minute courses
Number of students: 48
- **Snap Electronics**
Instructed by: Rebecca Rogers, Josh Vanderhyden
2, 45 minute courses
Number of students: 48
- **Survivor**
Instructed by: Brian Helms and Molli Newman
3, 45 minute courses
Number of students: 71
- **We-Do LEGOS**
Instructed by: Corey Small
2, 60 minute courses
Number of students: 48



Demo Shows: Demo shows are large-scale science shows.

- **Raptor Show**
Instructed by: Southeastern Raptor Center
2, 45 minute shows
Number of students: 450
- **Glass Blowing Show**
Instructed by: Wendall Sandlin & Matt Montgomery
4, 45 minute shows
Number of students: 362
- **Herpetology Show**
Instructed by: Michael Wines
2, 45 minute courses
Number of students: 377



Math EXPO: The Math EXPO is a tent chock full of interactive math learning activities targeted at the 5th - 8th grade ability level.

Developed by: Braxton Carrigan
3, 45 minute sessions
Number of students: 197

Participation by Department

Biology:

- Jon Armbruster (Science EXPO)
- Jason Bond (Science EXPO)
- Nanette Chadwick (Science EXPO)
- Roland Dute (Science Fun Shop)
- Debbie Folkerts (Science EXPO)
- Ken Halanych (Science EXPO)
- Brian Helms (Science Fun Shop)
- Shawn Jacobsen (Science EXPO)
- Matt Kearly (Science Fun Shop)
- Mark Liles (Science Fun Shop)
- Bob Lishak (Science Fun Shop)
- Tony Moss (Science Fun Shop)
- Molli Newman (Science Fun Shop)
- Donna Raiford (Science EXPO)
- Aaron Rashotte (Science EXPO)
- Scott Santos (Science EXPO)
- Dee Smith (Science Fun Shop)
- Chris Sundermann (Science Fun Shop)
- Mike Wines (Demo Show)

Chemistry/Biochemistry:

- Chris Goldsmith (Science EXPO)
- Matt Montgomery (Demo Show)
- Wendall Sandlin (Demo Show)
- Susanne Striegler (Science EXPO)

- Kat Milly West (Science Fun Shop)

Geology and Geography:

- Steven Jaret (Science EXPO)
- Luke Marzen (Science Fun Shop)
- Chandana Mitra (Science Fun Shop)
- John Simms (Science EXPO)

Mathematics and Statistics:

- Braxton Carrigan (Math EXPO)

Physics:

- Allen Landers (Science EXPO)
- Stuart Loch (Science Fun Shop)
- Jonathan McFadden (Science Fun Shop)
- Dave Patrick (Science Fun Shop)
- Rebecca Rogers (Science Fun Shop)
- Cory Small (Science Fun Shop)
- Erica Snipes (Science Fun Shop)
- Ed Thomas (Science EXPO)
- Josh Vanderhyden (Science Fun Shop)

AMSTI:

- Kristi Mann (Science Fun Shop)
- Wayne Strickland (Science Fun Shop)

Program: SWSM Women's Leadership Symposium

Description: High School girls, SWSM members, AU faculty, and students attend an annual symposium consisting of a panel discussion, break-out session, and luncheon.

Date: Tuesday, May 1st; 8:00 AM - 1:30 PM

Facilities: Student Center

Personnel:

AU: Mary Lou Ewald, Erin Percival, Tammy Hartwell, Brook Moates, Kim McCurdy, Lara Stubbs, Molly Folkerts, Molly McCartney, Emily Dunavant

Student Impact:

Number of Students: 70

Grade Range: 9th - 12th

Schools Served: NA



Panelists and their Break-Out Sessions:

Caley Allen

Dept. of Chemistry and Biochemistry
PhD candidate
Chemistry without Chemicals

MiShawna Carlisle

Harrison School of Pharmacy
Student

Alexis Janosik

Dept. of Biological Sciences
PhD Candidate
My Antarctic Journey



Break-Out Sessions:

Dr. Beth Yarbrough

Director of COSAM Student Services
Majoring in Science and Mathematics at Auburn University

Erin Percival

Assistant Director of COSAM Outreach
More than just grades: Becoming a well-rounded college applicant

Beverley Childress

COSAM Pre-health Director
Preparing to become a doctor, veterinarian, or other health professional

Program: Science Matters

Description: A summer enrichment academy for elementary school children in which they attend science-themed weeks filled with experiments, field trips, and make-and-take projects.

Date:

- Monday, June 4 - Friday, June 8; 8:00 AM - 5:00 PM
- Monday, June 18 - Friday, June 22; 8:00 AM - 5:00 PM
- Monday, June 25 - Friday, June 29; 8:00 AM - 5:00 PM
- Monday, July 9 - Friday, July 13; 8:00 AM - 5:00 PM
- Monday, July 16 - Friday, July 20; 8:00 AM - 5:00 PM
- Monday, June 30 - Friday, August 3; 8:00 AM - 5:00 PM

Facilities: Parker 352, Parker 354, Parker 356, and Parker 358

Personnel:

AU: Mary Lou Ewald, Erin Percival, Kathy Feminella, Kristen Bond, Emily Dunavant, Lara Stubbs, Tj Nguyen, Allison Tjelmeland, Chelsea McMeen, Molly Folkerts, Molly McCartney, Allison H., Savannah Roberts

Non-AU: Rebecca Balkcom (Auburn Junior High School), Mark Jones (J.F. Drake Middle School), Frank Ware (Retired, Sanford Middle School), Gina Watkiss (The Heritage School), Hilary Boyd (Auburn Junior High School), Courtney Davis (Pleasant Valley Elementary School), Lana Grooms (Auburn Early Education Center), Karin Fuller (Auburn Junior High School), Andrew Click (Sanford Middle School), Amanda Prince (Auburn Early Education Center), Leah Shope (Auburn Early Education Center), Amy Rutherford (J.F. Drake Middle School)

Student Impact:

Number of Students: 204

Student Seats Filled: 394/420 (94% capacity)

Grade Range: rising 1st - 6th

Schools Served: Ada B. Cheston Elementary, Beauregard Elementary, Beulah Elementary, Cary Woods Elementary, Casis Elementary, Christ the King Catholic School, DA Smith Middle School, Daniel Pratt Elementary, Dean Road Elementary, Double Churches, Eastside Elementary, Evensdale, Forest Avenue Magnet School, Halcyon Elementary, Immaculate Heart of Mary Catholic School, Ivy Creek Elementary, J.F. Drake Middle School, Jeter Primary, Lee-Scott Academy, Meadowview Elementary, The Montessori School, Morris Avenue Intermediate, Mot Charter School, Northern Middle School, Northside Intermediate, Oak Grove Elementary, Ogletree Elementary, Opelika Middle School, Pates Creek Elementary, Reeltown, Richland Elementary School, Springwood School, St. Bede, The Donoho School, Thompson Intermediate, Trinity Christian School, Westhill Institute, Wright's Mill Road Elementary, Yarbrough Elementary



Course Information:**Week #1: June 4 - 8, 2013***Penguins and Polar Bears*

- Instructor: Courtney Davis
- Grades: 1 - 2
- Number of Students: 22

NASA Design Squad

- Instructor: Mark Jones
- Grades: 3 - 4
- Number of Students: 24

Pirates of the Caribbean

- Instructor: Gina Watkiss
- Grades: 5 - 6
- Number of Students: 24

Week #2: June 18 - 22, 2013*Calling All Artists!*

- Instructor: Lana Grooms
- Grades: 1 - 2
- Number of Students: 22

Slimy Science 2

- Instructor: Gina Watkiss
- Grades: 3 - 4
- Number of Students: 24

Creepy Crawler Olympics

- Instructor: Rebecca Balkcom
- Grades: 3 - 4
- Number of Students: 24

Week #3: June 25 - 29, 2013*Can I Dig to China?*

- Instructor: Amanda Prince
- Grades: 1 - 2
- Number of Students: 22

Gettin' Froggy With It

- Instructor: Karin Fuller
- Grades: 3 - 4
- Number of Students: 24

The Electric Pickle

- Instructor: Frank Ware
- Grades: 5 - 6
- Number of Students: 24

Week #4: July 9 - 13, 2013*Growing a Pizza!*

- Instructor: Lana Grooms
- Grades: 1 - 2
- Number of Students: 21

Rocket Science

- Instructor: Mark Jones
- Grades: 3 - 4
- Number of Students: 24

Adventure Park Adventure

- Instructor: Frank Ware
- Grades: 5 - 6
- Number of Students: 24

Week #5: July 16 - 20, 2013*Light and Sight*

- Instructor: Amanda Prince
- Grades: 1 - 2
- Number of Students: 22

We Got The Beat

- Instructor: Rebecca Balkcom
- Grades: 3 - 4
- Number of Students: 20

Snap It!

- Instructor: Hilary Boyd
- Grades: 3 - 4
- Number of Students: 17

Week #6: July 30 - August 3, 2013*Rockin' and Rollin' All About Motion*

- Instructor: Leah Shope
- Grades: 1 - 2
- Number of Students: 22

Race to the Sun

- Instructor: Amy Rutherford
- Grades: 3 - 4
- Number of Students: 25

Measuring: From Microbes to Mountains

- Instructor: Frank Ware
- Grades: 5 - 6
- Number of Students: 12



Program: Summer Science Institute

Description: An all-new summer science program for outstanding 11th - 12th grade students interested in science and mathematics. Students engage in real-world applications of science, perform experiments using cutting edge research equipment, and partner with COSAM researchers to gain lab skills not taught in high school.

Date: Monday, June 10 - Friday, June 16; 8:00 AM - 5:00 PM

Facilities: SCC, SCL, Chemistry Building, Petrie Hall, Parker Hall, Rouse Life Sciences Building, Leach Science Center

Personnel:

AU:

Counselors: Paul Bergen, Patrick Donnan, Emily Dunavant, Daniel Smith, Allison Tjelmeland

Lead Faculty: Jason Bond, Mike Fogle, Debbie Folkerts, Anne Gorden, John Gorden, Bill Hames, Allen Landers, Mark Liles, Chris Rodger

Additional AU Faculty/staff: Roger Birkhead, Rik Blumenthal, Mary Lou Ewald, Kathy Feminella, Dean Hoffman, Marianne Hudson, Shawn Jacobsen, Dave Maurer, Erin Percival, Chelsea McMeen, Mike Miller, Chris Murray, Jim Saunders, Lara Stubbs, Chris Sundermann, Ashraf Uddin, Paul West, Lorraine Wolf

Student Impact:

Number of Students: 26

Grade Range: rising 11th - 12th

Schools Served: NA

Survey Results

After participating in AU-SSI my understanding of how to engage in scientific research has...



Program: War Eagle BEST Teacher Training Workshop

Description: Professional development for BEST Robotics teachers that included both technical and non-technical/BEST Award training.

Date: Monday, August 6th - Tuesday, August 7th; 8:30 AM - 4:00 PM

Facilities: SCC 115, SCC 118

Personnel:

AU: Mary Lou Ewald, Erin Percival, Kathy Feminella, Molly McCartney, George Blanks, Jackie Hundley, Tj Nguyen, Curtis Shannon, Virginia Davis

Student Impact:

Schools Served:

- Benjamin Russell High School
- Brewbaker Technology Magnet High School
- Glenwood School
- Loachapoka High School
- Montgomery Catholic Preparatory School
- Opelika Middle School
- Prattville High School
- St. James School
- Smiths Station High School
- Southside Middle School
- The Heritage School
- Wetumpka High School
- Wetumpka Middle School

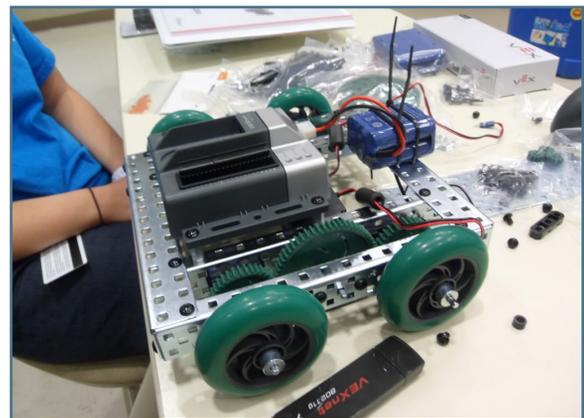
Course: The Technical Side of BEST

Learn the ins and outs of the technical side of BEST. Teachers will explore the purpose and correct usage of each Returnables Kit item and get experience with the building process as they construct their own VEX Robot using a rapid prototyping kit. Finally, teachers will learn how to effectively program their newly constructed robots using the Intelitek EasyC programming environment.

Developed by: Tj Nguyen, Dr. Jackie Hundley

Number of Participants: 13

Teachers without prior training: 10



Course: BEST Success

Teachers will get insider information on what it takes to be successful in the non-robotics portions of BEST. They will learn how to construct a professional quality engineering notebook, learn what judges are looking for at their team exhibits and what sets apart a memorable marketing presentation from one that gets lost in the shuffle.

Developed by: Mary Lou Ewald, Erin Percival

Number of Participants: 11

Teachers without prior training: 9

Program: Auburn Mathematical Puzzle Challenge (AMP'd)

Description: A math puzzle-based challenge in which kids deepen their critical thinking skills through a series of applied math problems in a thematic setting.

Date: Saturday, September 29th; 9:00 AM - 4:00 PM

Facilities: Parker Hall, SCA, SCC 115, SCC 118, SCC 122, SCL 231

Personnel:

AU: Mary Lou Ewald, Erin Percival, Kathy Feminella, Allison Tjelmeland, Tj Nguyen, John Asplund, Steven Clontz

Math Dept.: Steven Clontz, John Asplund, Mary Claire Thompson, Jessica Godwin, James Hammer, Christopher Krizan, Katherine Perry, Andrew Owens, Kathy Wilson, Kelly Bragan, Wei Huang, kristin Courtney, Frank sturm, Katherine Moore, Megan Reynolds, Calvin Montgomery, Hairuo Xu, Alisa Chauhan, Muriel Holmquist, Caleb Callais, Gramh Gordon, Hudson Lafayette, Noel Cervantes, Felipe Shinsato, Garrett Hutchins, Joshua Perkins, Brandon Baker, Nolan Chu, Amanda Chu

Student Impact:

Number of Students: 65

Grade Range: 7th -8th

Schools Served:

- Auburn Junior High School
- Opelika Middle School (2 teams)
- McIntosh High School (2 teams)
- Russell County Middle School (2 teams)
- Sanford Middle School



Program: War Eagle BEST

Description: Middle and high school robotics program open to teams in East Alabama and West Georgia

Date: Thursday, August 30th; 6:00 PM - 8:00 PM

Sunday, September 30th; 12:00 PM - 5:00 PM

Saturday, October 13th; 7:00 AM - 5:00 PM

Facilities: AU Student Center, Village Mall Auburn, and Smiths Station High School

Personnel:

AU: Mary Lou Ewald, Erin Percival, Kathy Feminella, Kristin Bond, Molly McCartney, Molly Folkerts, Chelsea McMeen, Tj Nguyen, many AU student volunteers

Student Impact:

Number of Students: ~700

Grade Range: 6th - 12th

Schools Served:

- A-2-Z Homeschool
- Auburn Junior High School
- Benjamin Russell High School
- Brewbaker Tech. Magnet High School
- Chambers County Career Tech.
- Central Educational Center
- Columbus Consortium
- J.F. Drake Middle School
- Glenwood School
- LAMP High School
- Lee-Scott Academy
- Loachapoka High School
- Montgomery Catholic Prep. School
- Opelika High School
- Opelika Middle School
- Prattville High School
- Saint James School
- Smiths Station High School
- Southside Middle School
- Springwood School
- Stanhope Elmore High School
- The Heritage School
- Wetumpka Middle School
- Wetumpka High School

Warp XX Game Objective

Teams must design and build a robot that can transport cargo and equipment to the ME and carry empty fuel containers back to Earth.



Warp XX Story Line

Hours before cargo ships arrive at their destination on an equatorial island in the Pacific Ocean, crewmembers can see a thin, bright, vertical line bisecting the sky. As their ships draw closer, they see that the base of the line terminates at a large building that occupies much of the island. Their gazes follow the bright line from the building upward, but they cannot see its far end.

The line is a ribbon of super-strong carbon nanotube that ascends to an asteroid anchored in geosynchronous orbit 62,000 miles above the earth.

It's called a Space Elevator (SE), and it's often hailed as the eighth wonder of the modern world. The SE is the premiere low-cost solution for transporting cargo out of Earth's gravity. The use of SE's will help expand lunar colonization, exobiological exploration, and asteroid mining. It has already spawned many new industries. The first stop on the SE is the Midway Station (ME), located just above the atmosphere, but well below geosynchronous orbit. The ME is a cargo transfer depot, solar power station, and home-away-from-home for SE engineers and crew.

Sponsors of the Program

Southern Company Workforce Dev.

Southern Company Services

Neptune Technology Group

Southern Nuclear

Hyundai Motor Manufacturing Alabama

Briggs & Stratton

Auburn University Outreach

Boeing

Brasfield & Gorrie

Rheem Water Heaters

Wal-Mart Foundation

TriDelta Systems

AO Tourism

Northrop Grumman

International Space Elevator Consortium

Army ROTC

Alabama Construction Recruitment Institute

SpaceX

Carmichael Engineering

ISA



BEST Award Winners

1st Place - Wetumpka High School

2nd Place - Saint James School

3rd Place - Columbus Consortium

4th Place - Brewbaker Tech. Magnet School

Robotics Award Winners

1st Place - Columbus Consortium

2nd Place - Stanhope Elmore High School

3rd Place - Wetumpka High School

4th Place - Saint James School



Program: Getting Under the Surface (GUTS)

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

Date: Tuesday, October 23rd; 6:00 PM - 8:00 PM

Facilities: SCC 115, SCL 231, SCL 310, SCL 323

Personnel:

AU: Mary Lou Ewald, Erin Percival, Kristen Bond, Molly Folkerts, Allison Tjelmeland, Sam Hirt

Non-AU: Amy Rutherford (J.F. Drake Middle School), Aleesa Zutter (Yarbrough Elementary School)

Student Impact:

Number of Students: 16

Grade Range: 1st -6th

Course: Pumpkin Mania

Have you ever wondered what's in a pumpkin? Where do they come from and why are they so special? How can you measure the size of a pumpkin? What is inside a pumpkin? Is it a fruit? a vegetable? We will use your scientific and investigation skills to delve depinto the pumpkin in this course!

Grades: 1 - 3

Developed by: Aleesa Zutter

Number of Students: 3 (3 reporting on survey)

Student Satisfaction: 5 (out of 5)

Parent Satisfaction: 4.67 (out of 5)

Course: Batty for Bats

Are bats really the creepy, night prowlers that everyone thinks they are? Discover common misconceptions about bats, explore echolocation, and become a bat 'expert' when you learn how to identify differences between common bats in Alabama! Come along with me, a local bat authority, as we investigate these flying mammals.

Grade Range: 1 - 3

Developed by: Sam Hirt

Number of Students: 6 (6 reporting on survey)

Student Satisfaction: 4.67 (out of 5)

Parent Satisfaction: 5 (out of 5)



Course: The GUTS of Blood

You have an amazing liquid flowing your veins! Come along as we uncover the inside story on blood and the role it plays in keeping our bodies healthy! We'll analyze arteries, critique capillaries, and verify veins on our quest to discover the GUTS of Blood. We'll even mix up a batch of our own entirely edible Halloween Blood as we learn all about the liquid of life.

Grade Range: 1 - 3

Developed by: Amy Rutherford

Number of Students: 7 (7 reporting on survey)

Student Satisfaction: 4.64 (out of 5)

Parent Satisfaction: 5 (out of 5)

Program: Kidz-sized Science

Description: Preschool program in which students engage in 1.5 hour science themed activities

Date: Friday, October 26th, and Friday, November 9th 12:30 PM - 4:00 PM

Facilities: Village Mall - Auburn

Personnel:

AU: Erin Percival, Kathy Feminella, Mary Lou Ewald

Non-AU: Amanda Prince

Student Impact:

Number of Students: 10

Grade Range: Pre-K - Kindergarten

Schools Served: NA

Topic: Pumpkins

Students engaged in a book about pumpkins, planted their own pumpkin seeds (inside a pumpkin), and counted pumpkin seeds.

Grades: Pre-K - Kindergarten

Developed by: Amanda Prince



Topic: Birds

Students discussed birds and their natural habitats, they read about camouflage, engaged in a feather sorting activity, built birdfeeders, and nesting devices.

Grade Range: Pre-K - Kindergarten

Developed by: Amanda Prince

Program: South's BEST

Description: Middle and high school robotics championship open to teams east of the Mississippi River

Date: Saturday, December 1st; 8:00 AM - 9:00 PM

Sunday, December 2nd; 9:30 AM - 5:00 PM

Facilities: Auburn Arena

Personnel:

AU: Mary Lou Ewald, George Blanks, Erin Percival, Kathy Feminella, Kristin Bond, Molly McCartney, Molly Folkerts, Chelsea McMeen, Tj Nguyen, many AU student volunteers

Non-AU: NA

Student Impact:

Number of Students: ~3,500

Grade Range: 6th - 12th

Schools Served:

- Alcorn Central High School (Glen, MS)
- Allen Thornton Career Technical Center (Killen, AL)
- Athens Bible School (Athens, AL)
- Brewbaker Technology Magnet High School (Montgomery, AL)
- Briarwood Christian School (Birmingham, AL)
- Carver Magnet School (Dothan, AL)
- Central Magnet School (Murfreesboro, TN)
- Columbus Consortium (Columbus, GA)
- Cornerstone Christian Preparatory Academy (South Park, PA)
- Cullman Middle School (Cullman, AL)
- Dallas County High School (Plantersville, AL)
- Decatur Austin Robotics Coalition (Decatur, AL)
- Episcopal Day School (Gadsden, AL)
- Faith Academy (Mobile, AL)
- Family Instructors of the North Suburbs (Pittsburg, PA)
- Fernbank LINKS (Atlanta, GA)
- Fyffe High School (Fyffe, AL)
- Glastonbury High School (Glastonbury, CT)
- Gwinnett School of Math, Science, and Technology (Lawrenceville, GA)
- Holly Pond High School (Holly Pond, AL)
- Holy Cross (New Orleans, LA)
- Hope Acadmey (Talladega, AL)
- Keith Middle High School (Orrville, AL)
- LeCroy STEM Academy (Clanton, AL)
- Lindsay Lane Christian Academy (Athens, AL)
- Louis P. Slade Middle School (New Britain, CT)
- MARIO (Clarksville, TN)
- Marshall Technical School (Guntersville, AL)
- Martin Middle School (Valley Grande, AL)
- Mercer Area Middle/High School (Mercer, PA)
- Merrol Hyde Magnet School (Hendersonville, TN)
- Millsaps BEST Robotics (Starkville, MS)

- Miss Porter's School (Farmington, CT)
- Mobile Area Coalition of Homeschools (Mobile, AL)
- Newpoint Pensacola High School (Pensacola, FL)
- North Cobb Christian School (Kennesaw, GA)
- Oak Mountain High School (Birmingham, AL)
- RCS Engineering (Russellville, AL)
- Saint James School (Montgomery, AL)
- Seaside Neighborhood School (Santa Rosa, FL)
- South Forsyth High School (Cummings, GA)
- Southern Academy (Greensboro, AL)
- Spain Park High School (Birmingham, AL)
- St. Mary Catholic School (Mobile, AL)
- St. Scholastica Academy (Covington, LA)
- St. Vincent de Paul Catholic School (Mobile, AL)
- Stanhope Elmore High School (Millbrook, AL)
- Starkville Christian School (Starkville, MS)
- Sumter Central High School (York, AL)
- Sweet Water High School (Sweet Water, AL)
- Talladega High Career Tech (Talladega, AL)
- Tuscaloosa Christian School (Tuscaloosa, AL)
- W.P. Davidson High School (Mobile, AL)
- Wetumpka High School (Wetumpka, AL)
- Wicksburg High School (Newton, AL)
- Wilson High School (Florence, AL)

BEST Award Winners

1st Place - Cornerstone Christian Prep. Academy

2nd Place - Holy Cross

3rd Place - Decatur Austin Robotics Coalition

4th Place - Spain Park High School

Robotics Award Winners

1st Place - St. Vincent de Paul Catholic School

2nd Place - Holy Cross

3rd Place - Spain Park High School

4th Place - Gwinnett School of Math, Science, and Technology



Sponsors of the Program

Southern Company Workforce Dev.

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Wal-Mart Foundation

TriDelta Systems

AO Tourism

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International Space Elevator Consortium

Army ROTC

Alabama Construction Recruitment Institute

SpaceX

Carmichael Engineering

ISA



2012 Student Survey Summary

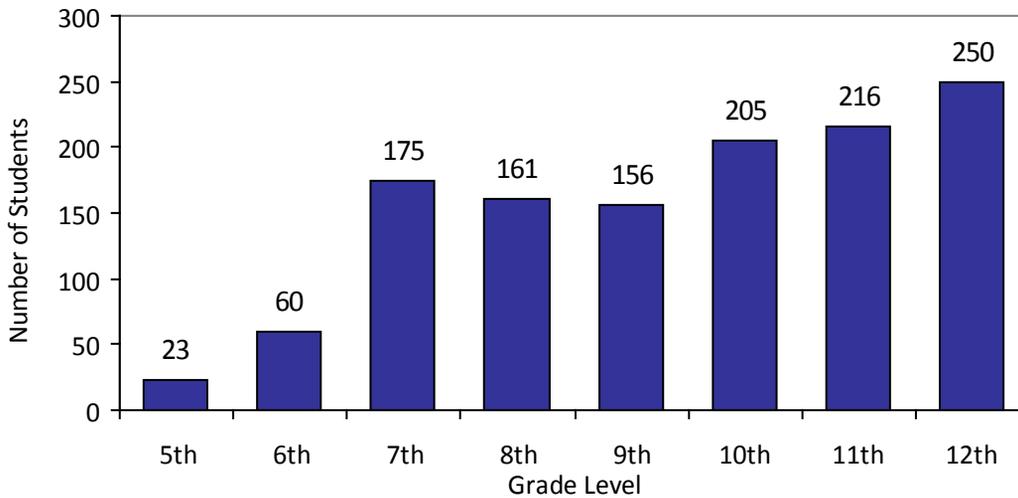
Introduction

The 2012 South’s BEST Robotics Championship Competition was held December 1-2 at the Auburn Arena on the campus of Auburn University. Fifty-seven (57) teams from 8 states were in attendance, with 36 (or 63%) being from Alabama. Other represented states included: Georgia, Florida, Mississippi, Connecticut, Louisiana, Tennessee, Pennsylvania.

Summary of Student Survey

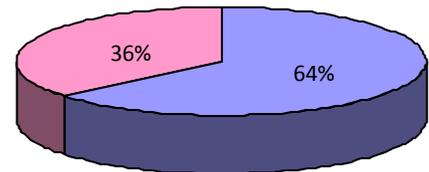
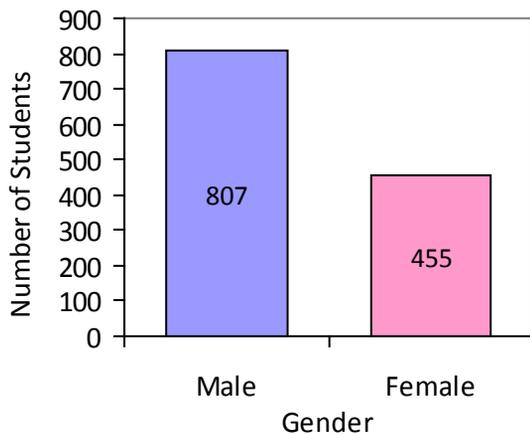
The survey was completed by 1,317 students. The survey asked the students if they were a BEST team member or a visitor supporting a BEST team. The surveys with “Visitor” marked (49 responders total) were taken out for the purpose of analyzing data leaving a total of 1,268 surveys.

Grade Level



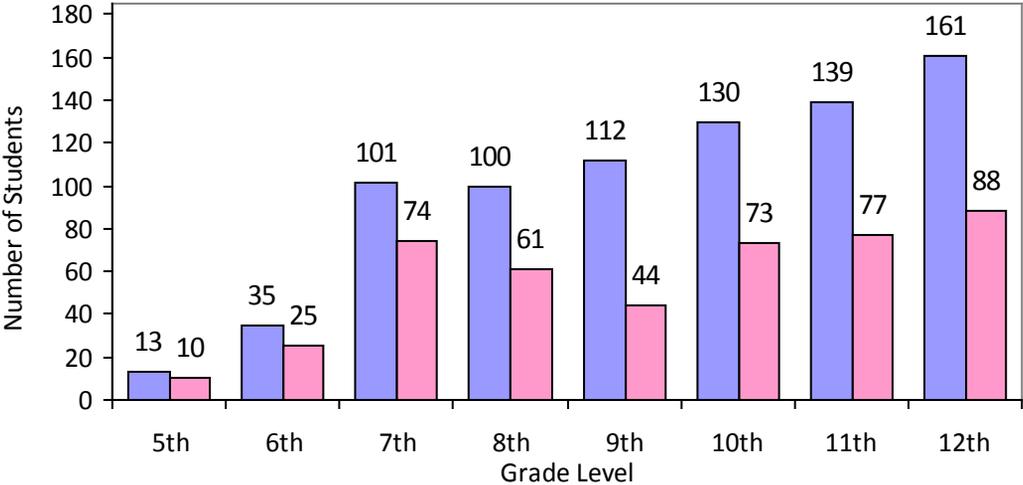
Of the 1,268 available surveys in the revised pool, 1,246 students provided their grade level. Middle School students (5th-8th grade) accounted for 33.6% of student attendees, with 66.4% being in high school (9th – 12th grade).

Gender



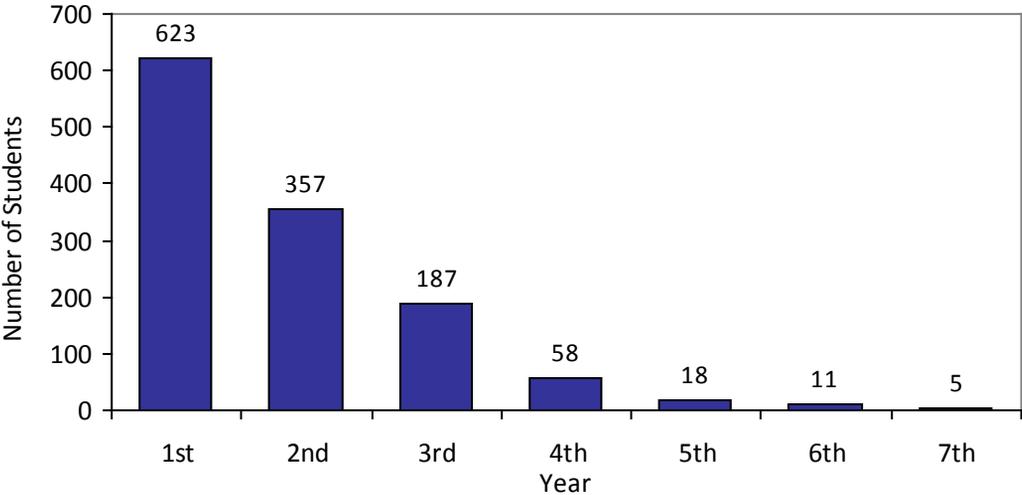
Of the 1,268 available surveys in the revised pool, 1,262 students provided their gender; 455 were female (36%) and 807 were male (64%).

Gender by Grade Level

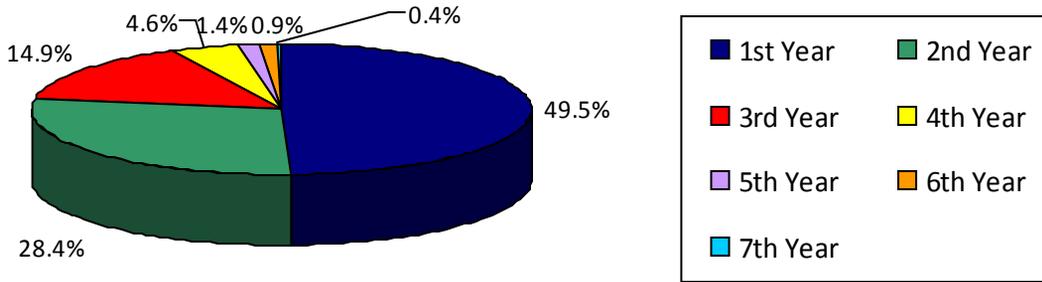


Of the 1,268 available surveys in the revised pool, 1,243 students provided both their grade level and gender; 791 male and 452 female.

Years in the Program

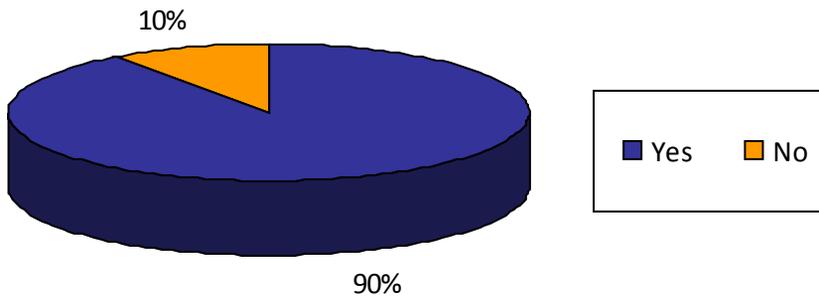


Of the 1,268 available surveys in the revised pool (sans Visitors), 1,259 students provided the number of years they've participated in BEST. First year students accounted for 49.5%; second year students, 28.4%; third year, 14.9%; fourth year, 4.6%; fifth year, 1.4%; sixth year, 0.9%; and five (5) seventh year students accounted for 0.4%.



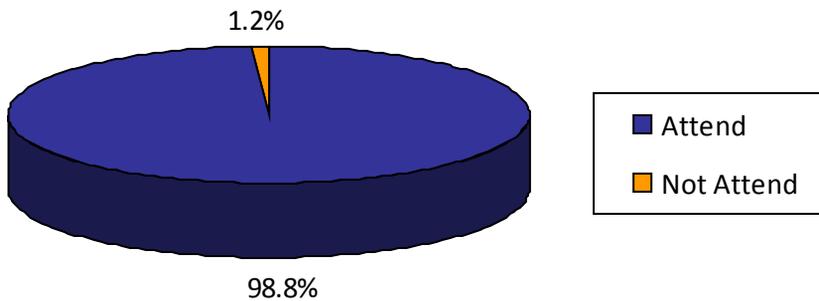
As a regional competition, the number of years a student has participated in BEST is not an accurate indication of student attrition. As the program continues to grow, new teams and competition sites are added each year, which brings a new group of students. What this data represents is the innovation and competitive spirit of first year teams and participants.

Increased Interest in STEM



Of the 1,268 available surveys in the revised pool (sans Visitors), 1,262 responded to the question. 1,136 (90%) expressed an increased interest in math, science, and/or engineering because of their participation in BEST.

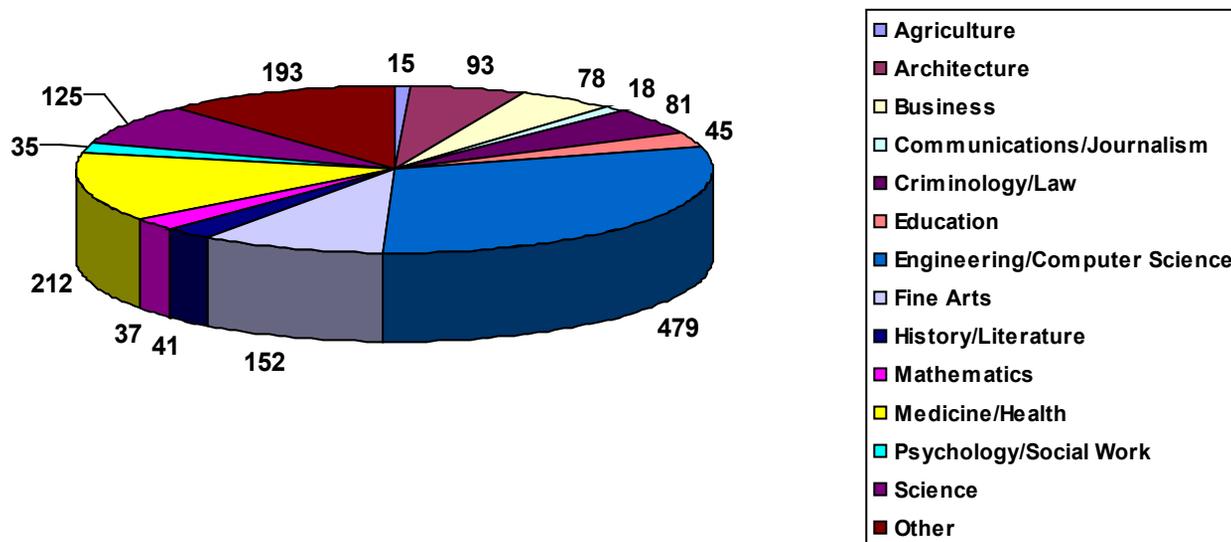
Plans to Attend College



Of the 1,268 available surveys in the revised pool (sans Visitors), 4 students did not respond and 15 students did not plan to attend college, while 1,249 did (98.8%). Of those who did not plan to attend college, 2 were female and 13 were male.

Of students who plan to attend a college or university, the following schools were listed as schools of interest: Auburn, 20%; Alabama, 11.4%; Georgia Tech, 4.3%; South Alabama, 3.9%; UAB, 3.7%; UAH, 2%; MIT, 2.4%; Mississippi State, 2.3%; Harvard, 2.3%; UAH, 1.6%; Florida, 1.5%; Montevallo, 1.3%; Florida State, 1.3%; University of West Florida, 1.3%; and LSU, 1.2%. The students who chose more than three schools or were completely undecided accounted for 12.7 percent.

Fields of Study



There were 13 available fields of study for students to choose from and an “other” write-in option. The data above represents the frequency of occurrence for the fields of study on the survey. Engineering/Computer Science accounted for roughly 30 percent while COSAM (or medical degrees starting there) accounted for 23 percent. The frequency of “other” was 12 percent with 34 percent of the “other” being undecided. The remaining notable percentages were:

Agriculture .9%
 Architecture 5.9%
 Business 4.9%
 Communications or Journalism 1.1%
 Criminology or Law 5.1%
 Education 2.8%
 Fine Arts 9.5%
 History, Literature, or English 2.6%
 Psychology 2.2%

College Interest Among High School Students

Fifteen students said they had no plans of attending college; thirteen of which were in high school. There were 836 high school students that gave their collegiate plans. The colleges of choice and the percentages of which they are preferred are similar to those of the entire group.

A major was given by 831 high school students. Engineering/Computer Science was selected by 374 students, or 35.9%. COSAM degrees captured 230 students or 22% (over half selecting medicine). The remaining highest concentrations were:

Fine Arts: 7.3%
 Business: 5.0%
 Architecture: 4.8%
 Criminology Law: 3.2%

Student Survey 2012

Name: _____ City/State: _____

School: _____ Grade: _____ Gender: Female Male

1.) Do you intend/want to go to college?

Yes

No

If so, where would you like to attend? _____

What field of study do you plan to major in?

Agriculture

Architecture/ Design/ Construction

Business (marketing, accounting, aviation, etc)

Communications/ Journalism

Criminology / Law

Education

Engineering/ Computer Science

Fine Arts (art, music, film, theatre)

History/ Literature/ English

Mathematics

Medicine/ Health/ Veterinary/ Nursing

Psychology/ Social Work

Science (chemistry, biology, physics)

Other: _____

2.) If you are NOT planning to attend college, why not?

I have no interest in attending college I can't afford to attend college

I plan to get a job Other: _____

3.) Has participating in the BEST Program increased your interest in the fields of math, science, and/or engineering?

Yes

No

4.) How many years (including this year) have you participated in BEST?

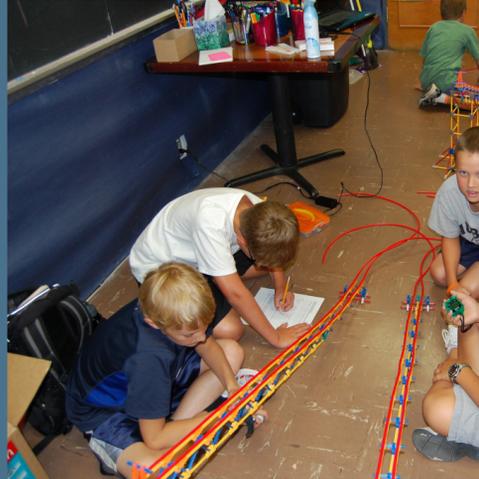
1 year 3 years

2 years More than 3 years: _____

5.) Are you a member of your school's BEST team or are you attending as a visitor supporting your schools' BEST team?

Team Member

Visitor





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