



## COSAM Covalence E-News, July 2010

### Headlines

[Bringing Global Climate Change Education to Alabama Classrooms](#)

[COSAM Hosts Summer Bridge Program](#)

[COSAM Professor Receives Recognition for Groundbreaking Study](#)

[Actuarial Major Steps Out of Pool and Into a Cap and Gown](#)

[Biological Sciences Professor Receives Graduate Mentor Award](#)

[COSAM Digital Updates](#)

### Bringing Global Climate Change Education to Alabama Classrooms



Utilizing funds from a National Aeronautics and Space Administration (NASA) grant, COSAM partnered with the Alabama State Department of Education (ALSDE) to develop interactive education modules in varying science-focused areas of global-climate change. The goal of the new curriculum is to engage ninth through 12th grade Alabama students in developing climate literacy - the essential principles of climate sciences.

ALSDE Science Specialist Chris McDuffie believes the modules will challenge students. "The modules are reaching far beyond the minimum - this program will focus on rigor,"

says McDuffie. The modules employ Roger Bybee's "Five E's" of the learning cycle: Engage, Explore, Explain, Extend and Evaluate.

To kickoff classroom implementation of the Global Climate Change Education (GCEE) initiatives, more than 40 participants including area science teachers gathered on Auburn University's campus in July for a four-day workshop that included execution of many of the new modules and laboratory exercises their students will use this fall.

"I am excited to be able to incorporate these modules into my classroom because it helps tie many concepts together and relate them to my students," says Jessica Hodnett, a teacher at Dadeville (Ala.) High School.

The GCEE initiatives will utilize the delivery systems and training developed by the Alabama Science in Motion (ASIM) and the Alabama Math and Science Technology Initiative (AMSTI) programs.

[Back to Headlines](#)

### COSAM Hosts Summer Bridge Program



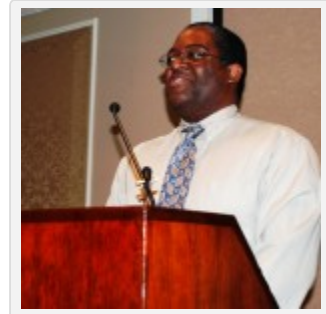
This summer, 21 teenagers from across Alabama and Georgia stepped onto Auburn's campus as college students for the first time in the [COSAM Summer Bridge Program](#). Since 1997, the program has provided a four-week, interdisciplinary, academic-enrichment experience for incoming minority freshmen enrolled in COSAM or the Samuel Ginn College of Engineering.



“The energy and vitality of this group was intense. There was such an interest in learning,” says COSAM Associate Dean of Diversity Dr. Velma Richardson.

From June 6 through July 1, the eight males and 13 females stayed on campus and participated in a variety of activities including coursework in chemistry and pre-calculus as well as field trips to East Alabama Medical Center, the George W. Carver Museum and the Hyundai automobile plant in Montgomery, Ala.

While free of charge to participants, the program is not without a give-back aspect. “We implemented activities in 2007 in which students give back to the community. This year, we participated in science experiments at the Boys and Girls Club of Lee County. This aspect promoted leadership development,” says Dr. Richardson.



Dr. Ed Thomas, COSAM Physics professor, speaks at luncheon.

The program concluded with an awards luncheon and guest speaker. This year’s speaker, Dr. Ed Thomas of Physics, spoke to the group about how to make the most of perceived failure.

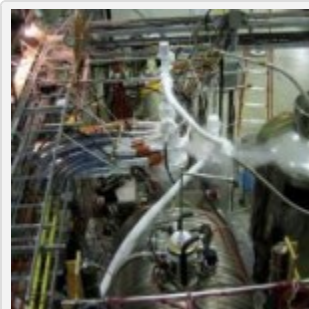
“We’re trying to give them a head start for academic preparation and social networking. Summer Bridge gives these students early access to the dean, different schools on campus like the vet school and pharmacy school as well as new friends in small-group settings,” says Dr. Richardson.



Summer bridge graduate receives diploma from Dr. Velma Richardson (l) and Incoming Dean Marie Wooten (r).

[Back to Headlines](#)

## COSAM Professor Receives Recognition for Groundbreaking Study



CERN nuclear research lab

COSAM Physics professor, Dr. Francis Robicheaux, was invited to join a team of international scientists some five years ago to study why the universe is made of matter rather than antimatter. In order to do this, the team must combine cold antiprotons with an electron’s antimatter partner to form cooled atoms of antihydrogen.

The ongoing experiment is performed at the CERN nuclear research lab on the border of Switzerland and France and recently generated the coldest particles of antimatter ever recorded.

“I got involved through my computer simulations of the study. The leap from the computer to the actual experiment was huge because you get more detailed to determine what you put in versus what you need to throw away,” says Dr. Robicheaux.

“Computer simulations may provide answers to questions that come out of the experiment.”

Dr. Robicheaux stresses the importance of the College’s contribution in one example where the team abandoned a method to lower the temperature, but his team, which also consists of two undergraduate students, found through the computer simulation that it could work.

“They retried it and were successful,” says Dr. Robicheaux.

The team eventually cooled down antiprotons to temperatures colder than the surface of Pluto, as low as -443 degrees Fahrenheit (9.26 kelvin). In the experiment, the antihydrogen cooler collects a large number of particles in a magnetic trap with an open top. Over time, the high-energy particles evaporate, while those with less energy remain. Dr. Robicheaux describes the process like cooling a cup of coffee. The hottest particles evaporate first,

leaving the cooler ones behind.

Dr. Robicheaux's co-authored paper, [Evaporative Cooling of Antiprotons to Cryogenic Temperatures](#), has been published in *Physical Review Letters*. Descriptions of the main results of the paper was published in the *Physical Review Focus*, *New Scientist* and *Inside Science News Service* for a general readership.

[Back to Headlines](#)

## Actuarial Major Steps Out of Pool and Into a Cap and Gown



Melissa Marik has been on a swim team since she was 6 years old. Her best stroke is backstroke, and for the past four years she was a member of the Auburn University women's swim team. With her collegiate eligibility at an end and graduation on the horizon, Marik will continue to practice with the team in preparation of the 2010 ConocoPhillips National Championship, which will take place at the end of the summer. Those who perform exceptionally well at the national swim meet will be selected for one of three international swim teams, and Marik hopes to be one of those selected. In order to meet this goal, Marik insists upon continuing to lead a balanced and disciplined lifestyle.

"It's hard, but it's something I've been doing since middle school, something I've been doing forever, and that's managing my time and staying disciplined," says Marik.

Marik also realizes that just as her social life has to remain in check, so too must her academic pursuits.

"I can't pull an all-nighter and then to go practice. That's just not going to be good," says Marik. "So, I have to be really organized, really balanced."

Marik believes the organization, self discipline and occasional sacrifice are all worth sustaining in an effort to be the best swimmer, teammate and scholar she can be. However, the road has not always been easy for Marik who suffered the deaths of two swim coaches in four years, including head coach, Richard Quick, who died of cancer.

"The swimming has been great, but our teams have had a lot of ups and downs, things that we could never have foreseen have been really challenging. When our head coach got brain cancer, that was really hard to deal with," says Marik. "The one thing we need is stability and that is the one thing we just seem to not be able to get."

At the end of fall semester in 2010, Marik will graduate with a degree in [Actuarial Mathematics](#). She has been successful in her academic career with a 3.89 cumulative GPA and was named to the SEC academic winter honor roll. She recommends that anyone with a passion for numbers and business should look at Actuarial Mathematics. "It's hard. If you want to succeed in it, you have to work hard...but it has its rewards."

When reflecting on her academic career at Auburn, Marik has no regrets in terms of choosing the challenging curriculum. "I go and I work hard at (swim) practice, so why wouldn't I work hard at school? I didn't come to college to take the easy way out," says Marik.

[Back to Headlines](#)

## Biological Sciences Professor Receives Graduate Mentor Award

---

Dr. Robert Boyd, professor of Biological Sciences, was recently



Dr. Boyd (second from left) pictured with students who wrote letters of recommendation.

chosen out of 32 applicants to receive one of five Graduate Mentor Awards.

Graduate students nominate professors deserving of the Outstanding Graduate Mentor Award, providing at least three letters of support (each from a different student) to accompany their applications. A committee of Graduate Student Council members meet to review each of the application packets, giving each packet a rating based on the strength of the support letters. Then, based on the rating of each packet, each committee member rank-orders the top selections. The five Mentor Award recipients received the highest ratings and rankings among selection committee members.

[Back to Headlines](#)

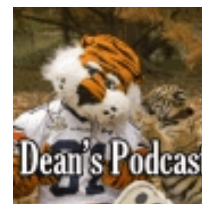
## COSAM Digital Updates



[COSAM Graduates](#)



[COSAM Scrubbing for Germs](#)



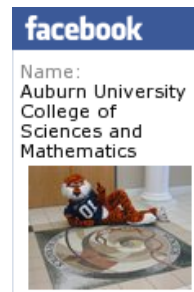
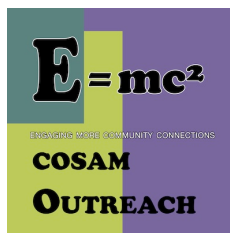
[Program Episode 40: Dean summarizes COSAM's year, says goodbye to listeners and thanks Phillip Coxwell for making it happen.](#)

[Camp War Eagle 2010](#)

[COSAM Limitless Learning](#)

[COSAM Student Services Parents Website](#)

[Back to Headlines](#)



Previous *Covalence* issues are available in the [archive](#). To subscribe or unsubscribe, email [covalence@auburn.edu](mailto:covalence@auburn.edu) and include your email address and the word 'subscribe' or 'unsubscribe' in the subject

and body.

For content suggestions contact COSAM at [covalence@auburn.edu](mailto:covalence@auburn.edu)  
Auburn University College of Sciences and Mathematics | Auburn University, AL 36849 | © 2011