



## COSAM Covalence E-News, February 2009

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### Message from the Dean



There is a unique bond that exists between the College of Sciences and Mathematics and those individuals, past and present, that have been associated with us. This special connection generates a unity that is truly a manifestation of the wisdom that says, "the whole is greater than the sum of its parts."

This is much like a chemical compound in which a collection of the diverse atoms come together and combine themselves into a unit that differs greatly from the properties of the individual atoms. This combined unity is the result of a connecting bridge known as a covalent bond in which the inter-atomic linkages result from the equal sharing of two or more electrons.

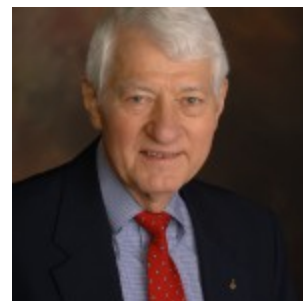
The COSAM experience is a lot like this bonding, or **covalence**. We work together to enhance the quality of the College of Sciences and Mathematics at Auburn University. Thus, it is scientifically, scholastically and socially fitting that the new COSAM electronic newsletter be named Covalence. It is an expression of the unique relationship we all share.

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### COSAM'S Hartsfield to Receive Lifetime Achievement Award

Hank Hartsfield (Physics '54), the 2007 College of Sciences and Mathematics Distinguished Alumnus, will be recognized by the Auburn Alumni Association with a lifetime achievement award. This prestigious distinction was established in 2001 to honor extraordinary accomplishments by members of the Auburn family.

After graduating from Auburn, Hartsfield began graduate school at Duke University, but was called into active duty a year later by the Air Force. Following a tour in Bitburg, Germany, Hartsfield was selected for the USAF Test Pilot School. He graduated in 1965 and remained as an instructor until October 1966 when he was selected as a military astronaut on the Manned Orbiting Laboratory (MOL) Program. The program was canceled in 1969 and he was assigned to NASA as an astronaut. Prior to joining NASA he earned an M.S. in Engineering Science from the University of Tennessee.



Hartsfield held various positions with the Astronaut Office, most significantly providing the pilots input on the development of the space shuttle entry flight control system. Also while at NASA, he piloted Columbia's fourth and final orbital flight test in June 1982, commanded the first flight of the Discovery in August 1984 and

commanded Challenger on the German D-1 Spacelab mission in October 1985. Hartsfield also held management positions at the Johnson Space Center, NASA Headquarters and Marshall Space Flight Center. Hartsfield retired from NASA in 1997 and joined Raytheon, serving as Vice President for Aerospace Engineering Services in Houston. He retired from Raytheon in April 2005.

Hartsfield has received numerous awards and honors throughout his career including the General Thomas D. White Space Trophy (1974), NASA DOD Distinguished Civilian Service Award (1982), a Honorary Doctor of Science from Auburn University (1986), Alabama Aviation Hall of Fame (1983) and Astronaut Hall of Fame (2006). Most recently Hartsfield was elevated to Fellow in the Society of Experimental Test Pilots (2006).

The Auburn Alumni Association Lifetime Achievement Award recognizes recipients for outstanding achievements in their professional lives, personal integrity and stature, and service to the university. Recipients of Lifetime Achievement Awards are selected by a committee of Auburn administrators, trustees, faculty and alumni. Hartsfield will be joined at a March 7 banquet by fellow 2009 recipients: longtime University of Georgia football coach Vince Dooley '54 of Athens, Ga.; nuclear energy specialist Oliver Kingsley Jr. '66 of Birmingham; and battle tank developer Phil Lett '44 of Southfield, Mich.

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## Mathematics Students Benefit from Fulbright Scholar

Since 1946, Fulbright scholars have crossed the waters to participate in the international education exchange program designed to primarily enhance lecturing and advanced research on the hosts' campuses. In 2008, the College of Science and Mathematics at Auburn University (COSAM) had the unusual benefit of not only hosting Fulbright Scholar Cristina Fernandez of Spain for her research on coding theory, but also of welcoming her teaching skills in the classroom.

"Having Dr. Fernandez offer an honors calculus course in the College is a rare opportunity for our freshmen to not only learn in a cross-cultural setting, but to experience an internationally acclaimed and talented professor in the classroom," says COSAM Dean Stewart Schneller.



COSAM Professor of Mathematics and Statistics, Kevin Phelps, was instrumental in arranging this unique opportunity. "I believe that international education exchange is at the heart of the Fulbright Program," Phelps says. "Being involved with students in a small class is one of the best ways to promote mutual understanding and respect for different cultures."

Fernandez, whose yearlong visit to Auburn began in May 2008, teaches a class that includes 25 freshmen. "They are very motivated and do well," she said. "In Spain, I teach much larger classes of 40-80 students, sometimes 100, who are studying to be computer engineers. They are not always as motivated as my Auburn honors students."

Fernandez has served since 2003 as an assistant professor at her alma mater, the Autonomous University of Barcelona, where she teaches computer engineering. She earned a bachelor's degree in mathematics in 2000, a master's degree in computer science in 2003 and a doctorate degree in computer science in 2005. Fernandez has published eight articles in professional journals and has presented at 12 national and international conferences.

Each year the U.S. Department of State's Visiting Fulbright Scholar Program selects 800 individuals to study in more than 140 countries. Funding is mainly from an annual appropriation from the U.S. Congress, supplemented by participating governments and host institutions through cost-sharing and indirect support, such as salary supplements, tuition waivers and university housing. Phelps, who serves as the Fulbright program's sponsoring faculty associate for Fernandez, says it is a fairly rigorous process of application and selection.

At Auburn, Fernandez is continuing her research on coding theory, which is a branch of mathematics concerned with accurately transmitting data signals from one location to another. It involves many different disciplines – electrical engineering, computing and mathematics – coming together to successfully recover these signals.

Dean Schneller describes Fernandez's participation on campus as a "unique coalescence of several University priorities: attracting noted scholars, internationalization of our classroom offerings, enhancing the honors college, and placing highly regarded academicians in the freshman experience."

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## COSAM Student Named Miss Homecoming 2008

Meredith Gaston, a senior in biomedical sciences, was crowned Miss Homecoming during the halftime festivities at Jordan-Hare Stadium on Nov. 8, 2008. The student body elected the Montgomery, Ala., native from a field of five candidates.

“Being chosen to represent the student body as Miss Homecoming has been the most humbling experience. I have made so many new friends during the week, while being supported and encouraged by those I’ve known for years,” Gaston says. “It’s been such a blessing, and I am so thankful.”

Gaston ran on a platform of supporting awareness and increasing participation in the AU Alert System. Gaston is also Panhellenic president; Cardinal Key vice president; and a member of the Omicron Delta Kappa honor society and Alpha Gamma Delta sorority. Gaston sites the College of Science and Mathematics as a springboard to law school where she plans to pursue a career in patent law.

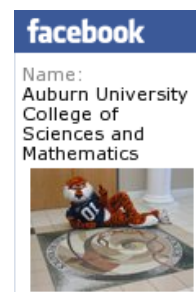
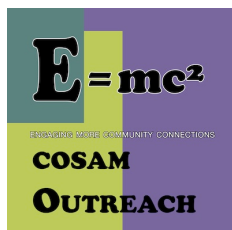
“I have learned so much from the classroom, but even more from the (COSAM) people that I have been surrounded by,” the COSAM Leader says. “I look forward to many years of giving back to my university as well as my college.”

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## Deans Research Awards

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