

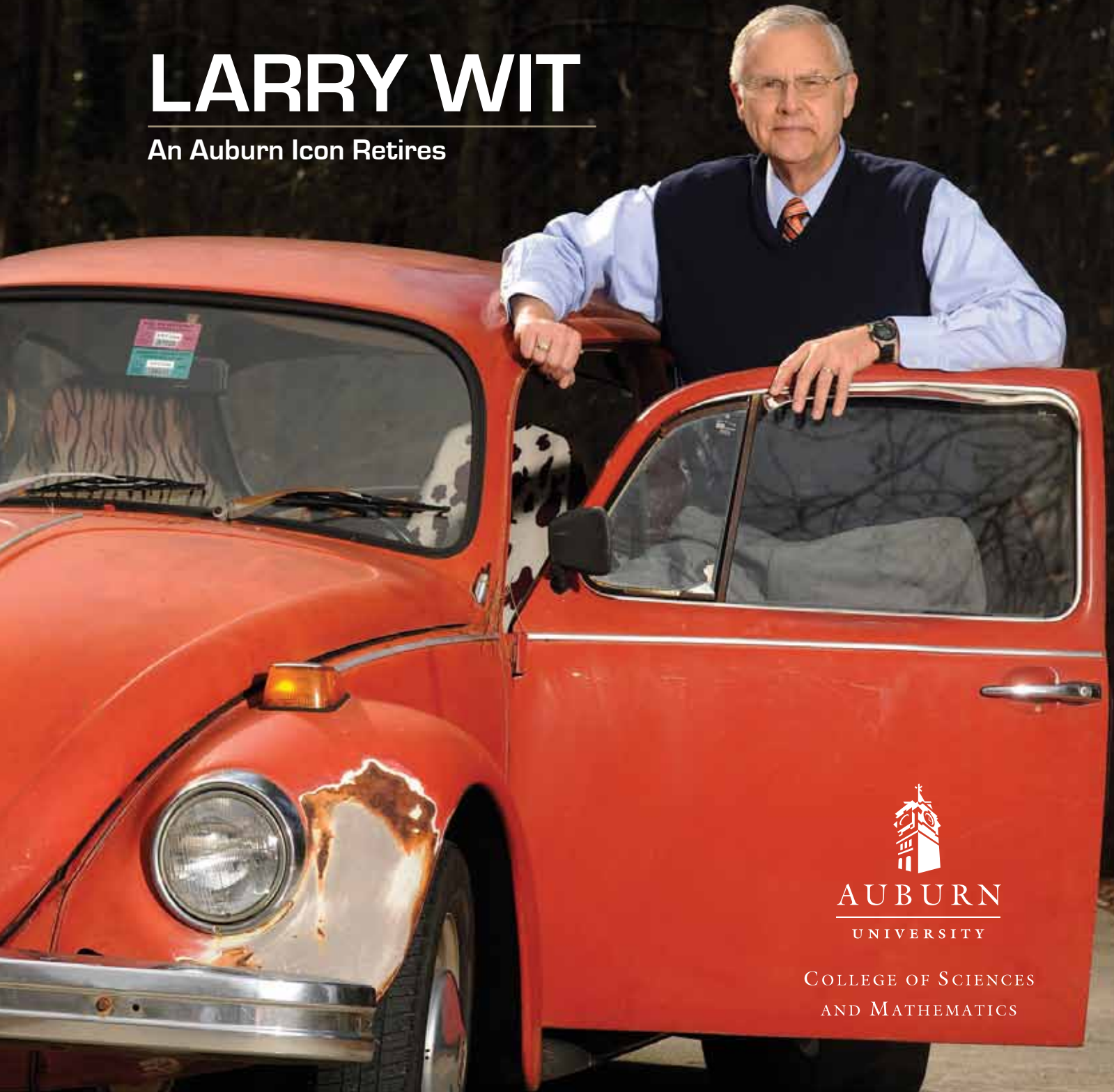
AUBURN UNIVERSITY

Journey

College of Sciences and Mathematics 2012

LARRY WIT

An Auburn Icon Retires



AUBURN
UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

A New Look for the Future

The School of Sciences and Mathematics was added to Auburn University this past year. It brought together the Life Sciences from Agriculture and the Physical Sciences and Mathematics from Arts and Sciences. The applied and fundamental approaches previously used were blended together in the new school. The variety in this school has helped to establish the personality of the college as well as increase its visibility. The health related professional programs were helped because all parts of the college had the same objectives. This school boasts one of the strongest faculties on campus with all three Alumni Professor

Awards earned by the Sciences and Mathematics department this past year. The previous year, the department earned two of the last three prestigious awards. This school also has one of the strongest student bodies on campus.

In addition to an outstanding faculty and student body, the School also boasts excellent research programs. Research was being done both in molecular genetics and in compound semiconductors for computers. Dr. Woody, in chemistry, discovered and developed compounds to disinfect water as an improvement over chlorine. With some of the leading labs in the region, the School was proving its

greatness.

There was also major construction and renovation planned. A new chemistry building, an Animal Lab for small research animals, and a new Life Sciences Building were some of the additions planned. Some renovations included converting Saunders Hall into a classroom and office building, and an additional wing to the Allison Lab for physics.

With so many changes and improvements, the faculty had much to accomplish. With their reputation for excellence along with that of their students, the School of Sciences and Mathematics was certain of continued successes.



Left and Above: Planned expansion was to renovate these labs.

A reflection on the then newly established College of Sciences and Mathematics, taken from the 1987 Glomerata.

College of Sciences and Mathematics



Moving the Sciences and Mathematics buildings closer together has been a main goal of this school. A central complex would build an identity for this newly-created college. A new chemistry building will be the first project. A few years down the road, a life science complex is planned. Eventually, the school will all be contained in one area.

In the College of Sciences and Mathematics, students could participate in research of the possibilities of nuclear fusion energy, an alternative to the fission energy, which produces hazardous wastes and safety problems; into new ways of making gasoline, converting coal to liquid form, and inducing chemical reactions which otherwise could not happen; in mineral and water resource development; and in all sciences. Students could have worked as research assistants in graduate level programs when they were undergraduates.

Students not in this college could also have participated in these programs through classes they may have taken as electives or to fulfill math and science requirements.

Research was important to this new college, and has been its foundation for future





A MESSAGE

from the Interim Dean

Charles E. Savrda

COSAM: Twenty-five Years and Counting... on YOU

As the College of Sciences and Mathematics moves beyond its 25th year as a distinct college, we have much to celebrate and to be grateful for – an outstanding student body, a dedicated faculty and staff, and you, our loyal alumni and friends.

The number of COSAM students reached an all-time high this year, with undergraduate majors increasing in all academic units of the college. With the help of COSAM scholarships, overall growth was paralleled by a rise in student quality. This is manifested by ACT scores and high school GPAs of incoming freshmen, dominance of COSAM students in the Honors College, common engagement by undergraduates in faculty-directed research, and success of our students in the graduate and professional programs or careers they pursue upon graduation. Moreover, COSAM academic units continue to engage highly qualified graduate students whose efforts are essential to our instructional, research, and outreach missions and who later move on to fill leadership positions in industry, academics, and government.

The COSAM faculty remains passionately dedicated to the missions of the college. In fall 2011, faculty generated a record number of credit hours, providing outstanding and contemporary instruction not only to the growing population of COSAM majors but to all Auburn students in core and service courses. They are engaged in nationally and internationally acclaimed basic and applied research and are the driving force in the planning and development of new facilities – such as the Biodiversity Learning Center and a state-of-the-art physics laboratory – that will assist our efforts to generate, convey, and apply new knowledge. Faculty are joined by a first-rate staff who advise students, encourage diversity, guide, or support research, instructional, and outreach efforts, and in other ways promote the college.

To a significant degree, the success enjoyed by our students, faculty, and staff can be attributed to COSAM alumni and friends like you who have faithfully supported the college and its programs. Your past gifts have provided scholarships, fellowships, and professorships essential in the recruitment and retention of stellar students and faculty, enabled the creation or modernization of instructional and research facilities, and helped sustain college programs aimed at enhancing diversity and transmitting an appreciation of the sciences and mathematics to the broader community, particularly in the K-12 arena. In the face of lean economies and diminishing state appropriations, such support from COSAM alumni and friends will be of increasing importance as the college strives to grow and excel through the next quarter century. On behalf of COSAM, I thank you for all you have done in the past and for all you are able to do this year and thereafter to establish and sustain our outstanding college. We really do count on you.

With Gratitude and Best Wishes,

A handwritten signature in dark ink, reading "Charles E. Savrda". The signature is fluid and cursive, with a long, sweeping underline.

Charles E. (Chuck) Savrda
Interim Dean and Professor



JOURNEY

2012

On The Cover:

Larry Wit, associate dean for academic affairs in COSAM, is planning to retire in September 2012, marking the end of a nearly 37-year career at Auburn University.

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COSAM

Mission Statement

The mission of the Auburn University College of Sciences and Mathematics is three-fold: to teach by providing an environment that ensures excellence in the biological, physical, and mathematical sciences for the purpose of preserving, interpreting, and conveying existing knowledge; to research by creating, integrating, and applying new knowledge; and to reach out to others by fostering educational exchange within the university, the Alabama community, and society as a whole. The Auburn University College of Sciences and Mathematics is committed to providing opportunities of inclusion for its faculty, staff and students. For more information on the Auburn University College of Sciences and Mathematics, visit www.auburn.edu/cosam. *Journey* is published by the Auburn University College of Sciences and Mathematics. Issues are printed annually and are distributed to alumni and friends of COSAM. Inquiries, suggestions and news items concerning *Journey* should be directed to:

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Journey is paid for by alumni and friends of the College of Sciences and Mathematics.

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A MESSAGE

from the President

Jay Gogue

Today's Auburn students are more mobile and technologically savvy. They embrace digital learning tools that enhance student performance and deliver innovative content anywhere, anytime. *U.S. News and World Report*, in its first ranking of top online programs, rated Auburn highly, specifically naming courses in education and engineering to its honor roll.

Using technology to improve educational outcomes at Auburn is nothing new, and we are always looking for ways to enhance our current practices. For example, Auburn is implementing a new web-based program, DegreeWorks, to help students stay on track with their individual academic plans. The program will also serve our academic advisors, giving them the ability to certify degrees, as well as benefitting this institution with improved retention and transfer recruitment. The program will assist students in "what if" scenarios; a student in any major will now have the resources to check DegreeWorks to determine which additional courses would be required to change to a different major.

Continuing in the area of academics, I have a few other items I would like to bring to your attention.

In the recently released 2010-2011 National Merit Scholarship Corporation Annual Report, Auburn ranked second nationally out of 145 public institutions in the enrollment of National Merit Scholars. Auburn is first in the Southeastern Conference among public institutions and second, behind Vanderbilt, among all Southeastern Conference institutions. Auburn ranked ninth overall out of the 359 institutions where these scholars are enrolled, with Chicago, USC, Harvard, Northwestern, Vanderbilt, Washington-St. Louis, Oklahoma and Yale ranked higher.

In the summer and fall of 2011, Auburn enrolled 181 new scholars, which is a 35 percent increase over last year's number of 134. Auburn's 181 National Merit Scholars are from 23 states and are enrolled in all of the university's 10 undergraduate colleges and schools. Auburn also enrolled a record 45 National Achievement Scholars from 19 states, an 80 percent increase over last year. The students are enrolled in five of Auburn's undergraduate colleges and schools.

It is truly rewarding to realize that so many academically talented students recognize Auburn's commitment to quality education, faculty, and programs and seek to become a part of our growing family.

War Eagle,

Jay Gogue

2011-2012 COSAM Leaders

The COSAM Leaders are an exemplary group of students who serve the college as official ambassadors.

Back row from left: Cole Sterling, Stephen Stuart, Matt Ragan, Brad Young, Billy Walick, Kyle Adams, Alex McFarland, and Kevin Zhang.

Front row from left: Katie Bell, Jessica Epperson, Mary Herrick, Betsy Davis, Audra Brawley, Meredith Jones, Channing Garber, and Libby Lukens



2011 COSAM Dean's Medalists

The Dean's Medalists are outstanding graduating seniors in each department.



Pictured are: G. Joseph Coffman, Jr. (Biomedical Sciences), Brianna Dailey (Biological Sciences), Zachary C. DeVries (Biological Sciences), Audrey S. Duke (Chemistry and Biochemistry), Robert A. Jefferson (Physics), Mike G. Natter (Geology and Geography), Joseph H. Peake (Mathematics and Statistics), Cameron A. Welch (Biological Sciences), and Rebecca L. Williams (Biomedical Sciences).



STUDENT HIGHLIGHTS

AubieSat-1

The Auburn University student-built satellite, AubieSat-1, was launched into space and is now orbiting the globe. The launch occurred at 4:48 a.m. on Oct. 28, from Vandenberg Air Force Base in California aboard a NASA-sponsored Delta II rocket. The construction of the satellite was part of the Auburn University Student Space Program, and AubieSat-1 is the first student-built satellite in the state to be accepted by NASA for launch. Numerous universities and individual ham radio operators around the globe signed up to help track AubieSat-1, and the first signal was received shortly after launch from Vigo University in Spain. The signal was also heard as far away as Japan and as near as the University of Alaska.

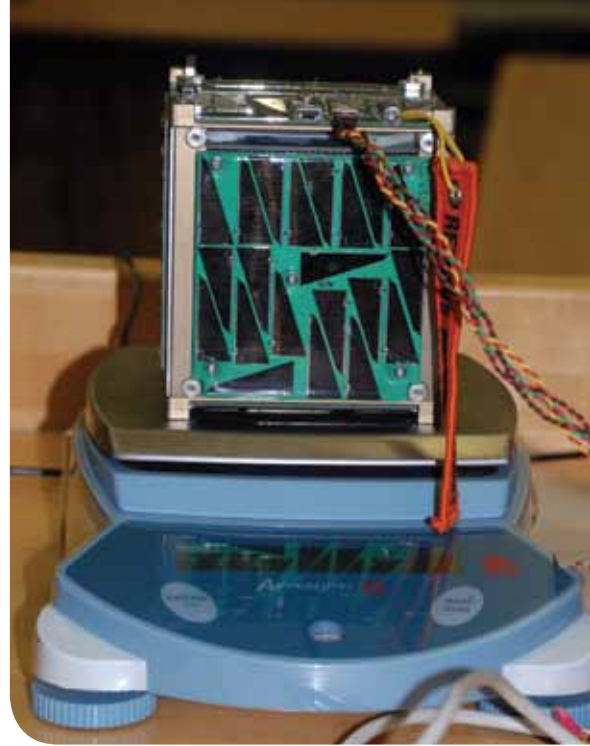
"We have received messages from all over the world from people who have made communication with our satellite," said J-M Wersinger, professor emeritus in the Department of Physics and Auburn University Student Space Program director. "It's just amazing." The satellite orbits the globe every 96 minutes, with about four of the daily orbits presenting optimal conditions for Auburn University students to connect with AubieSat-1.

The satellite is a "cubesat," which is a four-inch, cube-shaped satellite that is used primarily for research. Once released from the rocket, AubieSat-1 uses two antennas – one for receiving signals from Auburn University and one for sending signals back to Auburn. The students built a control center in Allison Lab from which they will give the satellite commands to execute, as well as receive data from the satellite such as temperature, battery charge and voltage, and power from the solar cells. The students will ultimately measure the decrease of solar cell efficiency over time on protected versus non-protected solar panels.

Securing a spot on the rocket for the satellite was a competitive process. AubieSat-1 was selected in July 2010 by NASA and is one of only five cubesats in the nation to launch aboard the Delta II rocket.

The program is operated solely by undergraduate students. Approximately 100 students have worked on the current satellite, and the goal of the program is to give them a unique experience working in teams on a space experiment and promote workforce development.

"We do things the students do not learn in class. The classwork is extremely important and useful, but it's not the whole story," Wersinger said. "In order to get a job, companies would like people to have skills, like being able to work in teams on projects, understanding what a deadline is, understanding how to work with people, to communicate, and the basics of management and systems engineering. It's not book learning. It's practical learning."



The students designed, built, and tested the satellite and took it to California for a Mission Readiness Review, which they passed with flying colors. Finally, the satellite underwent some tests before being shipped to California for integration into a Poly Picosatellite Orbital Deployer, a satellite deployer known as a P-POD, which was placed in the launching rocket with the four other cubesats.

Following the successful launch, the president of the Radio Amateur Satellite Corporation, Bill Tynan, assigned the satellite an OSCAR, or Orbiting Satellite Carrying Amateur Radio, number: AubieSat Oscar 71 or AO-71.

The Auburn University Student Space Program is part of the College of Sciences and Mathematics. AubieSat-1 is sponsored by Auburn University and the Alabama Space Grant Consortium. For more information on AubieSat-1, go to the website at www.space.auburn.edu.

FACULTY HIGHLIGHTS

from around COSAM

COSAM faculty recognized at Faculty Awards celebrating Excellence Ceremony

Auburn University held the sixth annual Faculty Awards Celebrating Excellence ceremony at The Hotel at Auburn University and Dixon Conference Center. Among those receiving awards were COSAM's Jack W. Feminella, professor and chair of the Department of Biological Sciences, and Narendra Govil, professor and undergraduate program officer for the Department of Mathematics and Statistics.



Feminella was part of an interdisciplinary group that received the President's Outstanding Collaborative Units Award for work at the Center for Forest Sustainability. The award is presented to Auburn University units whose collaborative efforts result in unique exemplary service or academic excellence within the university and the community. The center has been the focal point for more than 65 graduate students and 35 faculty from eight

Auburn colleges or schools who have developed interdisciplinary research projects focused on the impacts of urbanization on natural ecosystems. These projects have included socioeconomic, ecological, hydrological, and environmental health components.



Govil received the Alumni Professor award, which recognizes faculty members for research, publishing, and teaching by awarding five-year, non-renewable professorships through the Auburn Alumni Association.

"This award recognizes my achievements not only at Auburn, but also of my whole life, including my work at the Indian Institute of Technology in New Delhi where I worked for more than 10 years," said

Govil. "And there are many other faculty members in my department and in the university who deserve this award. Receiving it makes me all the more committed to work harder, with full vigor and devotion, to justify this recognition."



Steltenpohl named chair of Geology & Geography

Mark Steltenpohl has been named chair of the Department of Geology and Geography. Steltenpohl received his doctorate in geological sciences from the University of North Carolina. He then worked for Stonewall Gas and Oil Company, Texasgulf Minerals and Metals, and the Geological Survey of Alabama before beginning

his career at Auburn University in 1989. In 1999, Steltenpohl was named full professor and in, 2010, he assumed the role of interim chair for the Department of Geology and Geography. Steltenpohl has received numerous awards and honors for his work including: Most Outstanding Faculty Member, College of Sciences and Mathematics, 1993; Most Outstanding Faculty Member, Geology Club & SGE, 1994; COSAM Outstanding Teacher of the Year, 2006-07; Auburn University Graduate Mentoring Award, 2008-09; and Auburn University Alumni Professor, 2009-14. Steltenpohl assumed leadership for the Department of Geology and Geography on Oct. 1.

"I am humbled and honored that Geology and Geography faculty have such confidence in me to select me as their chair," Steltenpohl said. "I look forward to serving them, COSAM, and Auburn over the next four years."



Physics professor receives \$2.1 million NSF award

Physics Professor and Director of the Plasma Sciences Laboratory, Edward Thomas, received a National Science Foundation award through the Major Research Instrumentation (MRI) program. This competitive program serves to increase access to shared scientific and engineering instruments for research and research training in our

nation's institutions of higher education, museums, science centers, and not-for-profit organizations. The total amount awarded to Thomas is \$2.1 million, which includes a 30 percent cost-sharing by Auburn University. This project represents one of the largest MRI projects ever awarded to Auburn University.

With the funds, Thomas proposes to build a magnetized dusty plasma device that will allow for the study of coupling between neutral atoms, ions, electrons, and charged microparticles in a fully magnetized plasma environment in which the magnetic force is comparable to electric, gravitational, or other interparticle interaction forces. This new experiment enables laboratory investigations of phenomena relevant to plasma physics, astrophysics, fusion, and fluid systems. The device will also allow investigations into scientific topics that were previously inaccessible in earlier experiments such as grain charging (e.g., ion/electron gyro-orbits less than intergrain distances), wave phenomena (e.g., electrostatic dust cyclotron wave), magnetic field effects on dust transport (e.g., drift), and the behavior of plasma with embedded paramagnetic particles.

A result of more than two years of international development activity, the project has leveraged the expertise of the entire dusty plasma research community as well as many researchers with interests in fusion, astrophysics, and fluid mechanics. As a multi-user instrument, the device will be a valuable tool for the dusty plasma research community, and it will enable a wide variety of collaborative research projects, ranging from the physics of planet formation to the control of contamination during microelectronics manufacturing. The project also creates new training and research opportunities for the next generation of plasma scientists, and because dusty plasmas are a highly visual phenomenon, the project provides a highly effective platform for engaging students and the public in plasma science.

Additionally, Thomas will expand the long-running collaboration with the Princeton Plasma Physics Laboratory Science Education program to make use of dusty plasmas as a platform for introducing research skills at the K-12 and undergraduate student level.



Physics professor continues to make strides with team ALPHA

Last year, an international team of scientists including an Auburn University physics professor, Francis Robicheaux, made a scientific breakthrough by trapping and holding the antimatter version of the hydrogen atom. When the discovery was initially announced, the team, known as

ALPHA, had captured 38 atoms of antihydrogen, storing each for a mere sixth of a second. Since then, ALPHA has made significant progress by trapping 309 antihydrogen atoms, with some held for as long as 15 minutes. As a result of the longer holding times, the scientists are now able to work toward improved production of trappable antiatoms as well as study their dynamics.

"Trapping antihydrogen is so difficult; we were excited about our first results that convinced us and our physics colleagues around the world that we had actually done it," Robicheaux said. "We were even more excited by the work in this new report which showed we vastly improved the production rate and were able to hold them more than 1,000 times longer than our first report.

"Showing that we can hold the antihydrogen for more than 10 minutes and increasing the production rate vastly expands the types of experiments we will be able to perform. This makes it much more likely that we will be successful in measuring the fundamental properties of the antihydrogen atoms. The most fundamental theories of nature make specific predictions about these properties, and even the smallest discrepancies would overturn them."

ALPHA was awarded the John Dawson Award for Excellence in Plasma Physics Research for the introduction and use of innovative plasma techniques that produced the first demonstration of trapping antihydrogen. This annual award was presented at an award ceremony at the Division of Plasma Physics Annual Meeting Banquet.

The research collaboration is headquartered at CERN, Europe's particle-physics lab near Geneva, Switzerland. ALPHA is mainly comprised of experimentalists who designed, built, and ran the experiment, including scientists from Europe, Canada, the United States, Brazil, Israel, and Japan. Robicheaux serves as a theorist to the team, providing computer simulations of how mirror-trapped antiprotons might mimic antiatom annihilations and how actual antihydrogen would behave in the trap.

To learn more about the ALPHA collaboration, visit this link: <http://alpha.web.cern.ch/alpha/>.



A MESSAGE

from the Associate Dean for Academic Affairs

Larry Wit

It seems that every year I am surprised by how quickly the year has passed and how soon the request has gone out to write an article for *Journey*. However, the good news is I get an opportunity to catch you up on what has been going on at Auburn in general and COSAM in particular.

Once again we had a large freshman class enter COSAM. These 929 students joined the existing ranks of undergraduates to create a new record enrollment of 3,094 undergraduates. A concurrent increased enrollment in our graduate programs (368) resulted in a total student enrollment of 3,462 students. The average GPA of our freshman cohort (3.91) and their average ACT (27.7) portends well for their future academic success.

Those of you who read this article from year to year recognize its familiar theme – a large and academically talented freshman class. It is of interest to see some of the academic fruition of members of these recently admitted classes. For example, last spring 53 percent of COSAM graduates graduated with some sort of honors designation. For the past three years, a COSAM student has been a Rhodes finalist, and one of those years a COSAM student became a Rhodes Scholar. Our graduates continue to make us look good in so many ways, including being accepted to professional schools at a rate greater than the national average, and occupying various positions of prestige. For example, just this past week I communicated with a fairly recent COSAM graduate who has accepted a professorial position at Vanderbilt. Of course, none of this is new, as people like you have been making us look good for years.

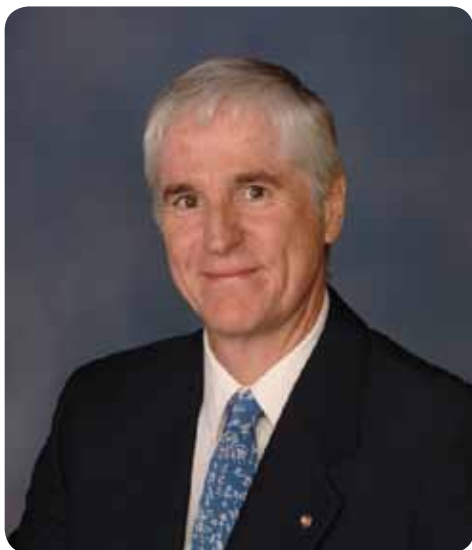
At the university level, we are in the final stages of implementing DegreeWorks, a web-based academic advising, degree audit and academic planning tool designed to help students and academic advisors alike. With this tool, students will be able to interact with the system in “what if” scenarios. For example, a sophomore history major could “ask” DegreeWorks what additional courses would be required if he/she switched to mathematics. This is designed primarily to help students, but academic advisors are also potential benefactors due to DegreeWorks’ ability to help advisors certify degrees. Also at the university level, we are implementing a web-based student evaluation tool. No, this is not Auburn’s version of RateMyProfessors.com; it is something we hope will be far more objective and constructive.

As is my custom, let me encourage you to support COSAM’s scholarship program in any way possible. Although our entering freshman class was very good, the average ACT score actually decreased slightly from 2010; this has not happened since 2005. Frankly, I was not surprised as for the first time in a long time COSAM had to decrease the total dollars we committed to undergraduate scholarships. The overall economic climate gave us no choice. That said, your support is essential for us to attract the great students that have defined us in the past. For those of you who have helped us, let me thank you on behalf of our students. For those of you who have not, let me encourage you to begin doing so.

As is noted in other places in this publication, this will be my last opportunity to write in *Journey* as the associate dean for academic affairs; I plan to retire at the end of the summer. The past nearly 36 years at Auburn, and nearly 22 in the COSAM Dean’s Office, have been better than I could have ever dreamed. So many things have made it special, but one thing supersedes them all: you. It has been my colleagues and the thousands of students I have encountered during my years at Auburn that have made it so much more than a job. Indeed, I have been blessed. Recently, I told my wife that had Auburn, upon my hire, asked me what I would like to have given to me to assure the perfect career, I would have asked for far less than I got. Thanks for being one of those gifts.

A handwritten signature in dark ink that reads "Lawrence C. Wit". The script is cursive and fluid.

Lawrence C. Wit
Associate Dean for Academic Affairs



A MESSAGE

from the Associate Dean for Research

Chris Rodger

This has been another strong year for COSAM in terms of its research, even despite the difficult economic conditions and the ending of the stimulus funding that made a difference over the past few years. COSAM faculty still managed to exceed the total extramural research funding for each of the previous five years. Succeeding to attract funding in the current financial environment is a tribute to the expertise and international standing of our faculty. It is also interesting to note the centrality of COSAM research to the university mission, as demonstrated by our faculty being heavily involved in interdisciplinary collaboration, such as the NSF Major Research Instrumentation Program and the Intramural Grants Program. I hope you enjoy reading several of the many successes that appear on the following pages!

Throughout the year we have also held regular meetings with all COSAM graduate program officers, and more recently with the graduate student leaders in COSAM. Such discussions have helped to frame the changes being made at the university level to such fundamentally important issues as the tuition waiver program. Graduate research assistants play a vital role in the success of our research programs, so doing all we can to be able to offer the most attractive packages to lure the best graduate students to Auburn is critical to the success of the research programs in COSAM.

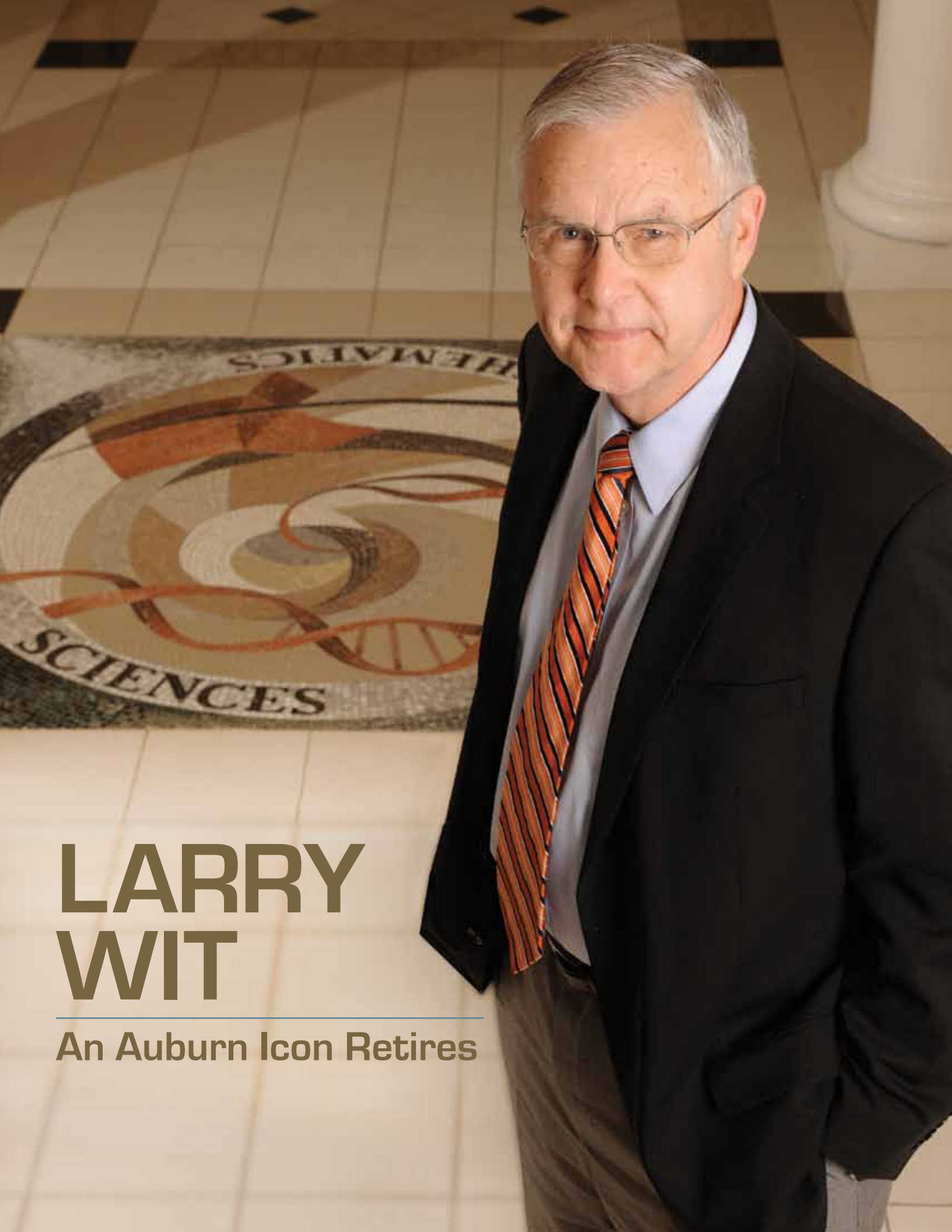
It is hard to believe that a year has already passed and I am writing my second letter for *Journey*. It has been a delight coming to know the research faculty in COSAM and helping to remove obstacles that may arise as they seek funding and resources. Working for such diligent and able researchers is a continuing pleasure.

A handwritten signature in black ink that reads "Chris Rodger". The signature is fluid and cursive.

Chris Rodger
Associate Dean for Research

A large, light blue, semi-transparent image of a modern building with a grid-like facade of windows. The words "SCIENCES CENTER LABORATORY" are printed in large, bold, blue capital letters across the bottom of the image, following the angle of the building's facade.

SCIENCES CENTER LABORATORY



LARRY WIT

An Auburn Icon Retires



Lawrence Wit, associate dean for academic affairs in COSAM, is planning to retire in September 2012, marking the end of a nearly 37-year career at Auburn University. Former Dean Stewart Schneller referred to Wit as an “Auburn icon of legendary proportions.”

“During my 16 years as dean, I visited with many COSAM alums and families of COSAM alums. Without exception, I was asked about Larry Wit and

heard testimonies on the influence he has had on their lives, both personally and professionally,” Schneller said. “Pericles once said, ‘What you leave behind is not what is engraved in stone monuments, but what is woven into the lives of others.’ No one better personifies that than Larry Wit.”

Wit began his academic career at Auburn after he received his bachelor of science in zoology from Wheaton College, his master of science in zoology and physiology from Western Illinois University, and his doctorate in zoology and physiology from the University of Missouri. He also spent two years prior to pursuing his Ph.D. serving in the U.S. Army as an administrative officer in the Medical Service Corps. During this time, Wit was deployed to Vietnam where he worked at Long Binh Post. While he was there, he earned a Bronze Star for meritorious achievement.

“Compared to what others saw in Vietnam, my tour was not bad,” Wit said. “The most difficult aspect of deployment for me was I had been married for less than a year, and it was tough being away from Nancy (Wit’s wife).

Otherwise, it was a good experience. I was introduced to a variety of different people with different experiences, which helped me later in my career.”

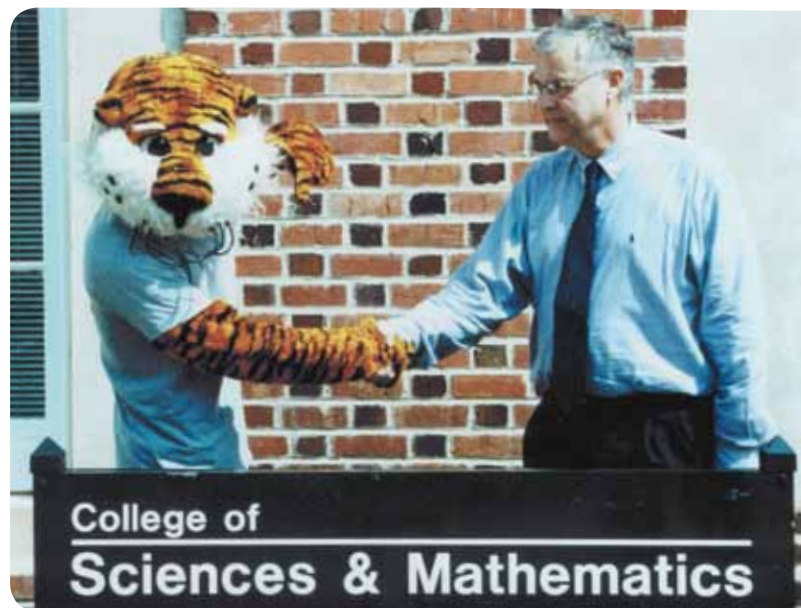
In 1976, Wit was hired at Auburn University as an assistant

professor of zoology and entomology in the College of Agriculture.

“I am originally from Chicago; however, when I applied for the job at Auburn I knew about the university because I followed college football,” Wit said. “When I first interviewed, I was impressed with the small-town atmosphere of the campus. However, coming from Chicago, I was a little concerned that the Glenn/Dean shopping center bore mention by my Auburn hosts. A lot has changed since then, but a lot has also stayed the same.”

The uniquely Auburn spirit, the unmistakable family atmosphere of the university, and the exceptional quality of undergraduate students are three qualities Wit says have remained consistent throughout his tenure.

Wit said the most obvious changes in Auburn are physical – more buildings, more students are enrolled at Auburn than in 1976, and the university itself is a lot more complex than it was when he started working at Auburn. Of particular note is the fact that COSAM did not exist when Wit began his career.



“I was not involved in the creation of COSAM and honestly, I wasn’t so sure it was a good idea at first. I was wrong. The creation of COSAM in 1986 allowed the sciences and mathematics at Auburn to flourish,” Wit said.

Wit joined the COSAM dean’s office in 1990 after his predecessor, Bill Mason, died unexpectedly.

“With Bill’s untimely death, the dean of COSAM at the time, Ivan Legg, asked if I would help out the college. I had never considered a career in administration, but because Bill and I were close friends, I accepted the interim position of associate dean of COSAM,” Wit said. “Then, in 1992, I was named the permanent associate dean. The rest is history.”

For 20 years, Wit has acted as the associate dean for academic



Larry Wit: An Auburn Icon Retires continued

affairs. His responsibilities include coordinating COSAM's academic programs, teaching classes, assisting with student organizations like the pre-pharmacy club, and working closely with COSAM students



and the COSAM student advisors.

"I interact with students on a daily basis," Wit said. "They come to me, and I give them advice, guidance, encouragement, assurance, and, sometimes, a kick in the pants."

Wit said the three most common pieces of advice he gives are: you will never achieve anything until you try; failure is not always the end of everything but is often the beginning of something new, so learn from the experience and move on; and to be successful, in addition to knowing lots of things, you have to know how to treat people.

In addition to advising countless students in the past 20 years, Wit was also instrumental in creating the COSAM Leaders, an exemplary group of students who serve the college as its official ambassadors.

"A student, Jenny Evans Swindall, actually discussed the idea of creating the COSAM Leaders with Stewart Schneller, who was dean of COSAM at the time," Wit explained. "Schneller discussed the idea with me and we made it happen. The first class of COSAM Leaders

was in the 1999 – 2000 school year."

The COSAM Leaders are selected by an interview process.

Once chosen, they assist with a number of COSAM events from the Dean's Scholarship Golf Classic to COSAM-sponsored graduation receptions. As the leaders continue to work together



throughout the school year, long-lasting friendships are often made. In 2009, a 10-year reunion was held and more than 60 former leaders were in attendance. Wit also says he knows of four marriages that have occurred as a result of couples meeting one another as COSAM Leaders.

However, Wit's influence is not reserved solely for the Office of Academic Affairs. In his classroom he tends to make a lasting impression as well. The class he is most well-known for teaching is Mammalian Physiology. For 30 years, students preparing for professional schools after graduation from Auburn have taken this required class from Wit as he educates them on the core principles of medical physiology. His teaching methods and class content have brought critical acclaim to both Auburn's biomedical sciences students and the university's premedical program.

"The physiology course at Auburn was more thorough and more strenuous than the physiology course in medical school," said Wit's former student Fleming Brooks '89, who is now a physician. "Wit just has a tremendous approach to imparting information and picking out what's important."

COSAM's pre-health professions advisor, Beverley Childress, agrees: "Interacting with Dr. Wit is an integral part of being a member



of the Auburn Family I think, and especially the COSAM family. Dr. Wit has a wonderful sense of humor, and so, he is an incredibly gifted teacher. He makes his students laugh, and you remember things when you laugh and you are having a good time in the class. I have had students say (about Wit's Mammalian Physiology class), 'It is the most difficult class I have ever taken, but it's also the most interesting, and we laugh, and we learn new things.' I think they learn life-lessons as well. They don't just learn the material in the course. Dr. Wit teaches about life and how to approach life, and he teaches them a problem-solving strategy that works for life too."

Fortunately, the academic content Wit shares in his Mammalian Physiology class will be accessible to future generations of students as he, along with Matthew L. Goodwin, who received his Ph.D. from

Auburn's College of Education in 2008, recently published the textbook, *Biomedical Physiology*. The book was primarily written and designed for the students enrolled in Mammalian Physiology, as well as for others planning to pursue a career in the health professions. Both Wit and Goodwin, who is currently a medical student at Cornell University, felt there was a need for a concise physiology text for students in medical school. The book covers the core principles on a wide range of critical physiological concepts, material that many physicians refer to as a cornerstone for their medical knowledge. The book also aims to help students gain a better understanding of physiology.

What is not covered in the textbook is the intangible quality Wit possesses that draws people to him. Fortunately for Auburn and COSAM, upon retirement, Wit will continue to assist the university through COSAM's Office of Development.

"When I think about COSAM, I don't think about it as much as an organization. I think about it as a family. This is probably because of the interactions I have had with students and student services over the years. The biggest thing I will miss after I retire is having a platform to interact with students at the university on a daily basis," Wit said. "I believe in COSAM. We do a terrific job educating the students, our faculty members are actively engaged in research, and our outreach is exceptional. I am proud of COSAM. Working with our development officers really appeals to me, because it will give me an opportunity to interact with the students I taught at Auburn, and I love COSAM, so this will give me an opportunity to give back."



Besides working with the COSAM Office of Development, Wit plans to continue to administer the Rural Medicine Program (read more about this on page 30). He will also travel and spend more time with his children and grandchildren.

"When I came to Auburn University, if they had said, 'Larry, list the things you would like to happen to you at Auburn,' I really believe I would have asked for less than what I got," Wit said. "It has been a blessing. Sometimes I think, 'I can't believe they pay me for this.' My work is just something I have enjoyed doing, and I envy the person who gets this job after me. It's a sweet deal."



DEPARTMENT HIGHLIGHTS

BIOLOGICAL SCIENCES

Jack Feminella, Department Chairman

Auburn University's Society for Conservation Biology, or SCB, prides itself in promoting conservation through education. The organization, which is led by a group of students and faculty mentor, Bob Boyd, Ph.D., joined the Auburn campus in 2008 and is made up of students, faculty and staff members of the university.

Each month, the group meets to discuss their monthly outing and hear from an expert on an area of conservation concerning their upcoming excursion.



"Our goal is to give students the opportunity to interact with people about conservation in terms of field trips, talks and experience," Boyd said. "We try and get our students the kind of experience that will help them in terms of a future career in conservation. We get them working in labs and out in nature getting some hands-on experience that is most important in this field."

Andrew Arnold, currently the president of the SCB, found the group and its objective to be a natural tie-in with his studies and interests. Arnold, who is a senior in wildlife sciences from Monroeville, Ala., says the group goes above and beyond what expectations may be and makes the best of its time together.

"When people hear about clubs like SCB, they assume it's going to be hands off because that's how most conservation groups are," Arnold said. "The focus is put on, 'Oh, such and such species is endangered so you have to leave it alone,' but we're not like that at all. We go out into the wild. We get down and get close with nature."

The group also participates in multiple initiatives outside of the monthly field trips that engage in conservation and education. One such initiative is the Tigers for Tigers program.

"Tigers for Tigers is designed to use interest in Aubie to spill over into interest with real tiger conservation and education," Boyd said.

The group's efforts include manning game-day booths during football season and conducting education programs for students in local schools.

"It's more than just the meetings," Arnold said. "We make the

experience worth it through the first-hand involvement."

In one such experience, the group helped reintroduce the eastern indigo snake into the wild. The largest snake indigenous to the United States, the eastern indigo snake has been considered threatened since the late 1970s. Along

with researchers from Auburn and Zoo Atlanta, the group's intentions were to help increase the eastern indigo presence in the wild leading to an eventual population increase.

Also, this past semester the group enjoyed trips to a pitcher plant bog for observation of the carnivorous plants and a cave trip to northeast Alabama.

This spring the group plans to continue its excursions with a trip to Zoo Atlanta, a night swamp walk through Tuskegee National Forest, and a trip to the Birmingham Zoo as well as the Birmingham Botanical Gardens, among others.

For more information on the Society for Conservation Biology, visit the website at: http://www.auburn.edu/student_info/societyconbio/.



JAMES BARBAREE

Biological Sciences Research Update

As many as 76 million Americans become ill annually due to foodborne pathogens and toxins. To help combat the problem, Biological Sciences Professor James Barbaree researches and develops food sensors that can offer rapid detection and subtyping of infectious pathogenic bacteria on food. Typically as small as a microchip, such devices can prove to be invaluable in the analysis of containment in food and waterborne disease outbreaks. For example, Barbaree is a member of the interdisciplinary Auburn University Detection and Food Safety



Center, and they created a sensor that can detect *Bacillus anthracis* bacterial spores, or anthrax. The Detection and Food Safety Center was formed in October 1999, and became an Auburn University Pinnacle of Excellence Research group. The team operates under the leadership of Materials Engineering Professor Bryan Chin. Barbaree is the center's associate director. Colleges represented at the center include Engineering, COSAM, Agriculture, Human Sciences, and Veterinary Medicine.

Recently, some members of the center received a four-year grant from the U.S. Food and Drug Administration in the amount of \$1,656,405. The title of the grant is "Magnetoelastic Biosensors for Detection of Pathogens in Globe Fruits." Globe fruits such as tomatoes, cantaloupes, and watermelons can suffer from *Salmonella* contamination from a variety of sources like run-off from heavy rains or contaminated pond water. To detect *Salmonella* contamination of fresh globe fruits, Barbaree, along with the Auburn University Detection

and Food Safety Center, will work to develop, demonstrate, and field test an inexpensive, accurate, easy-to-use biosensor so that critical hazard sources can be identified.

"My lab grows the bacteriophages and develops them to bind to specific bacteria. The engineers in the group develop the platforms that are integrated with the phage," Barbaree said. "When the phage binds with the bacteria, 'mass loading' occurs. Mass loading changes the frequency of the particle in the magnetic field, and it becomes the signal for the sensor test. This is radio frequency technology, which is why it's important to have the expertise of engineers to combine with biologists in our research."

Barbaree also conducts research into the transmission of diseases in airplane cabins.

His lab is testing several interior cabin airplane parts, and they test pathogens such as *Escherichia coli* O157:H7, Methicillin-resistant *Staphylococcus aureus* (MRSA), *Mycobacterium smegmatis* (a stimulant for tuberculosis), and *Bacillus anthracis*.

"We test the pathogens in simulated sweat and saliva and measure their survivability in an environment similar to the environment of an airline cabin, including low humidity. My lab then assigns a relative risk value to the organisms. In other words, if I get on an airplane, what is the risk that one of these pathogens will get to me? So far, we know that *E. coli* seems to survive very well on metal surfaces such as the door handle to the restroom," Barbaree said.

This aspect of Barbaree's research is conducted with the Airliner Cabin Environment Research group, or ACER. This national organization is headquartered at Auburn University and directed by Materials Engineering Professor Tony Overfelt. ACER is funded by the Federal Aviation Administration Cooperative Agreement and several universities are member partners including Auburn University, Kansas State University, and Harvard University, among others. The group also collaborates with numerous private sector and national laboratories including The Boeing Company and Delta Airlines.

"The airline industry supports the research because they want to know if they really are responsible for people getting diseases when they travel," Barbaree said.

For more information on Barbaree and his research, go to his website at www.auburn.edu/academic/cosam/faculty/biology/barbaree/.



About Barbaree

Professor Barbaree played football for the University of Southern Mississippi, where he was a three-year letterman and a starter on the 1962 small college national championship team. He received a bachelor of science in zoology and a master's in microbiology, both from the University of Southern Mississippi. He went on to receive his doctorate in bacteriology from the University of Georgia.

In 1991, Barbaree transferred as a captain in the U.S. Army to the U.S. Public Health Service Commissioned Corps and joined the Centers for Disease Control and Prevention, or CDC. Twenty years later, he retired from the military and the CDC before beginning a second career at Auburn. At the CDC, he was chief of the Respiratory Bacterial Diseases Epidemic Investigations Laboratory.

A native of Union Springs, Ala., when Barbaree came to Auburn University in 1991, it was not his first time to set foot on the Plains. His father, James Baker Barbaree, played one year of football for Auburn under the leadership of then-freshman-football-coach Ralph "Shug" Jordan and was an Auburn fan.

Barbaree served as chair of the Department of Biological Sciences from 2002 to 2008. He serves on two university committees: the Intercollegiate Athletics Committee and the University Budget Advisory Committee. He teaches clinical microbiology and general microbiology.

DEPARTMENT HIGHLIGHTS

CHEMISTRY AND BIOCHEMISTRY

Vincent Ortiz, Department Chairman

Department of Chemistry and Biochemistry host NOBCCChE conference

PaviElle Lockhart joined the Auburn University chapter of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, or NOBCCChE, during her first semester at Auburn. She started out as the chapter's treasurer but now serves as president. A fourth-year graduate student in physical chemistry, Lockhart said she was drawn to NOBCCChE because it is a professional organization that helps its members build their careers.

"The organization itself brings with it a sense of family, and those in higher positions encourage the members and will mentor you," Lockhart said. "The organization offers professional workshops at the regional meetings, and networking at the meetings will benefit you in your career path. I personally have built a lot of professional relationships with members in the organization at both the regional and at the national meetings."

Recently, the Department of Chemistry and Biochemistry hosted the combined Southeast and Southwest regional meetings of NOBCCChE. The goals of the meeting included fostering

lab's Science and Technology Business Area.

"I have been national president since 2007, and we have made great strides towards fulfilling our mission of building an eminent cadre of people of color in science and technology," said McCrary.

The meeting at Auburn University offered many opportunities



communication and scientific interaction between people of diverse backgrounds and building a community of professional support. A variety of age groups and experience levels were present at the meeting, and participants had an opportunity to interact with representatives of industrial and governmental institutions, as well as explore further educational opportunities. A record-setting group of 142 participants registered, including many from historically black colleges and universities in the region.

"The meeting at Auburn University offered many opportunities to participants, including an open house, to which the public was invited."

Among those in attendance from the NOBCCChE community was Victor R. McCrary, PhD, the national president of the organization. McCrary is the business executive for Science and Technology at the Johns Hopkins University Applied Physics Laboratory, where he manages the long-term research and development investments for the

to participants, including an open house the public was invited. Sponsored by Auburn's Department of Chemistry and Biochemistry and NOBCCChE, the open house was held in the Chemistry Building and the Sciences Center Laboratories building on campus and featured tours of the chemistry labs and hands-on demonstrations.

Other events during the weekend included professional workshops, a teacher workshop, oral technical sessions, and student presentation awards. At the professional workshops, participants explored topics such as money management and mentoring, and took part in a discussion panel about careers in both industry and academia. Also included during the conference were a record number of technical poster sessions and a luncheon featuring guest speaker Darrell Davis from the U.S. Department of Justice. Davis is the former director of the Drug Enforcement Administration's South Central Laboratory in Dallas, Texas.

"I was just blown away by the number of students, and particularly high school students, who attended this event, and the energy, enthusiasm, and hunger they have for science and technology," said McCrary. "The quality of the technical presentations was outstanding and gives me hope that these U.S. students will become the future technology leaders to put the U.S. back in the lead when it comes to new ideas and innovations in the physical sciences."

Anyone can join NOBCCChE as long as the candidate has an interest in science, from business majors to those studying the environmental sciences. The Auburn University chapter meets once a month and regional and national meetings are held once per year. For more information on NOBCCChE, visit www.nobccche.org.

CURTIS SHANNON

Chemistry and Biochemistry Research Update

Professor Curtis Shannon has a number of research projects under way. Most recently, he and Assistant Professor Christopher Easley, both from the Department of Chemistry and Biochemistry, and Associate Professor Virginia Davis of the Department of Chemical Engineering, received an NSF-funded math and science education partnership led by Dr. Shaik Jeelani of Tuskegee University titled, “The NanoBio Partnership for Alabama’s Black Belt Region.” The partnership provides professional development to sixth – through eighth-grade science teachers to shift their instruction from conventional teaching strategies to the use of an inquiry-centered, hands-on, experiment-based approach. The Auburn researchers were awarded \$550,000 over five years for teacher training and curriculum development that focuses on the interface between nanoscience and biology.

“The project is geared toward students in the Black Belt region of Alabama in an effort to encourage them to pursue careers in the sciences,” said Shannon. “There is a real lack of scientific expertise in the region.”

Other partners in the grant include Alabama State University, the University of Alabama (Birmingham and Tuscaloosa campuses) as well as Central Alabama, Enterprise, Shelton State, Wallace State and Wallace State at Selma community colleges.

Shannon also conducts research in electroanalytical chemistry using chemically modified electrodes and interfaces. Specific projects involve the electrosynthesis of semiconductor nanofilms, bipolar electrochemistry, bio/chemical sensor development, surface chemistry of polyoxometalates, nanoporous thin films for separations, and surface enhanced Raman spectroscopy of bio/chemical interfaces.

The central theme of his research is controlling the chemical behavior of electrode surfaces at the atomic/molecular level.

“One of the things we are working on is creating a sensor device that will detect whatever it is you are interested in, like insulin detection. We have a sensor that reads insulin levels by giving off a flash of light,” Shannon said. “My lab is interested in creating better living through electric chemistry.”

To learn more details about Shannon’s research, visit <http://www.auburn.edu/cosam/faculty/chemistry/shannon/index.htm>.



About Shannon:

Professor Shannon received his bachelor of science in chemistry from California State University, Fullerton, and his doctorate in analytical chemistry from University of Texas at Austin. He was a postdoctoral fellow at Fritz-Haber-Institut in Berlin, Germany, from 1988 to 1990, and a postdoctoral scientist at the University of Cincinnati from 1990 to 1991. Shannon joined the faculty in Auburn’s Department of Chemistry and Biochemistry in 1991. He and his wife, Sheri Schumacher, associate professor in the College of Architecture, Design and Construction, have a 14-year-old son, Evan, who inspires Shannon in his outreach work with students in the Black Belt.

“My son is in eighth grade, so I know exactly what they are learning in their science classes at school,” Shannon said. “Kids are kind of natural scientists. From the beginning they are busy looking around and observing the world. Anything we can do to keep them in the mindset of discovery is great, from making graphs to learning how to deal with data.”

After a 20-year career at Auburn, Shannon said his favorite thing about living in the region is the small-town atmosphere Auburn provides.

“At the same time, Auburn is close to Atlanta, so when we are in the mood for something different, we can easily access the Atlanta airport and travel anywhere, from New York to L.A.”

DEPARTMENT HIGHLIGHTS

GEOLOGY AND GEOGRAPHY

Mark Steltenpohl, Department Chairman

Chandana Mitra joins the Auburn Family

Chandana Mitra joined the Auburn University family this fall as an assistant professor of Geology and Geography. Mitra holds a doctorate in urban climate studies from the University of Georgia and will continue her studies from her graduate research and dissertation at Auburn.



As a graduate student, Mitra collaborated with her advisor to complete a study on urban precipitation in her hometown of Kolkata, India.

Mitra's study analyzed historical rainfall data and explored the potential association between the trends in rainfall and urban land cover change, such as buildings and roads. Such a study will facilitate better planning and understanding of the changes in the water budget in cities with great expansion, like Kolkata.

"There have been fewer studies on the developing part of the world than areas like Atlanta, (Ga.) Houston (Texas) and Phoenix (Ariz.)," Mitra said of the importance of choosing an area like Kolkata.

Projections by the United Nations further solidified Mitra's determination to direct this study toward Kolkata. The U.N. predicts 70 to 75 percent of the world's population will live in urban areas in 20 years, and of this percent, 90 percent of the urban residents will live in China and India.

Kolkata has experienced a population boom in its nearly 300 years of existence. In 1735, the initial city population was 100,000. According to Mitra, Kolkata experienced a period of rapid urbanization over the past 60 years; the population today stands at approximately 14.8 million and growing.

Through the use of Geographic Information System techniques on historical data and remotely sensed images, Mitra quantified the growth of Kolkata over 300 years. She was able to use the CA-Markov urban growth model to predict how the city would look in both 2010 and 2025 and found that her results aligned with the future urban growth predictions of the U.N. With coinciding numbers recorded, Mitra used the WRF-Noah model, a mesoscale weather prediction model, to

observe the differences in precipitation in two different scenarios.

Her first scenario left Kolkata as is and included specific parameters, including precipitation, moisture levels, the planetary boundary layer and fluxes in climate, such as heat. In the second scenario, Mitra removed Kolkata from the equation and applied the parameters to a non-urban setting.

After concluding her analyses, Mitra found that the precipitation levels were greater in an urban setting as compared to those of a non-urban setting.

"I was not surprised by the results as this is what I had hypothesized," Mitra said. "Just like the studies on the cities in the United States, which had a consensus that urban areas do have an effect on precipitation levels over a city, my study similarly echoed the results."

Mitra plans to continue to broaden her research to include the Eastern Gangetic Plains and Southern Asia, both of which are developing areas with projected population booms in the foreseeable future.

Currently, she has submitted grant proposals to NASA that will allow her to continue her study in Kolkata as well as Dhaka, Bangladesh.

Mitra says her research is more than just an academic study, it is also of practical use to the everyday man or woman. She hopes to get engaged in outreach programs through Auburn that would educate others on climate change.

"Climate is a part of life," Mitra said. "We don't do anything without knowing what the weather is. We dress, travel and eat according to the weather, so people need to be more aware of changes with the local, regional and global climate."

For more information on Mitra, visit her website at http://www.auburn.edu/cosam/faculty/geology_geography/mitra/index.htm.



Study Area with Rainfall Stations (shown in red dots)

HAIBO ZOU

Geology and Geography Research Update

Huge, explosive, volcanic eruptions represent rare but potentially calamitous hazards to mankind, yet our understanding of such phenomena is relatively incomplete. Some of the youngest, large-scale eruptions occurred at the Changbaishan volcano (also named Baitoushan, Tianchi volcano) that straddles the border of China and North Korea. Activity there closely resembles the climactic eruption of Oregon's Mt. Mazama, which formed Crater Lake 7,700 years ago. The great Changbaishan eruption that occurred 1,000 years ago released around 100 cubic kilometers (about 24 cubic miles) of peralkaline rhyolites (comendites). This eruption decapitated the Changbaishan volcano cone, forming a caldera more than five kilometers across (about three miles). A major pre-caldera eruption of comendites took place 4,000 years ago, and smaller postcaldera eruptions of comendites and trachytes took place 300 years ago. Preliminary studies of comendites from the eruption that took place 1,000 years ago yield a zircon crystallization age of around 9,000 years (isochron age), which predates the great eruption by about 8,000 years.

An assistant professor of geology, Haibo Zou, received a two-year National Science Foundation grant in the amount of \$88,768 to study Changbaishan. His grant, titled "Histories of Large Silicic Magma Evolution at Changbaishan Volcano: Insights From Accessory Minerals," will allow Zou to explore the generation and evolution of large volume silicic magmatism at Changbaishan.

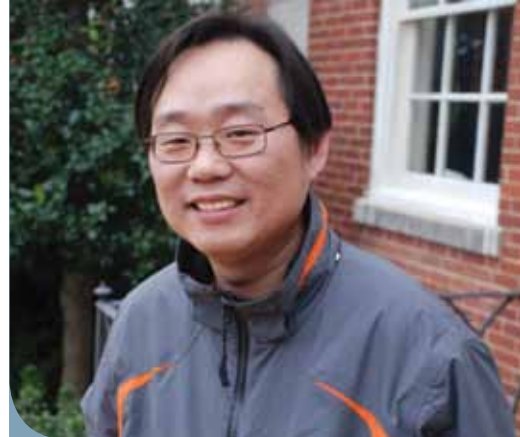
Zou will conduct comprehensive ion microprobe uranium-thorium dating of accessory minerals (both zircons and chevkinites) in comendites from the each of the Changbaishan eruptions. Zircon crystals from young trachytes will also be dated by the uranium-thorium dating method.

Complementary isotopic and chemical compositions of zircons, whole rocks, and selected major minerals will be studied, allowing for the evaluation of the mode of formation of accessory minerals and age constraints for magma residence times in the underlying crust. Zou will also conduct high-quality geochronological and geochemical data on the young, large-volume Changbaishan peralkaline rhyolites since such eruptions are rare.

In addition to his experimental research, Zou also studies theoretical geology. His recent book, *Quantitative Geochemistry*, contains a collection of equations that can be used to describe geological processes such as the age of crystals or the age of a volcano.

"Modern geochemistry involves geology, chemistry, and mathematics," Zou said. "The book provides models that will help scientists and students in Earth sciences to improve their realm of expertise in applying, understanding, appreciating, and critiquing the fundamental principles employed in geochemistry, geology, analytical chemistry, and mass spectrometry, as well as other fields in the natural sciences."

For more information on Zou, visit <http://www.auburn.edu/~hzz0006/>.



About Zou:

A native of China, Zou received his undergraduate and master's degrees from Nanjing University in geology.

"I was assigned geology as my major in college and couldn't change to any other field. In exchange, I received a free education and free housing," explained Zou. "Initially, I didn't have any background in geology so I was disappointed, but by the third year of school, I really started to like it."

Zou went on to receive his doctorate in geochemistry from Florida State University, and since then, he has excelled in his field. Recently, he was elected a fellow of Geological Society of America, or GSA, an honor reserved for less than three percent of the national society's members. GSA members are nominated by existing GSA fellows in recognition of their distinguished contributions to the geosciences. Established in 1888, GSA is a nonprofit organization dedicated to the advancement of the geosciences with more than 24,000 members worldwide.

Zou completed a three-year postdoc followed by six years working as a professional scientist, both at the University of California, Los Angeles. He came to Auburn University in 2008, and he teaches physical geology to undergraduates and tectonics to graduate students. Zou lives in Auburn with his wife, Yuhong Wang, and their two children: a daughter, Joy; and a son, Ethan.

DEPARTMENT HIGHLIGHTS

MATHEMATICS AND STATISTICS

Michel Smith, Department Chairman

The Masamu Program

The Southern Africa Mathematical Sciences Association, or SAMSA, Masamu Program brought together mathematicians from Africa, Canada, U.K., and the U.S., and took place from Nov. 28 to Dec. 2, 2011, in Livingstone, Zambia. The program was organized by Auburn University, SAMSA, and the University of Sussex.

SAMSA was established in 1981 to further the mathematical sciences in the southern African region, including Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. The word “Masamu” means “mathematics” in southern Africa.

The program has a primary goal of spurring sustainable collaboration among advanced graduate students, early career faculty, senior research faculty, and department heads and chairs. The program promotes research and professional development as well as provides participants with an online forum to maintain collaborative research



Graduate students, shown at Victoria Falls, who attended the Masamu workshops following the SAMSA meeting

The 2011 Inaugural U.S.-Africa Advanced Study Institute focused on analysis, dynamical systems, and mathematical biology. The workshop centered on mathematical modeling of biological systems. Thirteen U.S. and 13 African advanced graduate students and early career faculty underwent rigorous training and worked collaboratively on research under the supervision and guidance of nine U.S, African, and European research mathematicians. Participants also attended a panel discussion on careers in mathematical sciences. Furthermore, heads and chairs from the U.S. and southern Africa had an opportunity to attend a one-day workshop that focused on cultivating sustained cooperation between and among U.S. and southern African mathematical sciences departments.

The workshop was made possible by a \$200,000 grant from the National Science Foundation, received by Jenda. Auburn University and the Southern Africa Mathematical Sciences Association (SAMSA) are partnering to implement the U.S.-Africa Advanced Study Institute and Workshop Series in Mathematical Sciences for the inaugural two years. Participants selected for the program attended the SAMSA Masamu annual conference followed by the additional institute and workshop collaborations.

– Michel Smith

For more information on the Masamu Program and the Advanced Study Institute and Workshops in Mathematical Sciences, visit: <https://masamu.auburn.edu/>.



The full complement of SAMSA attendees

projects. Included in the Masamu program was a research workshop, career development workshop, department heads and chairs and senior research scientist workshop, and a colloquia and webinar series.

A key component of the 2011 Masamu Program was the U.S.-Africa Advanced Study Institute and Workshop Series in Mathematical Sciences. The U.S.-Africa Advanced Study Institute and Workshop Series in Mathematical Sciences was directed by Overtoun Jenda, Auburn University professor of mathematics and associate provost for Diversity and Multicultural Affairs, and took place immediately following the SAMSA Masamu program from Dec. 1 – 14. This program has three main goals: to strengthen the U.S. and southern African human infrastructure in mathematical sciences research; to drastically increase and sustain research collaboration between U.S. and southern African mathematicians; and to improve collaboration between U.S. and southern African colleges and universities.

PENG ZENG

Mathematics and Statistics Research Update

Advances in science and technology have led to an explosive growth of high and ultra-high dimensional data across a variety of areas such as bioinformatics, climate research, and the Internet. Traditional statistical analysis methods often become unstable when facing such a large number of variables. Associate Professor Peng Zeng of the Department of Mathematics and Statistics was recently awarded a three-year, \$100,000 grant from the National Science Foundation that will enable him to work toward the development of more sophisticated statistical methodologies, specifically, the development of effective penalization methods for fitting multiple index models.

The project, titled “Penalization Methods for Screening, Variable Selection, and Dimension Reduction in High-Dimensional Regression via Multiple Index Models,” is expected to: make a significant contribution to the advancement of semiparametric methodology and theory; generate a group of effective variable selection and dimension reduction methods and variable screening procedures with understood properties; and extend to accommodate categorical responses and generalized multiple index models.

“Research is driven by applications,” Zeng said. “Massive data nowadays motivate the development of novel statistical methods and models. I am attracted to this field by the challenge and opportunity.”

In addition to his recent grant, Zeng was selected to be a research fellow from January to May 2012 at The Research Triangle Park’s Statistical and Applied Mathematical Sciences Institute in North Carolina. He has also been an invited speaker at several national mathematics conferences and has published numerous papers on statistical theory and methods, as well as specific mathematical applications and case studies. Zeng has served as a referee for statistical journals such as *The Annals of Statistics*, *Biometrics*, and *Journal of the American Statistical Association*, among others. He is a member of the American Statistical Association and the Institute of Mathematical Statistics, and, at Auburn University, Zeng serves on the COSAM Research Advisory Committee and is a member of the Graduate Study Committee. For more information on Zeng and his research, visit <http://www.auburn.edu/~zengpen/>.



About Zeng:

Zeng, who is from a small town in central China, said he never doubted he would become a mathematician.

“I was always good at math when I was a student in middle school and high school, and I was in mathematics competitions, so a career in mathematics was a natural choice for me,” Zeng said.

Zeng received his bachelor’s degree in mathematics from Nankai University in Tianjin, China. He came to the U.S. in 2001 and attended Purdue University where he received his master’s and doctorate in statistics. Zeng said he chose to live and work in America because the leading researchers in his field are located in the U.S.

A faculty member in the Department of Mathematics and Statistics since 2005, Zeng lives in Auburn with his wife, Pingping Han, and his son, Orlando.

“I like Auburn because the weather is very similar to my hometown in China,” Zeng said. “Auburn is a great place for us to raise our son.”

DEPARTMENT HIGHLIGHTS

PHYSICS

Joseph Perez, Department Chairman

Auburn University and Auburn City Schools educators fly in NASA's "Weightless Wonder"

Educators from Auburn University and Auburn City Schools floated like astronauts during a once-in-a-lifetime flight on NASA's "Weightless Wonder" aircraft. The team of six educators calls themselves the "Flying Tigers," and as they floated, they conducted experiments that were set up in a clear plastic box to see how various objects and scientific concepts would alter under a reduced gravity environment. According to the team, words cannot accurately describe the feeling of being weightless.



"It's almost as if someone is stepping on your chest really, really hard and that's the high gravity phase of the flight. And then, as you make the transition to the zero-G phase, all of this pressure leaves your body and then you float. That's the sensation. We have been trying to figure out the words to describe it. There is nothing in your everyday experience that really can relate to it," said Edward Thomas, Auburn physics professor and coordinator of the Plasma Sciences Laboratory and Flying Tigers team mentor.

The Weightless Wonder is actually a modified Boeing 727 aircraft. The aircraft provides weightlessness 18 to 25 seconds at a time by executing a series of about 30 roller-coaster-like parabolas – a steep climb followed by a free fall – over the Gulf of Mexico. The program is known as the Reduced Gravity Education Flight Program, and it gives educators an opportunity to propose, build, and fly reduced gravity experiments during the free falls, thus gathering data in the unique environment as they experience near-weightlessness.

The flight initiated from the Johnson Space Center's Ellington Field in Houston, Tex., in July 2011. When the Flying Tigers arrived at NASA, they went through extensive physiological training, including safety and motion-sickness training. They also participated in experimental setup and reviews, and curriculum workshops before flying in the Weightless Wonder. The Flying Tigers' experiments focused on the equilibrium and stability of solids and liquids during the microgravity and hypergravity phases of the flight, and they have

provided the results to NASA as well as students and educators in classrooms around the state.

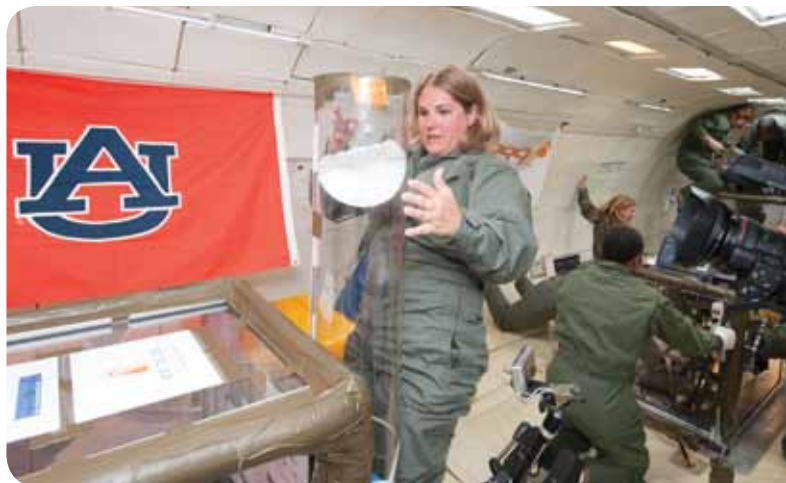
"I think the strength of our particular group was that we had our teachers propose experiments that they were already doing in their classrooms," Thomas said. "The idea was to carry out a series of experiments on the plane to see what the difference is between what happens on the ground compared to what happens under microgravity conditions."

The team put many hours into researching and building the experiments they performed on the Weightless Wonder aircraft, and all of the experiments were video-recorded. Experiments conducted on the flight included a density lab using different liquids to see how they would respond in microgravity conditions, and a pump structure simulating the human circulatory system that demonstrated what would happen to the human body in microgravity conditions, among others.

Thomas created a website (<http://psl.physics.auburn.edu/flyingtigers>) which offers in-classroom, educational ideas that correspond with the team's experiments aboard the aircraft. Also on the website are ideas on how to integrate videos of the experiments into the classroom.

The Flying Tigers was the only team from the Southeast to participate in the flight. The team members were: Thomas; Elizabeth Bass and George Clausell from Dean Road Elementary School; Jennifer Spencer from Cary Woods Elementary School; Mark Jones, PhD, from Drake Middle School; and Wayne Strickland from Alabama Math Science Technology Initiative.

Participation in the flight was part of a collaboration between the Auburn Plasma Sciences Laboratory, the Princeton Plasma Physics Laboratory Science Education Program and NASA's Reduced Gravity Office. The Reduced Gravity Education Flight Program is made possible through a new partnership between NASA and the Department of Energy.



JOHN WILLIAMS

Physics Research Update

After a 37-year career at Auburn University, Physics Professor John Williams retired in December 2011. Now a professor emeritus, he was part of the Condensed Matter Physics group at Auburn, specifically the Wide Band Gap Semiconductor Physics Program. Directed by Williams and Associate Professor Minseo Park, the program was started in the early 1990s, and Williams' research is in the field of advanced semiconductor materials. His interests are in semiconductor materials that are used to run electronics that require lots of power, such as large industrial motors that use massive amounts of electricity, or hybrid-electric vehicles.

"Most advanced semiconductors are based on silicon," Williams explained. "As good as silicon is, it has its limitations."

For example, a fighter aircraft is subject to high temperatures in the jet engine. Conventional silicon electronics used in consumer electronics will not survive the rigors of most harsh environments, making new materials and manufacturing approaches necessary.

"The materials we use are silicon carbide and gallium nitride, but it really doesn't matter what materials we use. The goal is to find methods that will get us away from using oil and fossil fuels," Williams explained.

Williams worked with a team of researchers including: Tamara Isaacs-Smith, physics research associate; Max Cichon, engineer associate; Claude Ahyi, assistant research professor; and several graduate students.

Historically, the Wide Band Gap Semiconductor Physics Program was based on silicon carbide and funding was provided through NASA-EPRI, or National Aeronautics and Space Administration, Electric Power Research Institute program. Since then the program has received funding from a variety of agencies including the Army Research Laboratory, National Science Foundation and the U.S. Department of Defense. In all, the program has averaged \$450,000 in funding per year.

"The silicon carbide community is small in this country, and we at Auburn have been fortunate to collaborate with others, which is great," Williams said.

Now that Williams is retired, Sarit Dhar was hired to take his place in the Wide Band Gap Semiconductor Physics Program. Dhar arrived in February to Auburn after working at Cree, one of the largest silicon carbide companies in the world.

"It put my mind at ease knowing someone so qualified was coming to Auburn to continue the work with the program," Williams said.

For more information on Condensed Matter Physics at Auburn, visit the website at <http://www.auburn.edu/academic/cosam/departments/physics/research/condensed-matter.htm#faculty1>.



About Williams:

Williams received his undergraduate degree from North Georgia College in physics and his master's and doctorate from North Carolina State University. He came to Auburn University directly from graduate school in 1974.

"The best thing about my career at Auburn has been the students you remember and that keep in touch," Williams said. "The other thing I enjoyed is the collaborative work with others in silicon carbide. When the program started, we maintained collaborations with several universities like Purdue, Vanderbilt, and Rutgers, as well as industry giants like Cree and the General Electric Global Research Center in Niskayuna, N.Y."

Williams said he has no definite plans for retirement beyond growing accustomed to the change.

"I hope I enjoy it!" Williams said.



A MESSAGE

from the Office of Diversity and Multicultural Affairs

Bianca D. Evans

The year 2011 has been an exceptional year for the COSAM Office of Diversity and Multicultural Affairs. The COSAM Summer Bridge Program continues to be one of our most successful strategies for attracting and retaining minority undergraduates for careers in sciences, mathematics and health professions. This year, we recruited our most outstanding students to date and raised the bar with the highest ACT score median for the 2011 Summer Bridge Program. As 2011 has come to a close, we reflect upon the changes made to continue our success.

We began the new year with one goal in mind: improving our programs for recruitment, retention, and graduation of minority students. We staged the 15th Annual Summer Bridge Program, adopted an expanded approach to recruitment, implemented additional retention strategies, and encouraged academic achievement.

To expand our recruitment efforts, one new initiative implemented during the spring was to attend the first KidSpark Conference: Empowering Students and Parents in Birmingham. This event brought together more than 400 Birmingham-and Montgomery-area middle and high school students and their parents to gain valuable information on how to prepare for college. We emphasized the importance of attending college, the strength of a degree from Auburn University, and the great resource of COSAM to encourage growth and success of minority students who choose to attend. This event was organized by long-time Summer Bridge supporter Bell Rogers. Other recruitment initiatives included hosting the Annual Minority High School Visitation Day that brought together 95 students, parents and counselors from 10 high schools.

During the 2011 Summer Bridge Program, we recruited 20 outstanding pre-freshmen from six states with the highest ACT score (24.75) of a SBP cohort to date. Although many of our SBP cohort were graduates of underserved schools and/or first-generation college students, they embraced the challenge of completing four weeks of intensive coursework in chemistry and mathematics, pursued the improvement of time management and study skills, and served as an example to others during community engagement activities. Michael B. Williams, MD, a local cardiologist and member of both the COSAM Leadership Council and the AU Foundation Board, served as our Awards Luncheon speaker and inspired our SBP participants to strive to achieve their highest potential.

Our retention strategies included a new initiative targeting groups for counseling and advisement. We incorporated a format that brings together food and great conversations, such as Lunch 'N' Learn sessions and Monthly Forums with topics ranging from test anxiety to resumés. These retention strategies were well received by students, and we are encouraged that the addition of these strategies will continue to prove effective in enhancing student leadership and achievement. Keeping an open dialogue is important, and minority students are achieving in every endeavor. As examples, Leonard Jordan was inducted into Phi Kappa Phi, Kyle Adams became a COSAM Leader, and five Summer Bridge Program alums were accepted to the Harrison School of Pharmacy.

The COSAM Office of Diversity and Multicultural Affairs has experienced many changes through 2011, including the August departure of Dr. Velma B. Richardson, the associate dean for Diversity and Multicultural Affairs. Also, in January, the office extended a warm welcome to Eddrina Miller, a graduate intern and doctoral student from the Department of Counseling Psychology in the College of Education.

As I reflect upon the year of 2011, I am reminded that change is always inevitable and that we must double our efforts to seek out, encourage and provide every opportunity to foster greater dialogue among minority students. It has been encouraging to see the success of many of our minority students.

Bianca D. Evans
Minority Programs Coordinator



ALUMNI UPDATES

Harper assists with new college of osteopathic medicine

The Alabama Medical Education Consortium has a mission to establish and maintain an osteopathic primary care physician pipeline for rural and underserved Alabama. The consortium accomplishes this mission by sending students from participating osteopathic medical school programs from all over the country to various locations throughout the state of Alabama for classroom education and hospital training. Currently, there are 16 sites in Alabama.

Dr. Clay Harper, zoology/entomology '92, is the core site director for Opelika. He attended the University of Alabama School of Medicine followed by a surgical residency at Carraway Methodist Medical Center in Birmingham, Ala. For the last nine years, he has worked as a general and vascular surgeon for the Surgical Clinic in Opelika, Ala. As core site director, Harper coordinates the clinical-setting training in Opelika for students of the Alabama Medical Education Consortium.

"A new campus will be built in Dothan, Ala., the name of the school will change to the Alabama College of Osteopathic Medicine, and the first full class will arrive in Dothan in 2014," Harper said. "At that time, the admissions process will be identical to what students do for any other medical school, but the osteopathic school's training is set up a little differently. Historically, students would go to UAB or South Alabama in high numbers. In this kind of training environment, they would do two years of classroom-based instruction and two years of hospital instruction, but all of the instruction would take place in Birmingham or Mobile. The Alabama College of Osteopathic Medicine will allow students to do their two years of classroom instruction, just like any other medical school, and two years of hospital instruction, just like any other medical school, but all of the hospital instruction will not take place in Dothan. The students will be all over the state."

The hope is that by exposing the students to private medical practices outside of large medical teaching centers, they might decide to pursue careers in the primary care disciplines in more rural settings.

"If you look at where healthcare has gone in the last 15 to 20 years, we have seen a phenomenal increase in sub-specialization. This has left rural areas without many doctors. The Alabama Medical Education Consortium, and in the future the Alabama College of Osteopathic Medicine, gives students an opportunity during their training phase to get exposure to physicians, hospitals, and locales that they may not otherwise see. This exposure opens up practice opportunities for them down the road that they might not have known existed or been attracted to if their only exposure was in a large metropolitan, large academic teaching center," Harper said.

Alumnus named Rhodes Scholarship finalist

Dan Mazzaferro, a graduate student in the College of Business and a 2010 COSAM Honors graduate in chemistry, was invited to interview for the Rhodes Scholarship. Mazzaferro was recently presented with the Cliff Hare Award, the highest honor that a male student-athlete can receive at Auburn. He was the 2011 Southeastern Conference H. Boyd McWhorter Award winner, which is the top male scholar-athlete of the year in the conference; and a recipient of the President's Medal for COSAM. A four-time Academic All American, Mazzaferro spent four years as a diver on the Auburn University Swimming and Diving Team.

ALUMNI UPDATES

continued

Tim Tatum experiences Honduras mission trip

Tim Tatum, pre-dentistry '76, attended the University of Alabama School of Dentistry and graduated in 1979. A native of Opelika, Ala., Tatum joined his family's hometown practice, Drs. Tatum and Tatum, which was started by his grandfather and has been in operation for nearly 100 years. In addition to continuing the family tradition of practicing dentistry in Opelika, a new family tradition was begun six years ago when his daughter introduced him to volunteering his time in Honduras at Orphanage Emmanuel.

Orphanage Emmanuel was founded by David and Lydia Martinez after they felt called by God to sell everything they owned, move to Honduras and begin a new life caring for unwanted and abandoned children. Since it opened in 1989, Orphanage Emmanuel continues to grow and currently hosts about 600 children, most of whom have been victims of mental, physical, or sexual abuse. Located on 1,000 acres of land, the orphanage provides mountains, fresh air, and lots of space in which the children can grow and heal physically and spiritually.

"My daughter, Katie, went to Orphanage Emmanuel with the First Baptist Church of Opelika when she was a freshman at Auburn," recalled Tatum. "She later talked me into going as well, and I took my son, Matt, with me to act as my dental assistant. The trip had a really big impact. My wife, Sara Jane, and I now lead a team from our home church, First United Methodist of Opelika, each year."



Tim with son, Matt, assisting him.

"Pediatric dentistry is all I do in Honduras. I see a lot of abscessed teeth, but the kids never complain about the dental procedures. Because of their backgrounds, the kids, unfortunately, know what pain is, and they always look forward to seeing me. Except once – last summer when I arrived, the orphanage had just received 60 new children. On the first day I was there, 12 children from one family came to see me. They were all ages from 18 years and down. I couldn't even get them to open their mouths. They were terrified. I had never run into that before. Their mother had been brutally tortured in front of the kids by a gang. They were in shock. However, with the loving touch and help of one of the orphanage volunteers, the children all eventually cooperated and I was able to do the work they needed," Tatum said. "I have been to visit for six years now. It grows on you. The kids make you promise to come back, and it means a lot to them, so you keep coming back. It's a very emotional thing when you go down there. The first time I came back, I tried to talk to my staff about it and couldn't. I was just so emotional, and I have never cried about anything. It really gets to you. Everybody needs to go and do something like this. It means a lot to the kids, and it has meant a lot to me, too. I have learned a lot. It helps you to see what's really important." More information about Orphanage Emmanuel can be found at www.orphanageemmanuel.com/.



Tim with his son, Matt, daughter, Katie, and son-in-law, Jared with all the children their family sponsors.



Brothers Ryan and Matthew Tufts have excelled since graduating from Auburn

Ryan Tufts, a 2007 graduate in biomedical sciences, is in his first year of an orthopedic residency at University of Louisville. Ryan completed medical school at the University of Miami Miller School of Medicine. While in medical school, he had many accomplishments including a poster presentation at the 17th International Meeting on Advanced Spine Techniques in Toronto, Canada. Other accomplishments include: director of the Academic Societies program – Roentgen Society; anatomy teaching assistant for the Human Structure Peer Tutoring program; participant on a Nicaraguan Medical Mission trip in 2008; member of Alpha Omega Alpha honor medical society; and a University of Miami John K. Robinson Awardee for Student Initiatives. Ryan says that the COSAM biomedical sciences curriculum provided him with excellent preparation for medical school and that the classes he took during his first year of medical school included classes he had already taken at Auburn.

Matthew Tufts, a 2009 graduate in biomedical sciences, is in his third year of medical school at the University of South Florida College of Medicine. During his first and second years of medical school, he was a parliamentarian on the Florida Medical Association Medical Student Section Governing Council, and he received the Business Concentration



Leadership scholarship. He also helped to develop and participate in the Business of Medicine Boot Camp pilot program. This intensive eight-week program is offered to medical students in the summer between their first and second years. Taught by faculty from the College of Business and USF Health, students get a comprehensive look at the business skills needed to be successful physician leaders and innovators who can develop new ways of diagnosing and treating diseases, ensure healthier communities, and shape the system in which they are central players. They are introduced to organizational management, health care economics, finance, marketing, health care information technology and systems engineering, negotiation, and innovation and entrepreneurship – topics not typically covered in medical school. This summer marked the second year of the Boot Camp, and students and faculty members from USF were invited to give a presentation on the concepts learned in the program in Stockholm, Sweden, at the annual meeting of the International Council on Small Businesses.

Matthew has remained active with the Florida Medical Association and Medical Students Division. He also served as vice-chair for recruitment during his second year of medical school and in July 2011 was elected president.

COSAM alumnus produces award-winning album

COSAM alumnus Jeffrey Warren received his master's degree in geology from Auburn University in 1997. He went on to get his doctorate



in geology from the University of North Carolina at Chapel Hill. He currently serves as the senior advisor to the president pro tempore of the North Carolina Senate and handles energy, environmental and regulatory affairs policy. But on the side, Warren writes and produces award winning kid's music. He has received the 2011 Best Album-Kid's Music Award, the 2011 Parents' Choice award and the 2011 Preferred Choice award from *Creative Child* magazine. Most recently, he released an album, *Synonym Toast*, that features music that falls into a category commonly referred to as "Kindie Rock."

"The music has two levels of humor," explained Warren, "one for parents and one for kids."

"I have played piano and keyboard since the first grade, but took a hiatus from music when I got to Auburn and pursued my master's degree. I put music on hiatus even further when I was working on my PhD at Carolina," said Warren. "When my first child was born, I started looking for music that I liked for him that wouldn't make me rip my ears off. I started writing my own songs and the album eventually developed."

Warren has two children, a son age 5 and a daughter age 3. For information about his CD, including instructions on how to order, visit www.jeffwarrenmusic.com/.

A black stethoscope is draped over a white lab coat pocket. The background is a soft-focus image of a person in a white lab coat.

COSAM PREPARES

The acceptance rate of COSAM graduates to medical school is above the national average. Reasons for this higher-than-average acceptance rate are numerous. Since its inception, COSAM has enjoyed enrollment of exceptional undergraduate students. COSAM freshmen carry higher-than-average GPAs and the college boasts more honor graduates than any other college on Auburn's campus.

COSAM faculty and staff also contribute to the success of COSAM graduates in medical school. The various pre-health curricula are rigorous and provide students with a solid foundation on which to stand once in medical school. Additionally, COSAM has a committed staff of advisors who assists throughout a student's career. Notably, Beverley Childress acts as the pre-health director for student services. In addition to teaching a pre-health professions orientation course, she encourages students to get involved both on campus and off through a variety of student organizations and job shadowing opportunities.

Job shadowing is critical for acceptance to medical school, and several medical offices in the Auburn area allow COSAM's pre-health students the opportunity to spend time alongside a physician, giving the student a chance to observe and learn what a career in medicine really entails.

Dr. David Hagan, '65, a retired internal medicine physician, is one such doctor. Hagan completed medical school at the University of Alabama at Birmingham School of Medicine. He then did an internal medicine residency at UAB followed by a chief internal medicine residency at Carraway Methodist Medical Center. In 1973, he returned to Auburn where he practiced medicine for 33 years. For the past 20 years, Hagan has worked closely with COSAM assisting in any way he can to continue to enhance the pre-health program.

"When I was at Auburn we had an exceptional program, but I wanted to help make them better and better," Hagan said. "The immediate need when I started to get involved was scholarships. Early on, I spent most of my time obtaining money for scholarships. I found that I really like asking people for money for a good cause."

A few years ago, Hagan retired from practicing medicine and since then has been even more instrumental in assisting COSAM's pre-health sciences students.

"Job shadowing opportunities in the area had been available for years, but there were not nearly enough of them. When you have a student in your office, you want to spend time talking to them, so a physician can't take on too many students because it will slow him down. That's why we needed more opportunities and more physicians to get involved," Hagan said.

As a result, Hagan coordinated job shadowing opportunities for COSAM students in seven different areas of medicine with a variety of doctors for three-hour sessions.

"It's important for students to see the different aspects of medical practice and interact with different types of doctors," Hagan said.

The job shadowing opportunities Hagan coordinates are in pediatrics, family practice, general internal medicine, the OB/GYN unit, Cancer Center, Surgical Center, and Emergency Room at East Alabama Medical Center.

"The variety of job settings gives the students both private practice exposure and hospital setting exposure. I also take them to the Cardiac Catheterization Lab to watch an angioplasty. The students usually get really excited about medicine as they observe physicians and procedures, which is one of the reasons shadowing opportunities are so important. Interaction with the doctors in medicine is highly motivating. The student can't help but say, 'I want to do that,' which will often result in improved academic performance," Hagan said. "Secondly, medical schools absolutely require shadowing. The schools want the students to have some exposure, experience and knowledge of what medical practice is like. Third, shadowing opportunities allow the student to discover if he or she is really going to like a career in medicine."

In addition to arranging job shadowing opportunities for COSAM students, Hagan acts as a student mentor.

"I sit down with the students and review their GPA, MCAT score, ability to be interviewed, and I advise them. I also try to instill in them my idealism about the medical profession and the importance of and responsibilities involved in medicine. For some of the students, I advise them to keep doing what they are doing."

Other physicians in the area who work closely with COSAM students and offer job shadowing include doctors Richard M.

Freeman and Rian Williams Anglin, '03. Freeman is a pediatrician in Auburn who has allowed Auburn students to shadow him for more than 30 years. He received his undergraduate degrees from North Carolina State University in physics and mathematics. Upon graduation, he conducted aerospace research for three years and then realized he wanted to pursue a career in medicine. Freeman was accepted to medical school at the University of North Carolina, Chapel Hill, where he began his medical studies. He interned at UAB and upon completion of medical school in July 1973, he became a medical officer at the U.S. Naval Hospital in Jacksonville, Fla. Freeman came to the Auburn-Opelika area in 1975. He practiced medicine in Opelika first before opening his clinic in Auburn, Pediatric Associates of Auburn. During his career, which has lasted 41 years thus far, he served in the U.S. Navy Reserve for 30 years, as vice president and secretary-treasurer for the Medical Association for the state of Alabama, was a member of the Medicaid DUR Board, a member of the Medicaid Pharmacy and Therapeutic Board, and is on the Board of Medical Examiners for the state of Alabama.

In 1977, Professor Frank Stevens in Auburn's Department of Chemistry asked Freeman to give a lecture to his pre-health sciences students. Following the lecture, Stevens made another request – would Freeman be willing to have students shadow him in his medical practice? Freeman agreed and for the last 34 years, Auburn students have received an up-close look at what working as a physician in a private pediatric clinic is like.

Freeman continues to see one new Auburn student each week, and often a student will return for more than one visit.

Although his specialty is pediatrics, Freeman actually administers to all age groups, from infants to adults, as he also specializes in aviation medicine for the Federal Aviation Administration.

"With the exception of when students are patients themselves, they really have no idea how the medical system works. Students who come to my office will see a variety of age groups and get a sense of what it's really like to practice medicine," Freeman said. "I personally felt medicine to be a vocation or calling and have always enjoyed helping people, and I enjoy working with the Auburn students."

Anglin is also a pediatrician who allows Auburn students to shadow her in her office, located at Pediatric Associates in her hometown, Valley, Ala. After graduation from Auburn, Anglin attended medical school at UAB. Upon completion of medical school, she did a residency at Children's Mercy Hospital in Kansas City, Mo., in pediatrics.

"I love kids and wouldn't want to do anything else. Kids are open and creative – if you approach a child with a problem, the way they problem solve is interesting," Anglin said. "They are also compliant. If you tell a parent to stop smoking, they may or may not take your advice. But when working with children, as a physician I feel I am more effective with my guidance. Kids are wide-eyed, open to learning and fun. As a pediatric physician, you can make a big difference in people's lives."

Anglin chose to practice medicine in her hometown because she believes strongly in the concept of giving back.

As Anglin strives to have a positive effect on her community, she shares this goal with the COSAM students who come to her office to observe a pediatric medicine practice. Beginning in 2011, Anglin initiated the Reach Out and Read program at Pediatric Associates.

COSAM Prepares continued

Reach Out and Read strives to promote literacy in pediatric healthcare settings by providing positive role models that will read to children while they are waiting in the lobby to see the doctor. COSAM students are regular volunteers at Anglin's practice, and they read out loud with enthusiasm in the lobby to children.

Physicians and nurses provide parents with information about literacy and how important it is to read with your child every day. For example, studies indicate that children who are read to by their parents have higher test scores and make significant gains in their language and literacy skills. According to the Reach Out and Read website, www.reachoutandread.org, more than one-third of American children enter kindergarten without the basic language skills they will need to learn to read. Those critical early literacy skills include recognizing the letters of the alphabet, understanding that books move from left to right, and being able to understand and tell stories. Furthermore, 88 percent of first graders who are below grade level in reading will continue to read below grade level in fourth grade. Reach Out and Read suggests solving this problem by "immunizing" children against illiteracy in the critical years before they enter school, when interventions can have the most dramatic impact.



"Reading to your child is important for his or her development. The parents don't even have to read the exact words on the page. They should shape the reading experience to the child's attention span. An 18-month-old child might not have the attention span to make it through the whole book, and that's OK. The important thing is that your child has a pleasurable experience with a book and experiences our language as it is written in a spoken form," Anglin said.

As part of the program, every child that comes in for a checkup at Pediatric Associates and is under the age of 5 gets a new book to take home. To start the program, Anglin first had to discover ways to pay for the books, which cost an average of \$1.50 each. Her passion for the importance of reading to children led her to various civic organizations that provided the initial funding. She also caught the attention of U.S. Rep. Mike Rogers who volunteered his time at the office reading to children. While he was there, Anglin was able to express to him the importance of the program.

"Twenty percent of Chambers County is illiterate and I believe I can help change that," Anglin said. "The Auburn students who volunteer to help are amazing. They dedicate their time, drive all the way to Valley, and they really get into the stories. The kids do not want to leave the lobby when they are reading. It's amazing to watch a college student, who I know from experience was probably just at home studying vertebrate development, volunteer time to read to the kids. Any Auburn student who volunteers to read is welcome to shadow me at the practice. It is a good exchange."

Many of the volunteer readers at Pediatric Associates are members of Alpha Epsilon Delta. AED is a national honor society for students preparing for careers in the health professions.

AED is yet another way COSAM prepares pre-health students for medical school. The objective of the society is to encourage and recognize excellence in pre-health scholarship; to stimulate an appreciation of the importance of pre-health education in the study of medicine; to promote cooperation and contacts between medical and pre-health students and educators in developing an adequate program of pre-health education; to bind together similarly interested students; and to use its knowledge for the benefit of health organizations, charities, and the community.

"We have admissions deans speak to AED every fall semester from medical schools, dental schools, optometry schools, physical therapy schools and pharmacy schools. In the spring, we have panel discussions of various local health providers. We invite our former students who are now in professional schools to come back and talk to our students about their experience. We also attend the national AED convention every other year, at which the Auburn chapter has won an award every year since 2002 for its activities," said Beverly Childress, pre-health director for student services.

Founded in 1932, the Alabama Gamma Chapter of AED, located at Auburn, is the primary source of information about the health professions and pre-health programs on campus. In addition to the items Childress mentioned, AED strives to provide service to Auburn University by assisting with various volunteer functions such as COSAM outreach events, campus-wide food drives, Tiger Habitat for Humanity, and Project Uplift, among others. Students in AED provide volunteer service outside of the university as well at places like Camp Smile-A-Mile, a summer camp for children with cancer, and Storybook Farm, an equine-based therapeutic program for individuals with life-threatening illnesses or disabilities. With seven meetings per semester, AED also keeps members abreast of the latest information affecting the health professions by providing lectures, speakers, medical films, multimedia presentations, extern programs, and information on opportunities for volunteer work in hospitals.

Internally, AED members support one another through peer mentoring programs for younger college students interested in the health professions. The Auburn chapter also regularly gives out awards for excellence related to pre-health education, including the recognition of honorary members at the formal initiation ceremony each spring.

Childress explained that as part of the preparation for medical school, students involved in AED work on a points system.

“Students earn points by doing things that will make them competitive for professional schools. The goal is to see each student reach their academic and personal goals,” said Childress.

In addition to preparing students for medical school through job shadowing opportunities and membership in AED, COSAM also assists select pre-health students by exposing them to opportunities to practice medicine in smaller communities throughout the state. In Alabama, there is a huge shortage of primary healthcare providers in rural communities. Statistically, 55 of Alabama’s 67 counties are considered rural and 44.4 percent of the entire Alabama population lives in rural areas. Additionally, nine Alabama counties do not have hospitals and 33 of 55 rural Alabama counties do not provide labor and delivery service.

To better healthcare within the state as well as provide opportunities for students to attend medical school, the Rural Medicine program was created. Administered at Auburn University by Larry Wit, associate dean for Academic Affairs, the program represents a partnership between the state of Alabama, UAB, the University of Alabama and Auburn University. The goal is to provide a pipeline that produces more primary care physicians to practice in rural communities in Alabama. To make this happen, UAB sets aside 20 seats each year for students registered in the Rural Medicine program at Auburn or its sister program, the Rural Medicine Scholars Program at the University of Alabama.

“If you are accepted to the program then you are guaranteed a spot at UAB,” explained Wit. “In order to begin medical school, you have to complete your undergraduate work and defer one year to work in the Rural Medicine program. During that one year, we fan the flame to get them excited about working in a rural community. Students will shadow physicians, take classes, and learn about specific health issues and normal medical needs in rural communities. In the end, they go to medical school, complete a residency, and then, hopefully, do what they said they would do and practice in a rural Alabama community.”

Auburn University’s first Rural Medicine class is currently completing the residency program, so there are not any statistics as of yet to determine whether the program has resulted in more physicians in rural areas. However, all but one rural medicine student in residency is pursuing a primary care specialty.

The State of Alabama assists with the program by funding students’ costs during the one year between undergraduate and medical school.

“In order to qualify, the student has to be an Alabama resident, have a competitive academic record for medical school, and has to have lived in a small community for at least seven years of his or her life,” explained Wit.



The Rural Medicine program is not exclusively for graduates of Auburn University or the University of Alabama.

“We have had students from several colleges including UAB, Troy, Samford, and Princeton. The mix of students from a variety of backgrounds is great because it gives the participants a look at different experiences,” said Wit. “The students in the program usually get close to one another too, so when they go to medical school, they have an immediate support network.”

Dr. Keith Bufford is the medical director of the Rural Medicine program. Born in Opelika, Ala., he grew up in a rural community on a farm 10 miles south of Auburn. He earned his bachelor of science degree in pre-medicine/biology from Auburn in 1983 and his medical degree from UAB. He completed a residency in family medicine in Tuscaloosa, Ala., before practicing as a primary care physician in Tallahassee, Ala., for several years. He is currently a physician at Auburn Acute Care Family Medicine.

For more information on the Rural Medicine program, contact Larry Wit at witlawr@auburn.edu. For more information on job shadowing opportunities for COSAM students, AED, and other opportunities not included in this story that are offered to pre-health students at Auburn, contact Beverly Childress at childbb@auburn.edu.



DEVELOPMENT HIGHLIGHTS

Bailey funds Sallie Mae Phillips scholarship

Dr. James P. (Phil) Bailey, chemistry '78, has always been an Auburn fan. Following in the footsteps of his mother and uncle, Bailey attended Auburn and after graduation knew he wanted to give back to the university that means so much to his family.

Bailey said he had always given to Auburn through donations to the football program, but when it dawned on him that the team would take the field regardless if he continued to give, he thought it was best to reroute his giving and establish a scholarship.

"My wife and I feel this is a very good way to use our donation dollars," Bailey said of his choice to start the scholarship. "We left choice of the recipient to the Dean's discretion, feeling he would have the best idea of where it could be best used."

Bailey, who now lives in Vestavia Hills and is an orthopedic surgeon, created the scholarship in memory of his grandmother, Sallie Mae Phillips. Bailey describes his grandmother as having the gift to see the possibilities of life.

"She always encouraged everyone, no matter what their abilities or limitations or lack of material goods," Bailey said of his grandmother.

Bailey hopes his scholarship will encourage COSAM students in a similar way to continue working hard to achieve their dreams.

"Auburn was, and continues to be, a great place for someone who just wants a chance," Bailey said. "Hopefully this scholarship helps give someone that chance."

Kings establish COSAM scholarship

Drs. William G. King, Jr., pre-dentistry '73, William G. King, III, zoology/entomology '01, and R. Parrish King, biomedical sciences '03, established the King Family Endowed Scholarship Award in the College of Sciences and Mathematics. All three men graduated from the University of Alabama School of Dentistry. Additionally, William King, III, completed a general dentistry residency with the U.S. Department of Veterans Affairs in Birmingham, Ala., and Parrish King completed a surgical implant residency at the University of Florida College of Medicine – Jacksonville. Currently, they are all pursuing successful careers in the field of dentistry, a path that has become a family tradition.

"My dad was a dentist in Andalusia (Ala.), and practiced from '76 to '95. My oldest son, Will, is a dentist in Auburn and my youngest son, Parrish, practices dentistry in Andalusia with me," said William King, Jr. "The three of us are all Auburn graduates and thought it would be a good idea to establish a legacy in the form of the King Family Endowed Scholarship."

The King family hopes the scholarship will benefit a student from Andalusia who is majoring in biomedical sciences with a focus in pre-dentistry.

"We see the scholarship as an opportunity to financially help a pre-dental student at Auburn. We don't always find an exact match, but any student in the medical or dental field would be great," said William King, Jr. "Establishing a scholarship right now carries with it a tremendous advantage since the minimum financial requirements have been lowered. We hope that through the years the King Family Scholarship will help a lot of students."



Dr. E. Gaines Thomas scholarship

Dr. E. Gaines Thomas, chemistry '72, decided, along with his wife, Linda Pritchett Thomas '72, that it was time to do something that would help better the university they loved dearly.

Thomas said it was several years ago that the decision became clear. The greatest way his family, including three sons who each attended Auburn, could honor their mutual alma mater was through the establishment of an endowed scholarship that will be funded through a planned gift.



"We were looking for a way to contribute to Auburn," Thomas said. "Auburn has always meant so much to our family and we thought that this was such a great way to give back."

Thomas, who now lives in Mobile, Ala., and practices pediatric dentistry, said the scholarship was created to enable one student each year, who otherwise would not have been able to study at Auburn, to attend and have the revered Auburn experience. Thus, the Thomas Family Scholarship was created.

Thomas believes that with rising tuitions nationwide, scholarships will continue to increase in importance for potential students.

"Our hope is that this scholarship will help Auburn to be competitive in the scholarship arena in continuing to attract the best and brightest of students," Thomas said.

To learn more about establishing a scholarship, contact the COSAM Office of Development at 334-844-2931.



Leadership Council member spotlight: TaShawna Thomas Stokes

Dr. TaShawna Stokes, biomedical sciences '01, is a Madison, Ala., resident and pediatrician. Stokes, who attended the University of South Alabama's medical school, was asked to join the Dean's Leadership Council in 2005 before she headed to California to complete her residency at the Children's Hospital of Los Angeles.

It was her fondness and pride in Auburn and the College of Sciences and Mathematics that led Stokes to join the council.

"When I was at Auburn I completely loved it and had tremendous support from COSAM and its donors," Stokes said. "I felt being involved with the Dean's Leadership Council would allow me to transition into giving back, as well as stay abreast on what the college is doing."

Stokes said that her involvement with the council has opened her eyes even more to the great opportunities Auburn and COSAM afford students.

"Auburn is a wonderful university," Stokes said. "In general, Auburn begins all of the preparation from the beginning of school as a freshman and for COSAM students, the college continues it until the student is admitted to professional school. COSAM is such a huge part of this with the knowledgeable advisors who know the process that will lead and direct you on the right path."

For Stokes, it is important that the council remains close with the students – the key, she believes, to truly keeping COSAM among the best of the best.

"I love the fact that the leadership council reaches back and utilizes its older alumni as well as the more recent graduates. This allows them to be connected with the current students and pull in different voices. It makes COSAM very progressive as compared to other institutions that may focus their efforts on older alumni who are more established for monetary reasons."

Stokes said this connection with the students allowed the members to hear from current students at the last Leadership weekend and in turn report back to the advisors and help them address the students concerns and needs.

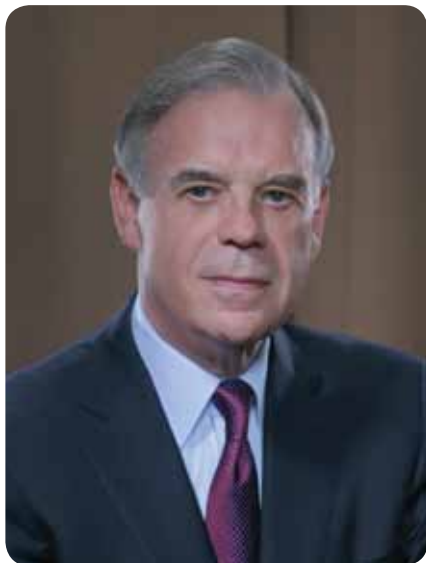
Stokes also believes it is important for COSAM graduates to keep in touch with the college and give back in any way possible to help maintain the success of the college.

"COSAM is constantly trying to improve the college and is always on top of what is current," Stokes said. "They are innovative in helping alumni contribute, even if it's in a small way while you are building your career."

COSAM CONTRIBUTORS

COSAM supporters contribute to medicine

COSAM has produced many outstanding alumni physicians, one of which is Dr. Kirby I. Bland, chemistry and biochemistry '64. Bland is a native of Alabama and graduated from the University of Alabama School of Medicine in 1968. He then conducted an internship followed by one year of residency, both at the University of Florida College of Medicine in the Department of Surgery. After his first year of residency, Bland served in the U.S. Army from 1970 to 1972.



He was stationed at Fort Benning, Ga., as the officer-in-charge of the Emergency Department. When this tour of duty was completed, he re-entered residency training at the University of Florida. In his final year of residency, he acted as the administrative chief resident. Bland also completed two fellowships: one at Florida, where he was a fellow in immunology; and the other at the

University of Texas/M.D. Anderson Hospital and Tumor Institute, where he was a fellow in surgical oncology and a research associate.

Since 1977, when he completed his fellowship in surgical oncology, Bland has accumulated numerous awards, honors, and academic and hospital appointments including acting as past president of the following: the Association of Academic Surgeons, the Society of Surgical Oncology, the Society of Surgical Chairs, the Southern Surgical Association, the Southeastern Surgical Congress, and the American Surgical Association. Bland was also the former director of the American Board of Colon and Rectal Surgery and the American Board of Surgery. For the American College of Surgeons (ACS), he sat on the board of governors as a representative for the American Surgical Association, worked on the executive committee of the ACS Board of Governors, and acted as both the vice-chair for the board of governors and the first vice-president for ACS.

Bland has also held numerous faculty positions at the University of Louisville, the University of Florida, Brown University, and the University of Alabama at Birmingham. Additionally, Bland has been competitively funded in cancer-related research since 1980 with an emphasis on breast, colorectal, gastrointestinal malignancies and metabolism, and has acted as principal investigator for several grants, including grants from the National Institutes of Health and the National Cancer Institute.

He has published more than 580 manuscripts and 30 textbooks and periodicals, and is an active editorial board member of 22 surgical and medical journals.

Currently, Bland works at UAB where he is the Fay Fletcher Kerner Professor and Chair, Department of Surgery, surgeon-in-chief at the University Hospital's The Kirklin Clinic, and senior advisor to the director of the UAB Comprehensive Cancer Center.

His extensive resume represents more than 40 years of dedication, drive, and determination. When asked of which career accomplishments he is most proud, Bland responded, "My resume is a body of lifetime work in multiple areas of surgical oncology. I am a surgical scientist, which means I am a clinician, researcher and teacher. All of these domains are important."

Bland says that he felt well prepared for medical school after graduating from Auburn University, and as a result, he and his wife, Lynn Morton Bland, '68 medical technology, established the Dr. Kirby I. and Lynn Morton Bland Endowed Scholarship in the College of Sciences and Mathematics.

Another successful physician and COSAM supporter who has made significant contributions to the medical field is Dr. W. Lee Warren. Warren is a neurosurgeon in Auburn and a COSAM adjunct faculty member. He received his undergraduate degree in biochemistry from Oklahoma Christian University and then attended medical school at the University of Oklahoma. After Warren graduated from medical school in 1995, he completed a neurosurgery residency in Pittsburgh, Pa. Warren served in the U.S. Air Force until 2005 and, during that time, he was deployed to Iraq where he worked at a combat hospital for four months.



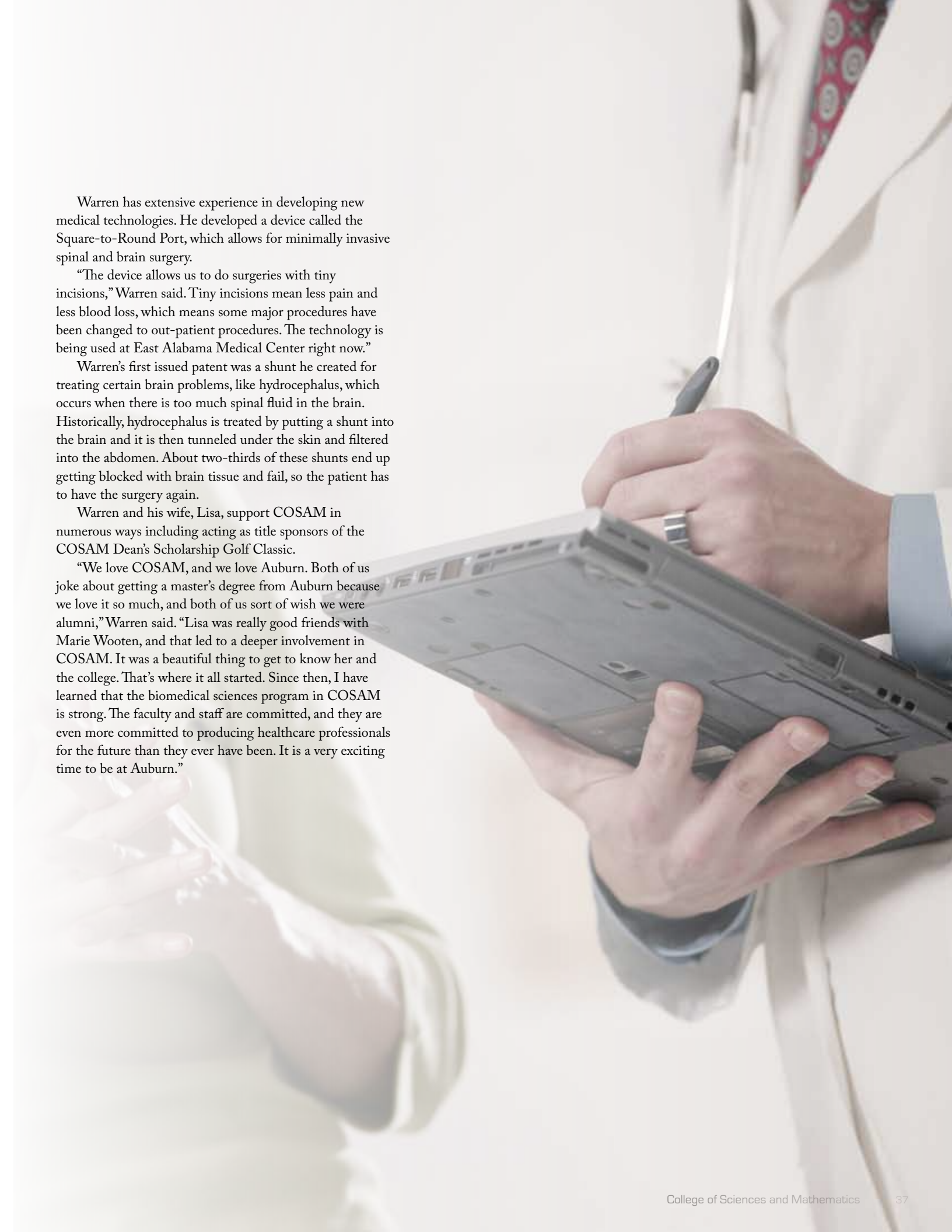
Warren wrote the book, *Called Out: A Brain Surgeon Goes to War*, about his experience in Iraq.

After Warren left the Air Force in 2005, he moved to Montgomery where he practiced for about a year before he visited Auburn.

"My wife and I found Auburn to be home immediately, and I set up a practice in 2006. It has been going strong ever since," said Warren.

His practice, Auburn Spine and Neurosurgery Center, is part of the Auburn MRI Research Complex. Warren has another company, Warren Innovation, which he describes as an intellectual property incubator.

"Right now, we have 11 patented or patent-pending medical technologies being developed through Warren Innovation, including products from several other companies in three countries. We have a number of other people's intellectual property that we are helping them to develop. We introduce them to engineers and designers. We take other's ideas and plug it into our successful process and help them get to market," Warren said.



Warren has extensive experience in developing new medical technologies. He developed a device called the Square-to-Round Port, which allows for minimally invasive spinal and brain surgery.

“The device allows us to do surgeries with tiny incisions,” Warren said. Tiny incisions mean less pain and less blood loss, which means some major procedures have been changed to out-patient procedures. The technology is being used at East Alabama Medical Center right now.”

Warren’s first issued patent was a shunt he created for treating certain brain problems, like hydrocephalus, which occurs when there is too much spinal fluid in the brain. Historically, hydrocephalus is treated by putting a shunt into the brain and it is then tunneled under the skin and filtered into the abdomen. About two-thirds of these shunts end up getting blocked with brain tissue and fail, so the patient has to have the surgery again.

Warren and his wife, Lisa, support COSAM in numerous ways including acting as title sponsors of the COSAM Dean’s Scholarship Golf Classic.

“We love COSAM, and we love Auburn. Both of us joke about getting a master’s degree from Auburn because we love it so much, and both of us sort of wish we were alumni,” Warren said. “Lisa was really good friends with Marie Wooten, and that led to a deeper involvement in COSAM. It was a beautiful thing to get to know her and the college. That’s where it all started. Since then, I have learned that the biomedical sciences program in COSAM is strong. The faculty and staff are committed, and they are even more committed to producing healthcare professionals for the future than they ever have been. It is a very exciting time to be at Auburn.”



A MESSAGE

from the Director of COSAM Outreach

Mary Lou Ewald

This has been an exciting year for COSAM Outreach as we continue to expand and impact larger audiences with our unique programming. In August, we welcomed Erin Percival, assistant director of Outreach, to our staff. Erin's experience with project management, curriculum development and classroom instruction has enhanced our existing programs and provided inspiration for new ways to excite and challenge students in science and mathematics.

Following last year's successful expansion of our statewide BEST – Boosting Engineering, Science and Technology – middle and high school robotics program, we were again fortunate to receive support from the Alabama Department of Postsecondary Education (through the Alabama Technology Network) to continue expanding BEST into rural areas of the state. In the fall of 2012, the “BEST in Alabama Program” will expand to include three new program sites (“hubs”) at community colleges in Selma, Rainsville and Tuscaloosa. Our goal is for every middle and high school student in the state to have the opportunity to participate in BEST, regardless of geographic or economic limitations. We continue to hear stories from teachers and parents of how participation in BEST inspires so many students to continue their education, even those forgotten students who previously had little hope for a postsecondary education. This year's outreach focus story features one of those schools, Hope Academy in Talladega, Ala.

A handwritten signature in black ink that reads "Mary Lou Ewald".

Mary Lou Ewald
Director of COSAM Outreach



OUTREACH

2011 South's BEST Robotics Championship—A Story of Hope

In December, Auburn University hosted the 2011 South's BEST (Boosting Engineering Science and Technology) Robotics Championship at the Auburn Arena. This middle and high school, work-force development robotics competition engages students in engineering, science and technology, with the goal of inspiring them to pursue careers in these fields.

Through participation in this project-based program, students are required to design, build, and market a robot that can perform required tasks on a specified playing field. Regional robotics competitions allowed the most exceptional teams to advance to South's BEST, where 50 middle and high school teams from Alabama, Florida, Georgia, Louisiana, Mississippi, Pennsylvania, and Tennessee competed against one another for top awards.

Included in this year's competition was first-time participant Hope Academy with their robot, The Green Machine. Located on the 88-acre campus of the Presbyterian Home for Children in Talladega, Ala., Hope Academy is a SACS-accredited school for grades one through twelve. Although the school opened in 1997, the Presbyterian Home for Children has provided services to kids in need since 1868. Originally founded as an orphanage, today it provides a wider range of services for children and their families, including the school.

About half of the students who attend Hope Academy are referred there by the State of Alabama through the Department of Human Resources. These students are often victims of neglect, abuse, incarcerated parents, deceased parents, or a disruptive home setting. Some students are privately placed by families who recognize the need for outside help with a child's behavioral or educational needs, such as learning disabilities or attention deficit hyperactivity disorder. Most of the students, when they arrive at Hope Academy, are behind their grade level in school, often by as much as two years.

Hope Academy provides these students with what a traditional public school cannot, small class sizes and lots of personalized



attention. Typically, there are six to eight students per class, and a majority of the instructors at Hope Academy have master's degrees and are retirees from the state's public school system.

Small class sizes and personalized attention also attract some of the most gifted students in the school's region. The result is a school that is diverse, not only ethnically, but also academically. Furthermore, some of the students at Hope Academy are full-time residents, while others are day students only.

Since 1998, Linda Harris, the school's director, has been responsible for designing and directing the educational program for Hope Academy's diverse needs and coordinating the educational program with social, residential, and counseling services. Prior to her work at Hope Academy, Harris accumulated more than 35 years of experience in Alabama's education system, including extensive work with the Alabama State Department of Education. A mathematics teacher at heart, Harris said she believes participation in the BEST Robotics competition is the most fantastic educational opportunity she has ever experienced with students, and she has worked with every age group.

OUTREACH

2011 South's BEST Robotics Championship continued

"Our students stepped up to the challenge, and they are responsible for every single thing we brought to the South's BEST competition," Harris said. "They had the self-determination, discipline and drive to see it through, and we didn't lose a single student who originally signed up to take part in BEST."

Twenty-seven students, from grades eighth through twelve, participated on the Hope Academy BEST Robotics team, representing 67 percent of students in this age group. The team at Hope Academy utilized a business concept to oversee the development of the various categories for the competition including spirit, engineering, assembly, design, marketing, exhibit, web design, and robot. They gave their team a company name, Hope Environmental Protection Incorporated, and nominated two CEOs to oversee the development of the engineering and marketing aspects of



the competition: Jacob Jackson was the CEO for engineering and Abbie Taylor was the CEO for marketing.

Additionally, two teachers from Hope Academy worked extensively with the BEST Robotics team, offering guidance and also stepping back to allow the students to have full control over the process. Diane Rogers, a mathematics teacher, served as mentor for the engineering side of the program, while Sandra Hobbs, an English teacher, served as mentor for the marketing aspects of the competition.

The mentors listed numerous skills participants gained that will serve them later in life as they look for jobs and begin their careers. For example, participation has taught them the importance of being able to work well within a group, how to dress at a presentation or job interview, how to budget,

and how to problem solve and think outside the box. Students also gained invaluable knowledge on new and innovative technologies and benefited from the first-hand experience of industry leaders who were brought in as additional mentors.

Participation in BEST Robotics even prompted a change in the curriculum at Hope Academy. Beginning in 2012, the school will offer a class in CAD drawing and a class in programming so that next year, as students once again participate in BEST Robotics, they will not experience such a large learning curve when designing and programming their robot. Administrators believe these skills will also benefit students as they make decisions about going to college and joining the workforce.

Although this was the first year Hope Academy participated in the BEST Robotics competition, the team challenged many veteran schools at the local and national levels. They won numerous team awards at the Central Alabama BEST regional competition including: second place, BEST Award; first place, BEST Spirit and Sportsmanship Award; and second place, Founders Award for Creative Design.

It was because of their exceptional showing at the regional competition that Hope Academy was invited to South's BEST. Although they were newcomers to the competition, out of 50 teams present, Hope Academy advanced to the top 16, semi-final round of the robotics competition. Their robot narrowly missed securing a spot in the final round.

For more information on Hope Academy, visit this link: <http://www.phfc.org/>.

For more information on the Hope Academy BEST Robotics team, visit the team website at www.hopebestrobotics.com.

IN MEMORIAM

Kirby Farrington

J. Kirby Farrington, 62, of Auburn, Ala., died March 26, 2011. Funeral services were held on March 29 in Auburn. He was born on Oct. 5, 1948, in Jacksonville, Fla., to Dr. Joseph and Eleanor H. Farrington. He is survived by his wife, Mary Ellen (Harris) Farrington and daughter, Tracy, of Auburn, and sister, Allison Metcalf, of Hobe Sound, Fla. He was the son-in-law of Dr. Ralph and Eleanor A. Harris of Auburn. Farrington received degrees in biology from LaGrange College and Clemson University, and his PhD in microbiology from Auburn. His career included technical and managerial positions in the pharmaceutical industry, at Eli Lilly in Indianapolis, Ind., at Schering-Plough in Memphis, Tenn., and at AAI in Charleston, S.C. He was recognized as an expert in water sterility, antimicrobial preservatives, and regulatory compliance and helped develop more than 250 new products. He enjoyed presenting at professional conferences throughout the U.S., Europe, and Asia. He was elected to the USP Expert Committee on Microbiology and Sterility Assurance. He always enjoyed teaching and served as adjunct professor at universities in Tennessee, Mississippi, and South Carolina and most recently was director of microbiology laboratories at Auburn University. Farrington's hobbies were fishing, hunting, reading, enjoying all educational media, holding his many rescue cats, and traveling with his family. He had a wonderful sense of humor and loved telling jokes. *Florida Times-Union, April 3, 2011*

To make a contribution in memory of Dr. Farrington, checks may be made payable to the Auburn University Foundation and mailed to the COSAM Office of Development, 315 Roosevelt Concourse, Auburn, AL 36849. The Farrington Fund will benefit microbiology undergraduate and graduate students. For more information or for a credit card payment, please call 334-844-2931.



Robert Kent Butz

Robert Kent Butz, age 87, passed away Aug. 30, 2011, at his home in Auburn, Ala. Butz is survived by his wife of 60 years, Elizabeth Hodges Butz; his brother, Homer Butz, of Longmont, Colo.; his six children, Floyd (Sandy) Williams of Gulf Shores, Ala., Bob Butz, Kwajalein Atoll, Martha (Bob) Dumas, and Don (Beth) Butz, all of Auburn, Ala., Mary Wilson of Williston, Fla., and Margaret (Jim) Kuhn of Columbus, Ohio; and 14 grandchildren and four great-grandchildren. Butz, a native of LaJunta, Colo., earned his bachelor of science in mathematics from Colorado State University. He subsequently earned his master's and PhD from the University of Georgia. Butz taught at the University of Georgia and Colorado State University and in 1958, joined the faculty at Auburn where he taught mathematics courses until his retirement in 1988.



Evelyn Walker Jordan

Evelyn Walker Jordan, 98, a longtime student counselor at Auburn University and wife of late head football coach Ralph "Shug" Jordan, died Nov. 3, 2011 following a brief illness. A native of Augusta, Ga., Jordan grew up in Macon, Ga., and Columbia, S.C., where she received a bachelor's degree in sociology from the University of South Carolina. She did graduate work at Tulane University in New Orleans and later earned a master's degree at Auburn, where she served as Panhellenic adviser and worked as a counselor for married and international students for many years. She received the university's Pamela Wells Sheffield Award in 1992 in recognition of her service and commitment to Auburn. Her son, Ralph Jordan, Jr., is a COSAM alumnus who received his bachelor's in biological sciences in 1970 and his master's in zoology in 1975. He also serves on COSAM's Leadership Council.

THE ARBORETUM

An Update

The Donald E. Davis Arboretum has a mission of promoting an understanding and appreciation for the natural world with an emphasis on southeastern plants and other associated organisms – a mission that was implemented throughout the past year.

Through its sustainability efforts and projects, as well as the outreach done on campus and with local schools and groups, the arboretum has substantially broadened its reach throughout the local community in the past year.

Many of the sustainability projects done at the arboretum fall in suit with Auburn University President Jay Gogue's commitment to have a campus that sequesters more carbon than it emits, known as a carbon neutral campus.

Dr. Nanette Chadwick, director of Academic Sustainability Programs and biological sciences professor, says she has been impressed with all of the work being done in the arboretum.

"In the Office of Sustainability, we appreciate these efforts at the arboretum, which we often use as examples of the best practices in sustainability for the campus. All of our introductory classes in sustainability take field trips to the arboretum, where the students learn a tremendous amount about how to put sustainability practices into action," Chadwick said. "I personally rely on the expertise and actions of



Members of the Alabama Plant Conservation Alliance, along with members of the Georgia Plant Conservation Alliance, check on the status of plants that were planted as seeds, propagated by Ron Determann at the Atlanta Botanical Gardens, and reintroduced at Camp Tuckabatchee.

the arboretum staff to inform our course discussions and lectures about sustainability on campus and in our community."

Recently, the arboretum staff has collaborated with many on-campus classes and groups to complete even more sustainability projects, including building sciences classes that worked with facilities to install more pervious concrete pathways in the arboretum. These pathways will increase sustainability in reducing runoff water and allowing water to reenter the ground and increase groundwater supplies.

Biosystems engineering and landscape architecture also contributed in helping to design the outdoor classroom, bog, and water capture systems.

Other sustainability projects recently completed include solar-powered pumps, dry steam beds for directing water, and bio-retention gardens, or rain gardens.

With the arboretum constantly changing and improving its amenities, several other classes from various colleges on campus have also taken advantage of the arboretum. Classes from art, forestry, and geology, among others, utilized the arboretum over the past year for alternative classroom activities.

Fortunately for many local schools and organizations, it is not only on-campus entities that benefit from the arboretum. Over the past year, many different groups, including local school groups, have enjoyed and learned from its features.

The arboretum hosted several workshops, including water watch workshops and a two-part native plant workshop, as well as Arboretum Days – Saturday morning programs directed at pre-K through fifth-grade students in the community. In total, approximately 2,000 people were reached through the numerous outreach efforts made by the arboretum staff this year.

Over the next year, plans are in motion to move an extensive native azalea collection to the arboretum. The facility will also host an Earthfest celebration, Arboretum Days, and a fundraiser over A-Day weekend.

To read more on the arboretum, go to www.auburn.edu/cosam/arboretum/.



Michael Hein's Reinforced Concrete Structures students work on pouring pervious concrete for the walkway that passes in front of the Arboretum Pavilion.



*Children participating in an Arboretum Day program by planting some *Sarracenia alabamensis* (Alabama Canebrake Pitcher Plants), an endangered carnivorous plant found only in a few sites near Montgomery, Ala.*

COSAM STAYS CONNECTED

Night in New Orleans

Saturday, April 14

The Donald Davis Arboretum will be transformed into "The Big Easy" complete with traditional fare, jazz entertainment and a silent auction. Proceeds from this inaugural event will provide enhancements to the Arboretum.

Marie W. Wooten Memorial 5k

Saturday, April 21

Held annually in Dean Wooten's memory to recognize her many contributions to Auburn University. Funds raised support the Dr. Marie W. Wooten Memorial Scholarship for outstanding young women.

Society of Women in Sciences and Mathematics Symposium

Tuesday, May 1

The Society, which is committed to increasing awareness of opportunities available for women in the fields of sciences and mathematics, is pleased to have Anda Ray, '78 Physics, TVA Senior Vice President of the Office of Environment and Research as this year's keynote speaker. Nearly 100 area high school students will be guests and have the opportunity to interact with role models.

Distinguished Alumnus/a Award and Dinner

Friday, October 5

Nominations are being accepted now for COSAM's sixth Distinguished Alumnus/a Award. Nominees will have achieved significant stature in their chosen field, and have a history of commitment to Auburn University and the COSAM. Nominations are welcome from COSAM Alumni and the general public and must be received by May 1.

Dean's Scholarship Golf Classic

November 2

Calling all golfers . . . Join us "fore" the 18th annual tournament. Moore's Mill Club in Auburn is the venue for this COSAM tradition that supports undergraduate scholarships.

Tailgates

October 6 (vs. Arkansas)

October 27 (vs. Texas A&M)

November 10 (vs. Georgia)

Join us for food, fun and fellowship before we cheer on our Tigers to victory!

For additional information on these events and others, contact Brook Moates at 334.844.2931 or brook@auburn.edu.



Investment Opportunities:

Student Support: Student Support allows us to recruit and retain those with the highest potential.

Unrestricted Support: Unrestricted gifts provide flexibility to address unmet or unexpected needs.

Society of Women in Sciences and Mathematics: The Society strives to increase awareness of opportunities available for women in the fields of science and math.

Society of Health Professionals: Members are devoted to enriching the quality of pre-health education through scholarships, faculty enrichment and program enhancement.

Biodiversity Learning Center: Plans for a new building are underway to house this spectacular collection of mammals, birds, paleontological invertebrates and vertebrates, reptiles, amphibians, fish, and flowering plants.

Donald E. Davis Arboretum: A hidden campus jewel, the Arboretum is an asset to the entire community and focuses on conservation and education.

Outreach Activities: Exciting, hands-on laboratory activities and enthusiastic science mentors are provided for the K-12 community.

Summer Bridge Program: An intensive residential program for talented and highly motivated underrepresented students, the program prepares and equips these incoming freshmen with the tools necessary to succeed in college.

For questions or more information, please contact the COSAM Office of Development at 334-844-2931.



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The 2nd Annual Marie W. Wooten Memorial 5k Run

Saturday, April 21, 2012

Proceeds will benefit the Marie W. Wooten Memorial Scholarship in the College of Sciences and Mathematics (COSAM). Prior to Dean Wooten's death, she had planned to hold a 5k to raise money for scholarships. The race will honor Marie W. Wooten's memory and help COSAM continue her vision for the future of the college.

For more information, contact the COSAM Office of Development at 334-844-2931.