The Department of Chemistry and Physics at Augusta State University is a vibrant and growing department offering BS degrees in physics and chemistry, including a biochemistry track and secondary education tracks in each. As a new chair of the department, I am especially excited about our new I-MAT program for chemistry and physics education as a streamlined program for a Bachelor's degree, Masters degree, and teaching certification. We also offer other pre-professional programs such as pre-medical, pre-dental, and pre-pharmacy. A nuclear science program will also be available beginning next year. Chemistry and physics are central sciences that provide an excellent background for careers in many allied fields. As a student here, your classes will be small. Our strong curriculum includes hands-on work with modern scientific instruments and state-of-the-art computer systems. Opportunities to work with faculty mentors on undergraduate research projects are an additional benefit. A variety of scholarship programs assist our majors. Our graduates are successful in entering graduate degree programs or securing rewarding jobs. The whole department is alive with activity and is a great thing to be a part of. Stop by the 3rd floor of Science Hall and take a tour, talk to an advisor, and explore the opportunities. Be a part of a department which wants to make a difference in your life!

The Department of Chemistry and Physics was successful in obtaining two National Science Foundation (NSF) grants this past year. One of them was for the Savannah Rivers Scholars Program and the other was for the I-MAT PRESTIGE program for recruiting and education STEM teachers with integrated graduate enrollment.

The Department of Chemistry and Physics received a Department of Energy grant to initiate a nuclear science program. The department was part of a consortium of schools that received this grant to prepare students to enter the nuclear workforce which is expected to increase locally by 10,000 jobs over the next 10 years.

ASU has awarded 30 ADP scholarships to biology, chemistry, physics, math and computer science majors for the 2011-2012 academic year. Twelve of them are chemistry or physics majors and five are students who received the scholarship last year. Craig Atkins and Erik Ewing are ADP scholars who graduated with a chemistry degree this spring. Craig is pursuing graduate work at Rockefeller University in New York. Erik is attending medical school at Georgia Health Sciences University. Ken Stephenson, an ADP scholar who graduated in physics, is currently working at the Savannah River Site and preparing his medical school application. These scholarships, as well as the chemistry and physics tutoring center, are generously funded by Automatic Data Processing (ADP).

Dr. Carol Hood, Assistant Professor of Physics, began as a new faculty member in the department this fall. Dr. Hood’s area of specialty is astrophysics. Dr. Hood graduated with Honors from Virginia Polytechnic & State University in 2004 with a B.S. in Physics, and then went on to obtain her M.S. in 2006 and her Ph.D. in 2011, both from the University of California, Irvine. While at Virginia Tech, she was inducted into the physics honor society, Sigma Pi Sigma, and also traveled to Tucson for an REU (Research Experience for Undergraduates) internship with the National Solar Observatory. Dr. Hood's doctoral work focused on investigating the multi-wavelength nature of galaxies and their central black holes, in particular central black holes with masses less than a million solar masses. She plans to continue her research at Augusta State using the properties of galaxies and super-massive black holes to learn about their formation and growth over time. She is also interested in developing a summer outreach program within the department for high school students. Welcome to Dr. Hood!
The spring 2011 students participated in an Advanced Organic Poster Presentations on current topics from the organic literature including new catalysts, new syntheses, and other discoveries and innovations. Both the students and the poster session visitors learned a lot. Pictured right is Dr. Crute with a poster presenter.

Last December, Chemistry students dedicated their time after finals to facilitate Tour de Chem for students from St. Mary's on the Hill (picture on the left and below). Demonstrations varied from flame tests to homemade bouncy balls to secret messages written in invisible ink. The visiting students had an excellent time. The experience was rewarding for everyone who volunteered for the event.

Lindsay Baxter, one of our spring 2010 graduates in chemistry was accepted to the PhD program in Chemistry at the University of Notre Dame. She will begin her studies this fall and will focus on theoretical/computational chemistry. Below are some comments from Lindsay about her acceptance to Notre Dame and her experience at ASU:

“As of Fall, 2011, I will be amongst the ranks of the Fighting Irish! I was accepted to the University of Notre Dame in pursuit of a Ph.D. in theoretical/computational chemistry. While I am excited, I must say that there is no doubt I am able to pursue this degree because of the education I received at Augusta State. The professors there worked above and beyond to provide a challenging teaching environment, while inviting us as students to experience hands-on research. I will never forget the impact their efforts made on my life, and I look forward to living by their example in my career as a chemist. Cheers, Augusta!” Congratulations and best wishes to Lindsay!

Two other chemistry students from the class of 2010 are also in graduate school this fall. Phillip Wilkerson is at Georgia State University and Ryan Hawkins is at UGA. We wish them best of luck!

Dr. Chad Stephens co-authored 7 journal publications during the 2010-2011 academic year. Journals included Tetrahedron Letters, Synthetic Communications, J. of Heterocyclic Chemistry, J. of Molecular Biology, J. Antimicrobial Chemotherapy, Parasitology, and Antimicrobial Agents and Chemotherapy. Five different research students were also co-authors on these papers. Dr. Stephens also gave two invited research presentations, one at Armstrong Atlantic State University and one at Furman University.

Dr. Stephanie Myers and chemistry majors William James and Sean Singletary (pictured on the left) attended the Southeastern Regional Meeting of the American Chemical Society (SERMACS) in New Orleans, Louisiana. Dr. Myers presented the paper “Reducing Grading Without Reducing Assessment”. William James, who works with Dr. Myers, presented his research, “Utilizing Atomic Absorbance Spectroscopy and Standard Addition for Mercury Detection in Turtles.” Sean Singletary, who works in Dr. Miao’s lab, presented his research, “Synthesis of Tetracyanoquinodimethane Derivatives.” Both students were awarded a travel grant through the Pamplin Student Research Fund. William James was awarded an additional travel grant through the Savannah River Section of the American Chemical Society.

Chemistry Club students raised $900 in the Mole Day fundraiser to benefit science classes at Lucy Laney High School.

The best undergraduate research award in chemistry went to Craig Atkins for conducting outstanding research at both the Georgia Health Sciences University and at Augusta State University. His research involved the role of SMN in localization of oskar mRNAs and synthesizing various analogues of Dapsone as potential DNA binding agents. Congratulations to Craig!

The Richard T. Mixon award in chemistry was awarded to Erik Ewing for his exceptional teaching and peer leading qualities. Well done Erik!

The John W. Pearce award for outstanding student in Organic Chemistry was awarded to Skylar Hendricks for best student performance in both Organic I and II. Congratulations to Skylar!

Congratulations To Dr. Stephanie Myers who completed a certificate in Environmental Forensics from the University of Florida. A certificate shows the completion of 15 hours of graduate credit in the field and is the highest level offered for this particular program. Congratulations to Dr. Myers!

The spring 2011 students participated in an Advanced Organic Poster Presentations on current topics from the organic literature including new catalysts, new syntheses, and other discoveries and innovations. Both the students and the poster session visitors learned a lot. Pictured right is Dr. Crute with a poster presenter.
Physics Honors Students Give Poster Presentations  Students from the Honors section of Physics 1111 presented their class research projects in the Science Hall Atrium (picture on the left). Projects included elasticity of wall, projectile motion with air resistance, catenary physics, and damped pendulum motion. The poster presentation attracted a crowd of both physics and science enthusiasts. The judges Dr. Colbert, Dr. Hauger, Dr. Dunn, Dr. Sadewasser, and Dr. Datta had a great time discussing physics concepts and ideas.

Physics major wins Research and Travel Awards  Tammy Dencker won a “Best Paper Presentation” award at the 88th Annual Meeting of the Georgia Academy of Science at Gainesville State College. Tammy presented her research entitled “Three dimensional-wave gradiometry”. The research, which was led by faculty mentor Christian Poppeilers, focused on the proof of concept that gradiometry, a technique that is used for seismic wave propagation studies, can be extended to three dimensions. She also received a travel award to present her research at the 2011 Annual Seismological Society of America meeting (Memphis, TN) and won a 2010 Phi-Kappa-Phi research award.

Physics major Richard Gamble, a 2011 ASU Phi-Kappa-Phi award winner is collaborating with Dr. Colbert on a research project on the inductance properties of several inductive coils. The project involves investigating the properties of resonances on the physical characteristics of coils such as geometry, resistance, and number of windings.

Two Physics Students Awarded PRESTIGE Scholarships  Junior Physics majors Chris Cutler and Chris Parham became the first two students at ASU to be accepted into the new I-MAT (Integrated Masters of Arts in Teaching) teacher education program and to receive a PRESTIGE Scholarship. The I-MAT is a new program at ASU that allows qualified undergraduates in chemistry, physics, biology and math to begin taking graduate level courses in pursuit of an MAT during their junior year. The I-MAT program of study is part of the PRESTIGE program funded by NSF.

Physics Majors Philip Javernick (left) and Chris Parham (left) received the 2011 Best Undergraduate Research Award from the Society of Physics Students to present his research at the 2011 Annual American Physical Society March meeting in Dallas. Congratulations to Philip!

Dr. Trinanjan Datta was awarded the 2011 Louis K. Bell Research Award at the ASU Research Recognition Ceremony. Dr. Datta's research is in the area of theoretical and computational condensed matter physics.

Dr. Christian Poppeilers published a paper on Seismic Wave Gradiometry Using the Wavelet Transform: Application to the Analysis of Complex Surface Waves Recorded at the Glendora Array, Sullivan, Indiana, in the USA Bulletin of the Seismological Society of America.

Physics Club  Last year saw a flurry of activities from the physics club. Tammy Dencker, Matt Herren, and Richard Gamble gave chalk talks discussing their research on geophysics heat flow, and inductance respectively. The physics club hosted a costume party at the Boat House in downtown Augusta. Also several students and faculty members traveled to Georgia Academy Society Meeting in Gainesville, GA. Matt Herren and Tammy Dencker presented research talks at the conference. Pictured to the left are students Tammy Dencker, David McCall, Maitri Desai, Katherine Overman, Rob Murrah, Richard Gamble, Matt Herren and faculty Dr. Colbert, Dr. Hauger, Dr. Poppeilers, and Dr. Dunn. The physics club also unveiled its new club T-shirt (pictured on the right with the turtle logo).
This year the Department had a large number of students present their research at the Phi Kappa Phi Student Research Conference held here on campus. These students, and their advisors, are listed here:

**Faculty Advisor: Dr. Tom Crute**

**Taylor Winkleman**

“Persin Derivatives and their Effects on In Vitro Cells”

**Tyler Chavous**

“Studies Towards the Synthesis of Tellurolo [3,2-b]pyrrole”

**Faculty Advisor: Dr. Eric Zuckerman**

**Erik Ewing and John Richey**

“On the Shape of Hanging Springs and the Catenary”

**Faculty Advisor: Dr. Shaobin Miao**

**Sean Singletary**

“Synthesis and Characterization of Tetracyanoquinodimethane Derivatives”

On Wednesday March 9th a dozen students from the department presented their research at the 12th Annual Phi Kappa Phi Student Research and Fine Arts Conference held at ASU. The department had great success not only with the participation of the students but also with several students winning a best presentation award. The awards went to Taylor Winkleman (Persin Derivatives and their Effects on In Vitro Cells), Tammy Dencker (Three Dimensional Acoustic Wave Gradiometry), and Richard Gamble (Experimental Measurements of Self and Mutual Inductance). Congratulations to the Phi Kappa Phi award winners and to their advisors for their hard work! Several other students and faculty also attended the conference, which has become an annual spring event for many in our department. Congratulations to the research students!

**Faculty Advisor: Dr. Christian Poppeliers**

**Tammy Dencker**

“Three Dimensional Acoustic Wave Gradiometry”

**Joy T. Jenkins and Michele Siewe**

“Synthesis of 2-Aminofluorene Derivatives as an Organic Chemistry Laboratory Project”

**Joseph W. Price**

“Synthesis and Cyclization of Various 2-Aminopyrroles to Tricyclic Compounds”

**Faculty Advisor: Dr. Donna Hobbs**

**Craig Atkins**

“Role of SMN in Localization of oskar mRNA During Oogenesis in D. melanogaster”

A group of student presenters at the PKP Conference (from left to right: Joy Jenkins, Joseph Price, Thomas Tinkle, Miranda Emery and Wesley Black)
Congratulations to Physics Major Billy Baez on being accepted to graduate school at Ohio State University. When asked about how he feels, he mentioned "I am honored to be selected by such an esteemed university and look forward to the challenge of studying graduate-level physics". The department wishes him good luck!

As part of the ASU Brown Bag Student Research Series, Maitri Desai, a senior double major in physics and chemistry, gave a presentation about the REU research that she conducted this summer at Georgia Tech under the advisement of Professor Jennifer Curtis. Maitri discussed the 10 week REU program, called “Hooked on Photonics”, and then gave an overview of the research she conducted on “nanoscale device fabrication” using techniques such as thermochemical nanolithography (TCNL) and supramolecular nano-tamping (SuNS). At present she is pursuing her graduate school studies at Georgia Tech. Congratulations to Maitri on her great achievements!

Dr. Tom Crute, Chair of the Department of Chemistry and Physics, gave a presentation on Professional Ethics in the Sciences as part of the Center for Teaching and Learning Academic Dishonesty Panel and Discussion held at Augusta State University.

Dr. Jay Dunn of the Department of Chemistry and Physics presented a talk in the Arsenal Lecture Series hosted by the ASU Phi Kappa Phi Honor Society. The presentation focused on Dr. Dunn’s astronomy research. He presented his research on the outflows seen in Quasars and Active Galaxies, which deals with relating the super-massive Black Hole to its host galaxy.

Dr. Shaobin Miao led a group of chemistry students to give instructional chemistry demos for the Home-school association of Augusta. The event included chemistry demos with NMR, TLC Infra red, and Gas Chromatography instruments.

This summer Dr. Trinanjan Datta traveled to Guangzhou, China as an invited research scholar to Sun-Yat Sen University. While there he collaborated on quantum magnetism research with Professor Daoxin Yao and undergraduate research student Zewei Chen.

Dr. Tom Crute, Chair of the Department of Chemistry and Physics, gave a presentation on Professional Ethics in the Sciences as part of the Center for Teaching and Learning Academic Dishonesty Panel and Discussion held at Augusta State University.

In February, Dr. Eric Zucker- man traveled to South Africa to facilitate introductory workshops on Process Oriented Guided Inquiry Learning (POGIL). The workshops in Cape Town, Pretoria and Johannesburg included university and secondary school instructors from various departments and disciplines. The workshops represented the second such international foray for the POGIL organization.

ADP scholars Skylar Hendricks, Katie Picciano, Philip Javernick, Chris Parham along with Drs. Colbert, Myers, and Datta presented demonstrations for the Science Day at Automatic Data Processing.

The Department of Chemistry and Physics hosted an undergraduate student research night this spring to celebrate the involvement of students and faculty engaged in student research. Faculty members introduced their research group members. They offered words of encouragement and appreciation for the hard work and dedication that the students display.

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The Physics 1112 Honors students had an end of year “electronics project fest”. The project included in building a stopwatch and a photogate timer. Supplemental instructor Philip Javernick supervised the project.

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The department hosted its Fall 2010 and Spring 2011 meet and greet. The meet & greet has become a regular event in the department where incoming students are introduced to faculty and current students. With door prizes and free pizza, it is a great time to socialize, have fun, and get useful career related information.

The event was also special for the parents of the participating students who were invited to join the celebration. The parents appreciated the involvement of the department and the level of commitment that it took from the students and faculty to make undergraduate research a success. Overall it was a great night to remember.
Grants Spotlight

**Savannah River Scholars Program** ([www.aug.edu/srsp](http://www.aug.edu/srsp))
The Savannah River Scholars Program (SRSP) is a scholarship program funded by the National Science Foundation. The program which begins in Fall 2011 will be directed by Dr. Andy Hauger, Professor of Physics and Dr. Sam Robinson, Professor of Mathematics and Chair of the Department of Mathematics and Computer Science. The program seeks to integrate research with education as well as increase the number, diversity and quality of graduates in the sciences. The program is expected to improve the educational experiences of the participating students by offering additional support services including science and mathematics tutoring, individualized faculty advising and mentoring and peer mentoring. Below are some pictures from the August 26th kickoff of the Savannah River Scholars Program. The SRSP is also sponsoring a science and mathematics seminar series. Students and faculty are encouraged to attend.

**FALL 2011 SCIENCE AND MATH SEMINAR SERIES**

**Friday, September 30 from 1:00 - 2:00pm in Science Hall W-1002**
**Title:** “Understanding River Hydrology and Biochemistry through Time-Series Analysis”
**Speaker:** Shawn Rosenquist, PhD, Research Scientist, Southeastern Natural Sciences Academy

**Friday, October 28 from 1:00 - 2:00pm in Science Hall W-1002**
**Title:** “The Large Hadron Collider as a probe to the very early Universe: how and why?”
**Speaker:** Mark Kruse, PhD, Associate Professor of Physics, Duke University

**Friday, November 18 from 1:00 - 2:00pm in Science Hall W-1002**
**Title:** “Active Galactic Nuclei: What are they and what can we learn from them?”
**Speaker:** Carol Hood, PhD, Assistant Professor of Physics, Augusta State University
PRESTIGE - Program for Recruiting and Educating STEM Teachers With Integrated Graduate Enrollment

Augusta State University proudly hosts a Program for Recruiting and Educating STEM Teachers with Integrated Graduate Enrollment (PRESTIGE). PRESTIGE provides a streamlined process for becoming a teacher with certification in a STEM area. Over three years, six students per year will each be awarded a renewable Robert Noyce scholarship of $14,800 for the first year which will increase by five percent per student each additional year. The scholarship will support the cost of attendance throughout the integrated program's schedule. For each year of funding, PRESTIGE scholars agree to teach two years with preference of employment being given to Burke, Jefferson, McDuffie, and Warren counties. During the program the scholars will also benefit from having two advisors, one in their STEM area and Dr. Steven Page in the Teacher Education Department. Upon completion of PRESTIGE, each of the 18 scholarship graduates will have obtained a Bachelor of Science and a Master of Arts in Teaching. To obtain an SRSP application packet you must make an appointment to see the PRESTIGE advisor for your STEM area. Students can apply starting spring semester of their sophomore year.


Chemistry - Dr. Chad Stephens: cstephe7@aug.edu
Physics - Dr. Andy Hauger: jhauger@aug.edu

Department of Energy Grant for ASU Nuclear Science Program

A grant from the Department of Energy will allow both Chemistry and Physics Majors an option to concentrate in nuclear science with the first nuclear courses starting in Fall 2012. The department was part of a consortium of schools that received this DOE grant to prepare students to enter the nuclear workforce which is expected to increase by 10,000 jobs over the next 10 years in this region of the country.

During 2011 at ASU, a new nuclear science lab is being created with the initial $157,000 of funding to buy instruments. This lab will allow study of various types of radiation to support a Nuclear Measurements Laboratory course. Other proposed courses are a Fundamentals of Radiation Physics and Nuclear Science Applications.

Scholarships will be available in 2012 to support students who pursue nuclear science tracks of either chemistry or physics majors. The Department of Energy intends to support the program over the next 5 years with a total of $836,000 to ASU.

For more details on the nuclear science program contact Dr. Tom Crute: tcrute@aug.edu
Faculty Spotlight - Dr. Donna Hobbs

Dr. Donna Hobbs is retiring after 20 years of great service and commitment to the department. In her own words — “During the 1992-93 academic year, Czechoslovakia was still one country, Martin Luther King Day was observed in all 50 states for the first time, Michael Jordan scored his 20,000th career point, and I began my career at Augusta College. Today, the Czech Republic and Slovakia are separate, the MLK monument is being dedicated in the District of Columbia, Michael Jordan has long since retired, and I begin my 20th and final year at Augusta State University. I leave with mixed emotions, excited at the prospects that await me, but also knowing that I will miss the students (well, at least most of them), the faculty (well, at least most of them), and the camaraderie on this campus. What stands out the most? There have been incredible changes to the campus, from classrooms where students had to use their umbrellas IN CLASS on rainy days because of the leaking roofs to lovely new buildings (though they occasionally leak as well). But what I will remember most is the students who have made it despite the odds—who have overcome their personal challenges, their family issues, their health issues, their financial issues. Several have had to adapt to life in the USA after emigrating from another country. Whether they have gone on to medical school, dental school, graduate school, or employment, those who have shared their challenges and successes with me will always be precious to me. I will miss my comrades in the Department of Chemistry and Physics, who I truly believe are the most hard-working and dedicated individuals on this campus. You are all part of who I am. My sincere thanks to all for a wonderful 20 years!”

Below are some words of appreciation from some of her colleagues who she has worked with for the last 20 years:

“Dr. Hobbs has brought a considerable amount of insight and wisdom to the department. She cares deeply about students and has been a tireless advisor, including knowing how to “tell it like it is” to students when they needed it. Much of the success of graduates, especially those who went on to medical or dental school, falls squarely on preparation provided by Dr. Hobbs with the quality and rigor of her advanced courses. Both faculty and students will miss her after her retirement.”
- Tom Crute

Donna has always been the best of colleagues. She is definitely a go-to person when you need to get something done right. She is also a terrific teacher who was always able to get our students to perform at the highest level. But she has also been a friend who I have relied upon for advice and encouragement many times in the last fifteen years.” - Andy Hauger

“She is invaluable to have on a dept. (or other) committee. She writes fantastic letters of reference for students and is always able to help clean up (greatly appreciated) written work. This is just one of the things she excels at. She makes sure her students work for her, especially in Biochemistry. These students can be found at all hours populating the learning center, the chem/phys office and other niches throughout the floor. Donna is always helpful and encouraging to students. I get many students in who benefit from her experience as pre-med advisor.” - Tom Colbert