

**Kennesaw State University
Department of Chemistry & Biochemistry**

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Newsletter

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Full Time Faculty and Staff 2006-2007

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From Left to Right (Standing): Martina Kaledin, Daniela Tapu, Jonathan McMurry, Carol Chrestensen, Marina Koether, Brenda Humble-Bates, Chris Dockery, Nancy Jo Kirk, Dan Williams, Huggins Msimanga, John Salerno, Kathy White, Al Panu, Ben Huck, From Left to Right (Seated) Janet Shaw, Jackie Steiger, Jennifer Powers, Heather Govert, Sarah Lyons, Kelly Dennison, Kevin Gwaltney

Not Pictured: Max Hair, John Haseltine, Scott Lewis, Bob Morris, Greg Rushton



**Message from the Interim Chair
Dr. Dan Williams**



I am very pleased to introduce the inaugural Department of Chemistry and Biochemistry Alumni Newsletter.

I am proud to serve as Interim Chair of this outstanding department of which I have been a part since 1977. Since that time we have grown from a junior college with a few thousand students to a comprehensive university with numbers near the twenty thousand mark. More noteworthy, however, is that we are the largest undergraduate chemistry program in the entire State of Georgia. We have a proud history of excellence in chemical instruction starting with achieving American Chemical Society (ACS) approval for our program back in 1987. We were the first four-year college in Georgia to have achieved that distinction, and our programs in chemistry and biochemistry continue to be approved by the ACS to this day. Our program of educating chemistry teachers is also taking off, and we anticipate approval for our chemical education major in the near future. Although we have over five hundred declared majors on the books, we still have the small college "feel" within our department.

Our faculty represent a diverse group of excellent professionals whose expertise covers the traditional subdisciplines of analytical, physical, inorganic, organic, and biochemistry. In addition to providing outstanding classroom instruction, our faculty members are actively engaged in frontline chemical and biochemical research. We are undoubtedly the best equipped undergraduate facility in the state, and our students have the opportunity to participate in research projects that can lead to publications in peer-reviewed chemical literature or to presentations at local, regional, national, and international conferences and symposia.

Many of the advances made by our department would not have been possible without you, our wonderful alumni. If you get the chance, stop in on the fourth floor of the Science building and let one of us give you a tour and talk to you about your careers. As when you were students, our doors are always open to you.

Daniel Williams, Professor and Interim Chair

**Message from Professor and Chair Emeritus
Dr. Leon L. Combs**



Welcome to the first newsletter from this department. We have been so busy "growing" this department for the last 14 years that we have not had the time to put out this newsletter. When a department is in a state of flux it is always difficult to determine

when to say "here we are"!

Well, here we are!

When I came here the fall of 1992 there were 62 majors and seven faculty members. Now we have over 500 majors and 20 faculty members. The department now has the largest number of majors in the state of Georgia. We have the equipment, supplies, staff, and space to offer to our students the best undergraduate degree program in the state of Georgia in both Chemistry and Biochemistry. We offer degrees in Chemistry and Biochemistry and we have Chemistry Tracks in Forensic Chemistry, Environmental Chemistry, Chemistry Business, Chemistry Education, and Pre-Professional. We moved the Chemistry Education program into our department from Education in 2003 and we recently hired two Chemistry Education faculty members to produce more high school chemistry teachers. Our graduates are being accepted into the best graduate programs in the country and are finding employment in many areas of the Chemistry and Biochemistry professions.

This is a very exciting time for this department and I look forward to hearing more about its growth after I leave full-time appointment at KSU. I anticipate staying associated with the department as I hope to direct undergraduate research projects and help develop a formal Emeritus Faculty Association at KSU.

I am very proud of all of our graduates and I hope that you will continue to keep in touch with us by sharing your progress "post KSU". My email address will remain lcombs@kennesaw.edu and I look forward to hearing from many of you. I also will be active in my ministry, <http://LivingTheology.com>, and welcome you to visit that site.

Leon L. Combs, Professor and Chair Emeritus

Introducing Our New Faculty



Carol Chrestensen received her B.A. in Biochemistry from Wheaton College, Norton, MA and Ph.D. in Pharmacology at Case Western Reserve University in Cleveland, OH.

She then pursued post-doctoral studies in nitrogen activated protein kinases and cellular signaling at the University of Virginia, Charlottesville, VA before joining the faculty of Chemistry and Biochemistry at Kennesaw State University this fall. Her research interests are in protein chemistry, enzymology, and oxidative signaling. The undergraduate researchers in her laboratory will study how oxidative signals impact the regulation and activity of MAPKAP kinases. This work will likely provide important insights into understanding the signaling pathways in several pathophysiological processes known to be associated with increased levels of oxidative species including cancer and diabetes.



Scott Lewis. I am excited to join the chemistry department at Kennesaw State University. It is apparent that the department is conscientious

and dynamic in their teaching and research efforts. I have long been interested in the principles and processes of teaching, beginning with my college experiences as an undergraduate chemical engineering student. What made someone a good teacher? A lot of this was also self-reflection; what made someone a good student? After graduating from engineering, I knew I wanted to teach and began chemistry graduate school. In particular, I liked the diverse opportunities and preparations that graduate school offered for teaching. By a stroke of luck, my graduate school also began a chemical education research program and I had the opportunity to explore my curiosities about teaching and learning. Today, having just completed graduate school, my interests in this diverse field continue to grow and I look forward to exploring the approaches teachers and students make as they work together toward the goal of chemistry learning.



Jonathan McMurry received B.S. and M.S. degrees from UNC-Chapel Hill and his Ph.D. from the University of Connecticut. He was a postdoctoral fellow in Robert Macnab's lab in the Molecular Biophysics & Biochemistry

Department at Yale University from 2002 until leaving to join the KSU Chemistry & Biochemistry Department fall 2006. His research interest is the assembly of the bacterial flagellum. The flagellum is a self-assembling molecular machine used by bacteria for motility. It also bears a remarkable resemblance to organelles used to inject toxic proteins into host cells and it is thus an excellent model system for KSU undergraduates to investigate a biomedically relevant protein transport phenomenon. Dr. McMurry's research involves protein biochemistry, molecular biology and other methods. Dr. McMurry is a Georgia native and lifelong Braves fan delighted to be moving back home after many years in the frigid confines of New England. He is an avid squash player but is even more excited about teaching at KSU.



Jacqueline Steiger. My undergraduate career began at The College of Lake County, in Grayslake, Illinois. I received my A.S. degree and transferred to Barat College. It was at Barat where I decided to be a Chemistry major, up until my junior year in college, all I knew was that I wanted a degree in a 'hard' science. My undergraduate advisor asked me to help some freshman study for an upcoming test. I figured it would be a good opportunity. It was more than just an opportunity – it was amazing! I found that I absolutely loved to teach! That was the moment I decided I wanted to teach, I wanted to teach chemistry and I wanted to teach at a college or university. I went to graduate school at Michigan State University and earned my M.S. degree in chemistry in 1996. My research was in the area of organic chemistry. My graduate advisor was an excellent professor.

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I loved to sit in on his undergrad lectures, just to watch him teach. It was during my first few years at graduate school that I developed my love for organic chemistry and started to develop my own teaching style based on the different examples of professors I had observed in both my graduate and undergraduate studies. My main focus as a Lecturer in the Chemistry and Biochemistry department is to teach, and to hopefully pass on my love of the subjects I teach to my students.



Daniela Tapu was born in Roman, Romania. She received her B.S. in 1998 from The Alexandru Ioan Cuza University, Iasi – Romania. She studied for a year at the Technische Universität Braunschweig, Germany, in connection with the Socrates scholarship she was awarded. She received her Master's degree in 2000. She graduated with Ph.D. in August 2005 from The University of Alabama, Tuscaloosa. After graduation, she began her career as a temporary Assistant Professor at KSU. Currently, Dr. Tapu holds an assistant professor position in Organic Chemistry at KSU. Her research interests lie at the interface between organic, organometallic and material science. The focus of her research is the synthesis and structural and spectroscopic characterization of new imidazol-carbene derived ligands with novel architectures and their corresponding metal complexes. The properties and structures of these complexes and their roles in catalysis are the subject of her studies. Research efforts are also directed toward the synthesis of new or unusual bonding arrangements, non-linear optic chromophores, and the synthesis of heterocyclic compounds with biological activity.

Three Alumni Teaching at KSU



Kelly Dennison. I graduated with a BS in Chemistry from KSU in 1999 and received my Ph.D. from Georgia Tech in 2005. I did my graduate work at Georgia Tech in Suzy Beckham's Group where I worked on the Human T-Cell Leukemia Type I Virus (HTLV-I) Protease, which is etiologically associated to Adult T-cell Leukemia and tropical spastic paraparesis/HTLV-

I-associated myelopathy. Part of my work involved developing a theoretical three-dimensional structure of HTLV-I protease. I also studied fluorescence quenching of two tryptophan residues within the protease to assist in identifying the location of the residues and to improve on our theoretical model. In addition, I synthesized several small peptide mimetic inhibitors that mimic the transition state of aspartic acid catalysis of the protease. I took the most promising of these inhibitors to the CDC where I tested them on live HTLV-I. My postdoctoral work was done in the Division of Microbiology & Immunology at the Emory School of Medicine where I studied HIV-associated neuropathology.



C. Maxwell "Max" Hair, a native of Cobb County (Austell), received his B.S. in Chemistry from then Kennesaw State College in 1992. He went on to pursue graduate studies at the University of Tennessee under the direction of George W. Kabalka in boron-based synthetic methodology. However, he received his Ph.D. in 1999 implementing solventless surface-mediated organometallic catalysis. After brief industrial post-doctoral work with Albany Molecular Research, Inc. in upstate New York, he returned to the metro Atlanta area and began teaching at KSU, among other local campuses, as a part-timer in 2001. A short hiatus at Middle Georgia College ensued during 2005, but he returned to his roots here at KSU in early 2006, once again as a part-time/contract professor. His personal interests include being a voracious reader, avid college football fan, as well as a WWII & science history buff.



Kathy White received her B.S. in Chemistry from KSU in 1999. She attended graduate school at Georgia Tech and received her Ph.D. in Chemistry August 4th, 2006. Though an Analytical major in graduate school, Kathy's research interests included thermal expansion and pressure induced phase transitions of ceramic materials. This type of research involved synchrotron powder X-ray diffraction and neutron powder diffraction, which led to an interest in using these types of diffraction techniques and software to determine symmetries of unknown crystalline structures. Kathy is glad to be back at KSU.

Research Update - Merck/AAAS Undergraduate Research Program

KSU students have more opportunities than ever to do research before graduation. Drs. Koether and Powers from this department and Drs. Sutton, Vogelien, Hendrix, and Jaynes from biology received a grant for \$60,000 (over 3 years) from the Merck/AAAS Undergraduate Research Program. This program was established to foster research activities that bridge biology and chemistry and encourage students to pursue graduate education in these areas. Each summer five KSU students were selected to work with faculty from chemistry and biology for 10 weeks (40 hrs. per week). For their work students received a \$3000 stipend. They also participated in group lunches and presentations of their research. Students participating in the program were: Dora Castillo, David Clements, Kirstin Seufert, Brandon Seda, Hazem Kanaan, Ibijoke Akinjobi, Deserah Strand, Saman Nematbakhsh, Ivan Stefanov, John Avery, Sheel Patel, Deborah Gaddis, Jaclyn Waier, Kalisa Phifer, and Dayne Fraser. Although the funding period ended this year, KSU faculty will have the opportunity to apply again in the future.



Pictured L to R (Back Row): Drs. Xueya Hauge, Dale Vogelien, Marina Koether, Martin Koehler (Merck), Jennifer Powers, Heather Sutton, Jerald Hendrix, Jesse Jaynes. Front Row (1st year Merck/AAAS Scholars): Dora Castillo, Brandon Seda, Hazem Kanaan, David Clements. Not Pictured: Kirsten Seufert.

Each year the students presented the results of their summer's work at the Annual Symposium of Student Scholars on campus. Last year, Ivan and Deserah presented their work at the Sigma Xi Conference in Seattle, WA and were given Excellent and Outstanding awards for their presentations, respectively. Ivan presented at two additional conferences, winning Best Oral Presentation at the Alabama Academy of Science Annual Meeting.

Student Awards and Scholarships 2005-2006

On April 20, 2006 the Department of Chemistry and Biochemistry held its annual awards ceremony. The department presented awards to its outstanding students for their academic achievement, recognized all graduates, and provided lunch for all those in attendance.

Awards were given to:

ACS Organic Award – Gina Polimeni

AIC Award - Ben Baker

Biochemistry Award – Ana West

Biophysical Chemistry Award – Michael East

CRC Freshman Award – Max Johnson

Physical Chemistry Award – Craig Clark

Spirit Award – Gina Polimeni

TA Awards – Jason Runyon & Ivan Stefanov

Valor Award – Allen Stokes

Merck Award – Suk Kim

The following scholarships recipients were recognized:

Brittain Scholar – Emanuel Thompson

Leon Combs Scholar – Sarah Rosenbaum

Frank Walker Scholar – Craig Clark



These students received recognition as Merck AAAS Scholars: Dayne Fraser, Deborah Gaddis, Ivan Stefanov, & Sheel Patel (not pictured), with Marina Koether.

The ACS Certified graduates from 2005-2006 school year are Igal Maasen (not pictured), Ben Baker, Caleb Kimbrough and Robert Jordan seen here with Interim Chair Dan Williams.



Phi Lamda Upsilon, Kennesaw State University's Honorary Chemical Society inducted several new members including Jason Runyon, Allen Stokes, and Sarah Rosenbaum pictured here with PLU sponsor Greg Rushton. Lisette Davilla was also inducted into PLU.

Alumni News

Thanks to all those who responded to our alumni update request and letting us know what you have been up to since leaving KSU. We have included alumni news that we received from you. We welcome news from other alumni. You may update your information using the pre-paid mailing envelope we sent out over the summer, or download the update form at <http://science.kennesaw.edu/chem/alumni.htm>. Several of our alumni have been in touch with the department, and some have been back to present seminars to our classes. By updating your alumni information you could share your expertise with future chemists, provide new opportunities to our students, and show our students career paths available with a degree in Chemistry or Biochemistry. We would love to hear from you, or have you come back for a visit. If you have news to share with us, or just want to say "Hello", please email Chris Dockery cdockery@kennesaw.edu or Heather Govert hgovert@kennesaw.edu. We look forward to hearing from you!

Jason Ponders (93)

I am working as the chemistry lab coordinator and instructor at Gainesville State College and will be starting the Ph.D. program at the University of Georgia in the fall. Contact Jason at jponders@gsc.edu

Tami (Dobbs) Rossano (02)

I sure do miss the class of 2002. What a group! I am so excited to say that I got married in 2002 and now have a 3 year old boy and a 1½ year old girl. Tami is working as a Quality Assurance Supervisor. Contact her at trossano@suzannaskitchen.com

Angela Carmack (05)

I am a Senior Laboratory Technician working in the technical services and development of industrial coatings and polymers. Contact Angela at angela.carmack@cytec.com

Fall 2006 Seminar Series

Please join us at our Fall 2006 Seminar Series Selected Thursdays in SC 212 at 2:00 PM

September 28th

Dr. Hans Stauffer – Iowa State University

Detecting and Directing Energy Flow with Light: From Isolated Molecules to Solar Cells

October 12th

Dr. Thomas Fisher – Florida State University

Dynamics of Soft Matter at Interfaces

October 26th

Dr. Carolyn Cassady – University of Alabama

Mass Spectrometry of Peptides

November 9th

Dr. Michael Best – University of Tennessee

Synthetic Carbohydrates and Lipid Analogs for Characterizing Cell Surface Protein Binding Interactions