



SPECIAL POINTS OF INTEREST:

- Our new building, Science Hall, opened doors in 2003 (pictured above)
- Our department is growing rapidly with six new faculty joining since 2006 and hundreds of new students.

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Greetings from the Chair



Department holiday party, Dean Ansari in the Middle

Dear Friends and Alumni,

It is my privilege to share our program development and growth with you. The department has witnessed an enormous increase in majors of BS Chemistry, BS Biochemistry, BA Chemistry and Physical Sciences/Chemistry for the past year. The number of students graduated in May, 2010 totaled 33; In the fall of 2010, 207 students are registered as Chemistry and Biochemistry majors in our Department. These figures have reached historic highs. I attribute the success to our outstanding and hard-working faculty, staff, and students. This achievement inarguably demonstrates that our programs continue to attract dynamic students who are committed to begin their career journey in the chemical or biochemical fields.

Our Department, as an ACS accredited institution, will continue to provide our unique teaching, mentoring, and educa-

tion tailored to individual development.

I have always emphasized that the people of this Department are the people who give us our character. It is the people that you as alumni and friends of the department remember. Most of all, you will remember your classmates and those in your research groups. From my perspective, it is students that remain the same age over the years that have kept all of us young and have made our jobs enjoyable.

I am delighted to welcome our new physical chemistry faculty, Dr. Timothy Vaden, to our Department. Also, please congratulate Dr. Greg Caputo for his successful NIH grant (\$300K), which provides broad opportunity for his career development and student research. Dr. Robert Newland led the effort in launching our BA Chemistry program with his tireless energy to attract students striving for a teaching career. Dr. Miller and his wife generously donated an Educational Fund to support our educational creativity.

Since the release of our last Newsletter, some of our alumni came back to the Department with updated info. We're interested in your insights and your involvement in various aspects of our program development. Thank you for your continued support and interest in the Rowan Chemistry Department. If you are in the area, please stop by and please keep sending us your news.

– by Dr. Catherine Yang, Chair

Alumni Spotlight—Kedar Mahajan '05



After having graduated from Rowan University in 2005 with a B.S. in Biochemistry, I am currently doing my clinical clerkship as a 6th year MD/PhD student at the University of Medicine and Dentistry of NJ (UMDNJ). My interest in healthcare began to cultivate during high school, leading me to pursue a pre-medical track at Rowan. It took until junior year to realize my potential for basic science research after having initially dismissed general science courses as mere prerequisites for medical school. I developed an exceptional rapport with the then budding Biochemistry Program, spearheaded by Dr. Catherine

Yang, Patricia Jackson, and a handful of senior undergraduates. Moreover, the opening of the new Science Building further catalyzed my appreciation for independent research by permitting me to think about the underlying mechanisms of how DNA and drugs interact with a project under Dr. Yang in a dedicated laboratory space. Living on campus provided me an opportunity to become involved with the campus EMS squad, as a resident assistant at Edgewood Park, Student Crime Prevention Practitioner, and tutor for science classes at Savitz—all which have made lasting impressions. Being interested in providing patient care and concomitantly

being involved in basic science research and teaching led me to join the MD/PhD program at UMDNJ. I recently defended my Ph.D. in Neuroscience in the laboratory of Dr. Terri Wood, focusing on the development of oligodendroglia, the myelinating cells of the central nervous system, to provide more effective therapeutics for demyelinating conditions like spinal cord injury and multiple sclerosis. I highly appreciate my experience at Rowan University because of the ease of forming a strong rapport with faculty who are genuinely vested in their students' future.—by Kedar Mahajan

New Faculty Profiles



Dr. Timothy Vaden joined our department in the fall of 2010. Dr. Vaden received his BS in Chemistry from Midwestern State University in Wichita Falls, Texas and a PhD in Physical Chemistry from the University of Illinois at Urbana-Champaign, where he studied ionic clusters using infrared laser spectroscopy. He spent 3 years as a Royal Society Postdoctoral Fellow

at the University of Oxford studying biological molecular conformations with laser spectroscopy. At Oxford, he became interested in using spectroscopy and computational chemistry to study the shapes of peptides relevant to diseases and the effects of ionic forces on their shapes and biochemical behavior. Dr. Vaden then spent one year at Pacific Northwest National Laboratory

(PNNL) studying atmospheric aerosol particles using mass spectrometry. At PNNL he characterized model aerosol particles in the laboratory and also compared model results to those obtained for 'real' particles. His current research interests are in both atmospheric aerosols and computational and experimental studies of ion-peptide complexes.

BA in Chemistry — A New Degree

Thanks to the tremendous work organized by Dr. Robert Newland, our Department now offers a BA in Chemistry primarily for students also enrolled in the BA in Education programs. The course work takes students through Physical Chemistry I plus the option of Instrumental or Advanced Inorganic. Research I and Seminar are the capstone efforts required. The layout of courses is designed to blend with the education programs so students can finish both degrees in four years. While the goal was to help prepare more high school chemistry teachers, it is also on the approved list for elementary teachers.



New Courses Developed

Our department continuously offers new courses based on the dynamic requirements of students and the community. Based on the recent booming of the health care industry and biomedical research, more and more students are interested in learning knowledge and principles in these areas. Taught by Dr. Amos Mugweru, our department offers a new course, bioanalytical chemistry, beginnings in academic year 2010-2011. Bioanalytical chemistry involves assays of biomolecules such as DNA, proteins, drug, drug metabolites and others. This course will be especially useful for students intending to work in forensic, pharmacy, and medical fields. The course will also be useful for those students intending to join graduate school. In addition to the Bioanalytical Chemistry, another new course – chemical biology – has been offered by Dr. Gregory Caputo in the winter of 2010, which closed immediately after the start of registration. Students appreciate this course tremendously. The combination of these new upper level courses and our existing well-developed courses makes our program richer and our students better prepared.

Dr. Michael Miller Donates 7K to Department



THE Department of Chemistry and Biochemistry at Rowan University recently benefited from a private donation that was triple-matched by ExxonMobil Corporation. The donation was made by Dr. Mike Miller and his wife.

Dr. Miller is currently a Professor in the Department of Chemistry and Biochemistry. He retired from ExxonMobil at the end of 2003, and has been teaching in the department since 2004. Dr. Miller previously taught at the then Glassboro State College

from 1974 to 1979. The generous ExxonMobil Matching Gifts Program, under which this donation was matched, is available to current employees or retirees of ExxonMobil who have a personal affiliation with the College or University receiving the donation. Rowan has benefitted from other gifts in the past that have been matched by ExxonMobil through this program. Uses for this donation being considered by the Department include providing a chemistry/biochemistry scholarship, sponsoring a chemistry summer camp at Rowan for high school teachers or students, and providing recognition awards for outstanding student achievement in chemistry/biochemistry. *—by Mike Miller*

Congratulations to the Class of 2010!

In the 2009-2010 academic year, 33 students graduated from our department with a BS/BA in Chemistry, BS in Biochemistry, or BS in Physical Sciences. This is the highest number of graduating students in our department's history. The Class of 2010 in Chemistry and Biochemistry is also a very successful group. Many students have achievements such as student awards or scientific publications. Many of these students have been admitted to graduate programs of prestigious universities. Many other students will start to work in the chemical industry or biochemical firms immediately. It is the highest pleasure of our department to assist and to witness our outstanding students having a successful academic experience.



Students Awarded



In the academic year 2009-2010, our outstanding students received many national awards and internal awards. We believe these awards will encourage our students in their future academic pursuits and professional careers. Phong Thanh Trinh, class of 2010, is conferred the *2009 ACS Undergraduate Award in Inorganic Chemistry*, *2010 Mark and Barbara Chamberlain Research Award*, and *Southern Jersey ACS Award for Undergraduate Student*. Mr. Trinh is currently a Ph.D. student at the University of Southern California (USC). Nathaniel Paul Havens, class of 2010, received the *2009 Undergraduate Award in Analytical Chemistry*. Laura Hagens, graduate in Summer 2010, is the *2010* recipient of the *Michael Miller Award for Excellence in Chemistry and Biochemistry*. Nicole Mershon and Lubov Arotzky, both graduated in Summer 2010, are the recipients of the *2010 College of Art and Sciences Dean's Tea*.

John Kong, graduated in summer 2010, received the *Student Award of New Jersey Institute of Chemistry*. Iltchenko Nikita, a junior student majoring in Chemistry, received the *2010 Edward W. Morley Award for Excellence in the Art of Measurement*. Our Department is very grateful for the hard work of our outstanding students. We are looking forward to seeing more and more students receive awards.

Distinguished Pharmaceutical Chemist Invited for Lecture



Dr. Carl Decicco, Senior Vice President, Discovery Chemistry, Bristol Myers Squibb, presented on "Innovation in Drug Discovery" on Friday, January 29th in Science Hall. The presentation attracted many of our students and faculty. The legends of new drug discoveries in recent years significantly stimulated students' interest in this important field.

From right to left: Dr. Carl Decicco, Dean Parviz Ansari and Dr. Cathy Yang

NIH Awarded to Dr. Gregory Caputo



Dr. Gregory Caputo has been awarded a NIH grant of \$292,351, starting summer 2010. The overall goal of this research is to study chemical and structural motifs linked to the mechanism of action of membrane-interacting antimicrobial peptides. The increased prevalence of antibiotic resistance in numerous bacterial strains has a tremendous annual impact, especially in hospital settings for patients with compromised immune systems. Recent studies have also shown a number of bacterial transcriptional responses induced by exposure to HDPs, many of which are not completely understood. The mechanisms of action studies are further complicated by the sheer number of HDPs isolated from natural sources, many of which may use somewhat different mechanisms based on the host and what pathogens the host routinely encounters. Dr. Caputo and

his students are conducting this research project that involves the synthesis of peptides with natural and altered peptide sequences designed to examine the role (s) of specific chemical moieties in the activity of the peptide.



Keep in Touch!!

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We are always excited to hear from our former graduates. We encourage you to drop us a note by email or return the card below by mail to give us an update on where you are and what successes you've found since leaving Rowan and the Department of Chemistry and Biochemistry.

Name _____

Address _____

Phone _____

E-mail _____

Current Position _____

Year of Graduation _____