Chatham Chemistry Students Continue to Garner National Recognition

It was announced this week that Emma Karey (2010) was awarded third place for her student poster presentation at the Society for Environmental Toxicology and Chemistry (SETAC North America) annual meeting in Tampa, November 16–20, 2008. Emma performed her research with Dr. Joseph MacNeil.

Emma’s success marks the second year in a row that Chatham students have been recognized at SETAC; in November 2007, Johanna Burnett (‘08) won the first place award for student presentation, for a project directed by Dr. Renee Falconer.

What makes the SETAC recognition particularly impressive is that our undergraduates are competing head to head with graduate students from around the world. These graduate students submit hundreds of student posters each year, while less than ten are presented by undergraduates. Judges do not distinguish between undergraduate and graduate ranking in their deliberations.

2008 was a very successful year for students in Dr. MacNeil’s lab. Prior to Emma’s award, Emily Frost (‘08) won recognition for the outstanding undergraduate poster in environmental chemistry at the 2008 national meeting of the American Chemical Society in New Orleans, LA in April.

Funding for the research of all three students was provided by the Aura R. Hulme ‘50 Excellence in Science Endowed Award. In addition, Emma received support from the Lorin Maazel - Rachel Carson Experiential Research Scholarship with supplemental funding from the. Both Emma and Johanna received ETAC Travel Grants to partially offset their conference expenses.

Submitted by Dr. MacNeil

Don’t miss Buhl Olympics & Pi Day: Tuesday, March 17, 2009

Chemistry Society is looking for faculty and staff interested in getting ‘pied’!! Students will be able to purchase a pie for one dollar or for a canned food item. All proceeds will be donated to the Greater Pittsburgh Food Bank. For more information, please contact Rachel Newton, President of Chemistry Society, email: RNewton@chatham.edu
Meet the Chemistry Faculty

Dr. Larry Viehland obtained a B. S. in Chemistry from MIT in 1969, where he performed a senior thesis on the design and construction of a cesium oven-charge exchange chamber. After graduation he was employed as a research assistant at the Los Alamos Scientific Laboratories in the summer of 1969. His research involved differential thermal analysis of solid-solid phase changes in order to determine the kinetics of these processes.

Dr. Viehland completed a Ph.D. in Physical Chemistry from the University of Wisconsin-Madison in 1973. His thesis was concerned with the effects of external fields on the transport properties of dilute, polyatomic gases.

From 1973 to 1977 he conducted full-time research in the Department of Chemistry at Brown University in Providence, Rhode Island. This work involved research on the mobility and diffusion of gaseous ions, ion cyclotron resonance, and ion-neutral rate coefficients measured under nonequilibrium conditions.

From 1978 to 1999 he was on the faculty of Saint Louis University, mostly in their engineering school. He served as chair of the Department of Science and Mathematics for four years. This was an interdisciplinary department providing service courses to engineers. During this time, Dr. Viehland was also a Visiting Professor of Chemistry at the University of British Columbia in Vancouver (1987), a Fulbright Senior Scholar in Australia (1988), Visiting Professor in the Huygens Laboratory of the University of Leiden, the Netherlands (1991), and Visiting Professor of Electrical Engineering at the University of Tokushima, Japan (1994). In all of these positions, his main research interest was the development and application of kinetic theories that accurately describe the transport and reaction rate coefficients of ions moving through dilute gases under the influence of electric fields. A secondary interest was developing and testing ion-neutral interaction potentials.

From July, 1999, to the present, Dr. Viehland has been Professor of Chemistry and Chair of the Science Division (now Department) at Chatham College (now University). His primary teaching responsibilities are physical chemistry and advanced mathematics courses. His research in ion-neutral interactions has been supported by many grants from the National Science Foundation. He has supervised research by summer undergraduate research students, chemistry and mathematics undergraduates, a biology masters student, and a post-doctoral researcher. A second post-doctoral research should begin research with Dr. Viehland in March, 2009.
Meet the Chemistry Faculty (cont’d)

Dr. Joseph MacNeil learned a long time ago that he wanted to teach. Growing up in rural Nova Scotia, his first nine years of schooling were in a three room schoolhouse. A lot of peer collaboration is required when there is one teacher covering all disciplines for three different grades, and in grade eight he was asked to lead the grade six history class, including lecturing on the material and making up tests. While he would no longer attempt to teach history, it is the rewards of teaching that keep him motivated to this day.

Originally a biology major, he evolved into a chemist by his junior year. Graduating with a B.S. degree from St. Francis Xavier University (home of the X-ring that he wears), he completed his Ph.D. in organometallic chemistry at Queen’s University in Kingston, Ontario. His grad school milestones include being the first person to ever synthesize a seven-coordinate tris-pyrazoleborate compound, managing two winning summer soccer league teams, and having 14 roommates in 4 years.

Dr. MacNeil next moved to San Diego, where the sand, surf and sun lulled him into a marvelous 4-year postdoc at U.C. San Diego. While there, he studied the redox chemistry of nitrogen oxides with an eye to identifying new global sources for the emerging greenhouse gas N₂O.

Coming to Chatham in 1997 for a one year, sabbatical leave position, Dr. MacNeil is now here to stay. Ironically, his research has strayed back towards biology, with his current focus being the ability of sunflowers to phytoremediate heavy metals. Dr. MacNeil will be enjoying his first sabbatical during the 2009-2010 academic year. While you might still see him on campus from time to time, he will be spending the majority of his days learning x-ray crystallography at Duquesne University and learning to make metal-organic nanostructures at the University of Pittsburgh.

Dr. Renee Falconer joined Chatham in 2001 coming from the US Environmental Protection Agency, and prior to that, Youngstown State University. She earned a B.S. in chemistry at Grove City College and a Ph.D. in Chemistry at the University of South Carolina. Her research focuses on looking at trace organic pollutants in the environment. Recent projects include pesticides on fruits and veggies and flame retardants and pesticides in children's stuffed toys.

Dr. Falconer is currently on sabbatical at the Virginia Institute of Marine Science, a part of the College of William and Mary, this semester. She is doing a range of projects including pesticides/PCBs in Blue Fin Tuna from different oceans around the world, assessment of allochthonous organic carbon inputs to oceans (compared to CO₂ inputs for effects on global warming) and pesticides, PCBs, black carbon, etc in Antarctica.

She hopes to return to Chatham much more knowledgeable (as well as reinvigorated and relaxed!). She is currently enjoying the beach (only 3 blocks from her house) while doing her research.
Meet the Chemistry Faculty (cont’d)

Dr. Corey Stilts received his B.S. degrees in 1995 at the University of Pittsburgh at Bradford. He was a double major and obtained both a B.S. in Chemistry and Biology. He then went on to receive his Ph.D. in Medicinal Chemistry at the State University of New York at Buffalo in 2000. His graduate research focused on the synthesis and characterization of porphyrin based photodynamic therapy sensitizers.

In the fall of 2000, Dr. Stilts accepted a position of post-doctoral lecturer at Mercyhurst College in Erie, PA. In the fall of 2001, he moved to Jacksonville, IL and took a one year position at Illinois College.

He arrived at Chatham in the fall of 2002. He has continued his graduate research on the effectiveness of photodynamic therapy by evaluating it as a method to treat crown gall disease in plants.

Dr. Stilts is also interested in forensic science and has been doing research on determining the postmortem interval. He has been involved in the summer undergraduate research program (SURP) for the last five years and has coordinated two Chatham Abroad trips to Russia with Dr. Falconer. In his time away from campus, Dr. Stilts likes to spend time with his family and is a soccer coach for his son’s under 6 soccer team.

Meet the Science Staff

Colleen Witkowski has worked as a lab instructor and lab supervisor for nearly fifteen years, primarily teaching the general biology lab sequence and Cor labs; however, she has taught an array of courses ranging from plant labs to anatomy labs. She also is responsible for organizing lab preparation for the biology and UPMC courses as well ordering supplies for labs. Prior to Chatham she was an instructor at Northern Virginia Community College, and research technician at the University of Pittsburgh.

Colleen is a native-Pittsburgher and has lived in the area most of her life. She earned her BS at Penn State in 1990 and MS in Biology at Duquesne University in 2001. In her spare time she enjoys baking, trying new recipes (which her children refuse), volunteering at her children’s school and at the Animal Rescue League. Over the summer she hopes to learn how to golf in order to keep up with the rest of her family. She and her husband live in West Mifflin with their three children, ages 10, 8, and 6, their English Setter, and three cats.
Science Seminar: Plants in the Garden, Plants in the Wild: Ecological Implications”

Dr. Linda Johnson, Biology Faculty Candidate visited the campus on Tuesday, February 24, 2009. As a part of her visit, she presented a talk on her research, entitled “Plants in the Garden, Plants in the Wild: Ecological Implications”. She is interested in studying some of the implications of planting native plants in gardens. The strains of plants available commercially are often from areas quite distant from the area where they are being planted and may be genetically different from local populations. She started with an overview of ecological and population genetics, giving an example of a plant that grew at a wide variety of altitudes, showing that the populations had some genetic differences as they adapted to different conditions. She then discussed her research on Cardinal Flower (Lobelia sp.). Cardinal Flower has a wide distribution over much of the area east of the Mississippi. She collected plants and/or seeds from several populations from the deep south to new England and the upper Midwest, as well as local plants (Virginia). She also purchased a commercially-available variety which was actually grown in Europe although the species is native to North America. She did a series of experiments on survival and seed production. These plants are usually pollinated by humming birds. She also did experiments looking at how far the pollinators might move the pollen in an effort to determine if pollen from commercially available plants from gardens could be transferred to native plants and if viable seeds could be produced. She planted various plants in a central location and then had populations at set distances up to 1000 M. She used an ingenious technique of placing a fluorescent dye on the stamens with the pollen so that humming birds coming to the flowers would pick up the dye and transfer it to other plants. Using a black light at night, she could check the plants for the dye. She found that the humming birds did transfer pollen to the most distant plants and that the plants could interbreed and produce viable offspring.

Submitted by Dr. Kostalos

Upcoming Science Events/Dates:

March 15—Chatham SURP Participation Decision Deadline
March 17—Buhl Olympics & Pi Day

COMING NEXT ISSUE: A tribute to retiring science faculty

Editor: Dr. Christy Heid  To suggest articles for future issues or for general inquiries, please contact cheid@chatham.edu.