Greetings from the Chair

Fall is here again with the excitement and challenges of another new year! Once again we have a large incoming class of first year students containing eight chemistry and 13 biochemistry majors. This number of students, when combined with very large numbers of students from the previous three years, creates a significant challenge for our department. Our strong group of faculty is up to the challenge. Drs. Boylan, Kellner, Kennedy, Miller, Smith and I will provide the instruction and mentoring to majors and non-majors alike, which is what helps make Westminster such a special place.

While the number of science majors on campus continues to grow, the department still focuses on experiential learning and undergraduate research. This year we are teaching two sections of Advanced Laboratory to better serve our 19 juniors. Two groups of students working on concurrent experiments will provide each student with the necessary experimental and instrumental experience to develop skills and confidence. Additionally, our seniors are already busily working with us on research projects that will lead to scientific presentations in the spring. Last year two students presented research at Pittcon in Atlanta and five students presented research at the national ACS meeting in Anaheim. We are very thankful for College and alumni support of the student travel and research. Please remember that as alumni, you are always part of this department and help us achieve these successes.

In closing, I wish to invite you to stop by and visit the department. The faculty and I enjoy meeting with you and touring the department, whether during homecoming weekend or some other day when you pass through New Wilmington.

Dr. Timothy Sherwood
Chair, Department of Chemistry
Westminster College
Westminster College #1 for Women in STEM Fields

In December 2011, Forbes.com ranked Westminster College as the “Best College for Women in Science, Technology, Engineering and Math (STEM).”

Traditionally these four fields have been dominated by men, and recently many schools have taken steps to steer women in the direction of these fields. Forbes.com recognizes Westminster College as an institution which has excelled at this endeavor. Compared to the national average of 15% women in math and computer science, Westminster boasts 50% women in these departments.

How does Westminster do it?

“I think our success in recruiting women into STEM is a result of prospective students interacting with successful women faculty and seeing lots of women students in the science classrooms and labs,” said Dr. Helen Boylan.

This ranking was produced by comparing the male/female ratio of the student body to the male/female ratio of students in the STEM fields. The schools surveyed included all those ranked as “America’s Best Colleges” by Forbes.

Those most affected by this ranking are the women students at Westminster.

“I feel like I'm getting the hands-on experience that not many colleges can offer. It's incredibly important for women to receive the best type of education possible, and Westminster provides that, even more-so in fields in which women are often underrepresented. I’m very proud to be a student of such a successful science program,” said junior biochemistry major Katie Farley.

Unlike at many other schools, women in the sciences at Westminster do not know what it’s like to be a minority. The 2008 class graduated 36% of its students in the STEM fields, the majority of which were women. These women matriculating through Westminster sciences will be able to enter their careers with confidence, knowing they've received a top quality education in an equal environment.

Kennedy Receives Grant

Dr. Sarah Kennedy, assistant professor of chemistry, received the 2011 Pittsburgh Conference Memorial National College Grant in February. Awarded by the Pittsburgh Conference and sponsored by the Society for Analytical Chemists of Pittsburgh and the Spectroscopy Society of Pittsburgh, this grant was used to purchase a fast protein liquid chromatography (FPLC) instrument for use by both the chemistry and biology departments at Westminster.

While the chemistry lab currently utilizes the high performance liquid chromatography (HPLC) instrument for the separation of smaller molecules, the FPLC is needed to work with larger proteins.

“The FPLC expands our liquid chromatography capabilities at Westminster,” said Kennedy. “It will allow us to purify and separate protein molecules at a level of purity that is necessary for many biochemical analyses.”

The instrument has already been used by junior biochemistry students Toby Bonitz, Rob McBride and Katherine Farley, who work closely with Dr. Kennedy on her research.

In addition to being used for independent research, the FPLC can also be integrated into biochemistry, cell and molecular biology, and advanced lab courses. The automated nature of the FPLC allows students to work on other aspects of their research while the instrument is running their specified methods. This new instrument will enrich the science students' research experiences here at Westminster and will give them valuable instrument experience to take onto graduate school or wherever their degrees may lead.

Dr. Kennedy and her research student Katie Farley use the newly acquired FPLC.
Ten Majors Involved in Summer Research, Internships

During the summer of 2011, a total of 10 chemistry and biochemistry explored career options in the sciences through summer research, internships, and shadowing. These summer programs allow students the opportunity to reach outside the Westminster College chemistry department and experience science outside the classroom. These junior and senior students presented their summer work during a weekly chemistry seminar.

Hannah Anderson '13 worked at the University of Pittsburgh’s department of psychology entering data and handling biological and medical supplies.

Ashley Blystone '12 worked with Dr. Dan Sykes' research group at Penn State University Park to compare two different methods for quantifying pesticides on spinach, apples, and grapefruit. She also analyzed ink samples to identify different brands of pens.

Toby Bonitz '13 and Robert McBride '13 assisted in Dr. Sarah Kennedy’s research lab at Westminster College by purifying vinylphenol reductase and beginning protein crystallization screening.

Scott Braden '13 worked for Sherwin-Williams Paint learning the basics of paint and tinting.

Kelly Cholewa '13 shadowed at Lutheran Hospital, part of the Cleveland Clinic, observing tests of a project on the neck during the month of July.

Nicole George '13 worked for the Carnegie Science Center Girls Math and Science Partnership creating and teaching lesson plans about finger printing, water testing, and computer programming for a middle school girls summer camp called Click!.

Justin Jones '12 interned with the product quality technicians at LORD Corporation in Erie. He formulated methods for changing product inspection plans and calculated labor and testing times in order to provide accurate lead times for product manufacturing.

Brandon Kennedy '12 worked in the Westminster College chemistry department organizing and creating an inventory of all the glassware, chemicals, and other items stocked by the department. Brandon also wrote a lab experiment for the Organic Chemistry II course.

Sarah Welsh '13 participated in research for the Center for the Environmental Implications for Nanotechnology (CEINT) with Carnegie Mellon University’s Dr. Gregory. She focused on determining the toxicity of zinc oxide nanoparticles for E. coli bacteria.

Junior and senior majors are strongly encouraged to pursue summer opportunities such as these in order to gain a broader understanding of their major outside of the classroom.
Faculty and Student Publications and Presentations for Academic Year 2010-2011

Presentations at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (Pittcon). Atlanta, GA. March 13-18, 2011:

- Ryan Konik, Helen M. Boylan. Analysis of Non-Thermal Effects of Microwave Radiation on Acetylcholinesterase Using Covalent Labeling Techniques and Mass Spectrometry. (Honors Research)
- Emily Landis, Peter M. Smith. Lutetium Oxyorthosilicate (LSO) Powder Synthesis Using Mild Reaction Conditions. (Honors Research)

Presentations at the American Chemical Society (ACS) National Meeting. Anaheim, CA. March 25-29, 2011:

- Nathan Barefoot, Peter M. Smith. Photocatalytic Reduction of Carbon Dioxide through the Use of Metal Porphyrins: Inspired by Chlorophyll. (Honors Research)
- Christopher Bodle, Larry Miller. Inhibition of Copper Amine Oxidase: Implications into Possible Treatments for Age-Related Macular Degeneration. (Honors Research)
- Eric Cargal, Martha Kellner. Evaluation of the appropriateness of a placement exam for Chemistry.
- Lori Katrenick, Timothy Sherwood. Greener Ether Synthesis with Zirconium and Hafnium Catalysts.


- Atalie Hays, Sarah Kennedy. Integration of Wine Chemistry and Laboratory Experiments into the Undergraduate Chemistry Curriculum.

Presentations at the 25th annual American Chemical Society Student Members Symposium. Duquesne University. Pittsburgh, PA. April 16, 2011:

- Timothy Lynn, Larry S. Miller. Investigation of Potential Mechanism-Based Inhibitors of Copper Amine Oxidase.
- Helen M. Boylan. Efficacy of Passive Treatment for Abandoned Mine Drainage: Results from a Service-Learning Study. (Invited Talk)

Other scholarly activity:

- Helen M. Boylan. Engaging Students in Course Content and Chemical Literature with Immediate Feedback Assessment Technique (IF-AT) Scratch-Offs. Invited talk at Middle Atlantic Association of Liberal Arts Chemistry Teachers (MAALACT). Alvernia University, Reading, PA. Nov 5-6, 2010.
- Larry S. Miller, co-author, Structural and enzyme activity studies demonstrate that aryl substituted 2,3-buteniamine analogs inactivate Arthrobacter globiformis amine oxidase (AGAO) by chemical derivitization of the 2,4,5-trihydroxyphenylalanine quinine (TPQ) cofactor. Enberg, K., Bo, Z., Ko, K., Miller, L., Sayre, L., Guss, M., Lee, I. Biochimica et Biophysica Acta. 1814, 5, 638-46. May 2011.
Chemistry Club Update
By HANNAH ANDERSON '13

Chemistry Club is one of the many groups on campus that provides a fun outlet from our everyday curriculum and encourages students who have similar interests to get together in more of a social setting. Most of the members are science majors, but anyone is welcome to join us for our activities.

We host a variety of events throughout the academic year. Our science-related events range from simple and fun demonstrations for the preschoolers to attending outside talks given by leading scientists. For Lil’ Sibs Weekend, we make liquid nitrogen ice cream as a creative treat. We also volunteer for Earth Day and Geek Week events. We also include bonfires, corn mazes, and bowling trips as part of our regular meetings to take a break from science and do something fun as a group.

This coming spring, we are planning a joint workshop with Tri-Beta, the Biology honors society, to introduce high school students to forensic science. By creating a “Who Done It?” scenario, we will incorporate the scientific aspects of the criminal justice system as well as provide a fun opportunity to educate prospective students to their opportunities if they pursue science in college.

Class of 2002: Where Are They Now?

Rebecca Cook Humecky completed her master’s of pharmaceutical science at Rutgers University and is working for Watson Pharmaceuticals in regulatory affairs.

Dr. Sarah Huffman Kennedy earned a Ph.D. from the University of North Carolina at Chapel Hill. She is an assistant professor of chemistry at Westminster College.

Miranda Lishia completed a master’s degree in forensic science at George Washington University. She is a marketing consultant based in Johnstown.

Dr. Justin Shearer earned a Ph.D. from The Ohio State University. He is an assistant professor of chemistry at Rose-Hulman Institute of Technology.

Dr. Lisa Whitlow Charlton earned a Ph.D. from the University of North Carolina at Chapel Hill. She is a post-doctoral research associate at the University of Pittsburgh.

Dr. Michael Yuhas earned a doctorate of optometry from the Pennsylvania College of Optometry. He practices optometry in West Mifflin.

At the time of publication, no information was available for Craig Gottschalk (chemistry minor who is also in photograph).

This series in our newsletter will feature seniors from 10 years ago. Our next installment will feature the Class of 2003. Please update us by emailing chemistry@westminster.edu.
Chemistry Awards & Scholarships for Academic Year 2010-2011

H. Dewey DeWitt Scholarship
Sarah Welsh ’13

Mamora Maude Dunlap & Dr. Edward Dunlap ’32 Scholarship
Ashley Blystone ’12

Dorothy J. Pollock Scholarship
Jaimie Daum ’13

Lousi Skurcenski ’64 Scholarship
Katherine Farley ’13

Ken Long Book Award
Emily Landis ’11

Society of Analytical Chemists of Pittsburgh Award
Christopher Bodle ’11

Analytical Chemistry Award
Brandon Kennedy ’12

Penn-Ohio Border Section of ACS Award
Ashley Blystone ’12

Freeman Award
Jaimie Daum ’13

CRC Award
Allison Rice ’14

Chemistry award winners include, from left, Brandon Kennedy, Christopher Bodle, Ashley Blystone and Emily Landis.

Long Lecture Features Dr. Susan Olesik

The Westminster College Department of Chemistry welcomed Dr. Susan Olesik to present the 2011 Ken and Nancy Long Chemistry Lecture at 7 p.m. on Oct. 18 in Mueller Theatre.

Dr. Olesik is currently Chair of the Department and Dow Professor of Chemistry at Ohio State University. She also holds the position of director of the Ohio House of Science and Engineering (OHSE), a K-16 science outreach center, and is deputy director of the Center for Affordable Nanoengineering of Polymer Biomedical Devices (CANPBD).

She earned her bachelor’s degree at DePauw University and received her Ph.D. from the University of Wisconsin-Madison in 1982. Afterward Dr. Olesik was a post-doctoral fellow at Indiana University as well as the University of North Carolina-Chapel Hill. Dr. Olesik has won numerous awards, including the AWISCO Woman in Science Award in 2000, and more recently , the OSU Building Bridges Excellence Award in 2010. In 2009, Dr. Olesik was named an ACS Fellow.

During the Long Lecture, Dr. Olesik discussed her work with CANPBD and the future of medical sciences. She explained how effective treatment of illnesses and diseases requires an understanding of an individual's metabolism, as well as the combination of medications being taken, factors which necessitate individualized medicine. Dr. Olesik spoke about the current research being done with CANPBD to help make individualized medicine possible, such as development of devices for early stage cancer detection and the use of nanomaterials in subsequent treatment.

This year marks the fourth annual Long Chemistry Lecture, instituted by the generous Dr. Ken Long and his wife, Nancy. Until the Long Chemistry Lecture was established, the Department of Chemistry was not able to fund regular visits from premier chemists. Dr. Long and his wife were sympathetic to this void: “We think that our students were deprived. We decided to create this lectureship to meet this need.”

Dr. Susan Olesik, center, with Nancy Long and Dr. Ken Long
The newsletter is edited by Sarah Welsh ’13 and Helen M. Boylan.

Sustainability in Motion Program Receives 2nd Year of Funding

Westminster College’s Sustainability in Motion (SuSIM) outreach program received a $7,500 grant through the Pennsylvania Department of Environmental Education Grants Program. The grant proposal was authored by Westminster faculty Dr. Helen Boylan, associate professor of chemistry; Dr. Patrick Krantz, associate professor of education and director of the Drinko Center for Excellence in Teaching and Learning; and Dr. Timothy Sherwood, chair of the Department of Chemistry.

Second-year programming will include topics on wind energy, fuel cells, and biofuels. Second-year programming will include topics on wind energy, fuel cells, and biofuels.

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