Chemistry Department Newsletter

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GRAND VALLEY STATE UNIVERSITY
DEPARTMENT OF CHEMISTRY

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A Word from the Chair

In this issue of our Departmental Newsletter, I am proud to share with you exciting news of the many accomplishments of our chemistry faculty, students and alumni. This medium also gives me the opportunity to update you on changes in the department in terms of personnel and infrastructure. Major renovations in the Padnos Hall of Science have meant relocating the Chemistry Department office to the office previously occupied by the dean of CLAS. Chemistry is now sharing the former CLAS dean office space with the department of Biomedical Sciences. What used to be the Chemistry Department office has now been partitioned into several faculty offices. These infrastructural changes have made it possible for all chemistry faculty, full-time and part-time, to be housed on the third floor of Padnos. As always, our department continues to grow and I would urge you to get to know all of the people who make up the Chemistry Department; all alumni are part of our extended departmental family.

This year, we are especially glad to welcome two new tenure track faculty to the department. Shannon Biros joins us as a seventh member of our Organic Chemistry group. We are also very pleased to welcome Toni Brown to our Biochemistry group. Please, read through the biographies of our new colleagues, in the proceeding pages, to know more about them. While we welcome new faculty, we also celebrated the retirement of Gary Richmond and Sandy Bacon, who have been with us for many years.

Our faculty members continue to be recognized for excellence in teaching and research. Brad Wallar, of the Biochemistry group, received $460,000 grant from the National Science Foundation. Ellen Yezierski and Deborah Herrington, of the Chemical Education group, were awarded the Pew Teaching Excellence Awards, and Teaching with Technology Awards, respectively. Sandy Bacon won the A/P Achievement Award, the highest distinction given to a staff member. Robert Smart, of the Organic Chemistry group, received the Glenn A. Niemeyer Award for 2007-2008. Bob was also selected by the College of Interdisciplinary Studies as the founding director of the new Center for Scholarly and Creative Excellence. Aaron Perry, our department's laboratory supervisor has been appointed to succeed Sandi as the new Director of Laboratory Support for CLAS.

Finally, we all mourned the death of Dr. Ott this past spring. Dr. Arnold Ott created the Arnold C. Ott Lectureship in Chemistry at Grand Valley to bring national and international recognition to the Chemistry Department, through a lecture series that draws prominent chemists from around the world.
I invite you to read the articles in this newsletter, to learn more about what has been happening at the Chemistry Department. We are forever grateful to our alumni and like to hear about their lives and achievements after GVSU. Please, stay in touch and let us know what you have been up to.

Todd A. Carlson, Chair

Dr. Arnold Ott Passes On

"Arnold was both a friend and a mentor who was passionate both about the world around him and the God he served ."

Dick DeVos

Dr. Arnold Ott, the creator of the Arnold C. Ott Lectureship in Chemistry and longest standing member of the Grand Valley State University Board of Control passed away on May 12. Dr. Ott started as a charter member of the Grand Valley State University Board of Control in 1960 and went on to serve for 28 years, including two terms as board chair. He was 90 years old. "Grand Valley State University has lost one of its true pillars," said Grand Valley President Thomas J. Haas. The Arnold C. Ott Lectureship in Chemistry was created in 2001 with the goal to bring national and international recognition to the GVSU Chemistry Department, through a lecture series that draws prominent chemists from around the world. "Arnold was a wise, intelligent, caring man," said Rich DeVos, co-founder of Amway. Dick DeVos, president of The Windquest Group, said: "Arnold was both a friend and a mentor who was passionate both about the world around him and the God he served." Dr. Ott received his doctorate in 1943 from Michigan State University in chemistry, physics, and bacteriology and was a leading chemist and entrepreneur in West Michigan. He worked at Dow Chemical Company and the Upjohn Company where he authored 55 domestic and foreign patents before starting the Ott Chemical Company in Muskegon. Grand Valley State University President Emeritus Dr. Don Lubbers delivered the eulogy at Dr. Ott's funeral.

Department Faculty News

Sandi Bacon has officially retired from GVSU after 22 years. Sandy started working at Grand Valley in 1986 as a chemistry lab supervisor. In 1990, she was named co-director of the Regional Science Olympiad and has remained involved in the event since.

Nathan Barrows and his wife had a baby girl, Laurel Rose Barrows, on July 6.

Deborah Herrington earned tenure and was promoted to associate professor. She and her husband had a son, Tyler Ragan, on April 14.

Christopher Lawrence and his wife had a baby boy, Joseph Paul Lawrence, on June 11.

Aaron Perry was recently appointed the new Director of Laboratory Support for CLAS.

Gary Richmond has officially retired from GVSU after close to 40 years of service. Gary has also won an Emeritus status with the Chemistry Department.

Robert Smart has been selected by the College of Interdisciplinary Studies as the founding director of the new Center for Scholarly and Creative Excellence (see separate article).

Brad Wallar earned tenure and was promoted to associate professor. Brad was also recently awarded a $460,000 grant from the National Science Foundation (see separate article).

Randy Winchester earned tenure and was promoted to associate professor.

Ellen Yezierski earned tenure and was promoted to associate professor.

Director of Laboratory Support Aaron Perry

New Faculty 2008-2009

Shannon M. Biros has joined the faculty as an Assistant Professor of Organic Chemistry in the fall of 2008. She was a graduate of GVSU, receiving her BA in chemistry in 2001. From there she moved to sunny San Diego to pursue a Ph.D. in chemistry at the Scripps Research Institute under the direction of Professor Julius Rebek, Jr. Following the completion of her thesis, Shannon spent a year at the University of California, Berkeley as a postdoctoral research associate in the laboratory of Professor Kenneth N. Raymond investigating the guest binding properties of a series of supramolecular metal-ligand clusters. However, she could not stay away from West Michigan for long and returned to GVSU as a Visiting Professor in the chemistry department in the fall of 2007. Her current research interests include the development of alpha-helix peptidomimetics and the construction of self-assembled supramolecular structures.

Dr. Shannon Biros

Toni Brown earned her Ph.D. in Synthetic Medicinal Chemistry from the University of Bradford, England, UK, 2004. Toni came to us from Hope College where she was a Research Associate (Chemistry) and Research Director for the Dean of Natural and Applied Sciences. Before that she worked with Dean Lee as a Postdoctoral Research Fellow at Furman University, Greenville, SC. Her responsibilities included the management and supervision of the day-to-day activities of the synthetic organic and biophysical chemistry laboratories. She also mentored student researchers and performed synthetic research in the field of small-molecule DNA interactive agents. Her teaching interests are in biochemistry and organic chemistry. Toni's current research interests are the synthesis and evaluation of small-molecules that interact with higher-order DNA structures. Toni is a member of the Royal Society of Chemistry and the American Chemical Society. In her spare time, she enjoys playing the violin, playing soccer and scrapbooking.

Dr. Toni Brown

In addition to the tenure track positions, our department also has six new visiting instructors joining us this fall; **Chris Bennett, Tom Dueweke, Stewart Hart, Tim Henshaw, Mike McIntosh,** and **David Westover. Jill Morris** was hired as a new affiliate instructor. Many new adjuncts are also helping with the teaching of labs.

2008 Arnold C. Ott Lectureship in Chemistry

The 2008 Arnold C. Ott Lecturer in Chemistry was Dr. Richard Zare, Marguerite Blake Wilbur Professor in Natural Science at Stanford University. Dr. Zare, well known for his research in the area of laser chemistry, is also the chair of the Department of Chemistry at Stanford University. Two lectures, free and open to the public, were held: a chemistry seminar on "Adventures in Liquid Stream Chemical Analysis and Nanoparticle Chemical Synthesis," in 123 Manitou Hall, on the Allendale campus; and an evening lecture on "Cars: Chemistry In Motion," at the Loosemore Auditorium, DeVos Center, Pew Grand Rapids Campus. The evening lecture was preceded by a reception in which students and faculty were able to interact with Dr. Zare.

Chemistry Faculty Receives Prestigious NSF Grant to Fund Undergraduate Research

Dr. Brad Wallar

A three-year grant from the NSF, totaling about $460,000, to support undergraduate research in biochemistry has been awarded to Chemistry Department faculty member Brad Wallar. Brad's research is focused on "the specific proteins in cells that regulate the cellular 'skeleton'; a structure that is involved in virtually every cellular process." He postulates that results from his work could help scientists to better understand, as well as control cell division and movement. According to Brad, "This grant-funded program will involve undergraduate students in cutting edge research, teach them the critical skills needed to perform independent research, and provide the opportunity to apply their skills on a high impact project." He also believes that, "half of the students that will be working on the funded research projects will be either first generation or nontraditional college students in the sciences." The grant will provide funds to purchase research supplies, and hire four students on a full time basis each summer for three years; this will allow students to focus on their research projects. The principal investigator, Dr. Wallar, will be involved in training students to use instrumentation, analyze data, search the scientific literature, design new experiments, and enhance presentation skills. Every student researcher will be required to present his/her results at a national meeting, and ultimately be involved in publishing the work in a peer-reviewed scientific journal.

Chemistry Professor Named Founding Director of New Center for Scholarly and Creative Excellence

Robert P. Smart, Professor of Chemistry, was selected by the College of Interdisciplinary Studies as the founding director of the new Center for Scholarly and Creative Excellence. The Center was proposed by the Academic Senate in 2005 and approved by Provost Gayle Davis last academic year. The role of the new center is to work closely with Grand Valley's Research and Development and the Grants office, as well as other college committees supporting scholarly activity. "The new center will also provide workshops on developing a scholarly agenda, help with scholarly publication, mentoring by senior faculty, assistance in finding collaborations, lectures and discussions on scholarly and creative practice, and colloquia featuring outstanding scholarship and work in progress." The creation of such a center will hopefully increase public recognition of the scholarly work that is going on at Grand Valley State University. This past summer, Dr. Smart learned about the scope of scholarship and creativity of GVSU's research-active faculty, and visited similar centers across the country to learn how to run the new center. Dr. Smart earned his Ph.D. from MSU in 1994, was a Dreyfus teaching postdoctoral fellow at Calvin College for two years, before joining Grand Valley in 1996. He has received numerous teaching and research awards at GVSU such as the Pew Teaching Award (2001), the Outstanding Teaching Award (2001), the Small Business Association Innovations Award (2004), the State of Michigan Governor's ACE Award (2005), and the Glenn A. Niemeyer Award (2008).

Dr. Robert Smart

Target Inquiry Project Produces Positive Results

Newly promoted Associate Professors Deborah Herrington and Ellen Yezierski have been very busy with the Target Inquiry (TI) program. This year the first cohort of high school chemistry teachers completed the 2.5-year, innovative professional development program and the second cohort has completed their first requirement, a summer-long mentored research experience working alongside faculty in Chemistry.

Just beginning its third year, the 5-year NSF funded study of TI has produced one publication in the *Science Educator* with TI graduate assistant Laura Kennedy as first author (spring 2008, vol. 17, no. 1, p. 1-9) and more manuscripts in review. This past year Herrington and Yezierski along with their 4 undergraduate students (Christina Billman, Kristina Emery, Karen Luxford, and Ryan Wissner) and graduate assistant (Laura Kennedy) gave 11 talks and posters at the American Chemical Society (ACS), Biennial Conference on Chemical Education (BCCE), and NSF DRK-12 national meetings, as well as Student Scholarship Day and the Western Michigan Undergraduate Conference. Additionally, Yezierski presented invited chemistry seminars at Calvin College (Grand Rapids, MI) and University of South Florida (Tampa, FL), and Herrington presented an invited chemistry seminar at the University of Northern Iowa (Cedar Falls, IA).

Most recently, five of the TI teachers presented inquiry laboratory materials produced in the TI program at the 2008 BCCE at Indiana University. Brian Brethauer, Debra Johnson, Peter Larsen, Alice Putti, and Sarah Toman delivered their talks to a room packed with over 60 people. To make this meeting even more exciting for the TI team, three teachers (Kevin Conkel, Alice Putti, and Sarah Toman) gave talks to report the results of their action research (classroom educational research) projects.

Research findings thus far show that the TI program impacts teachers' beliefs about science inquiry and inquiry instruction. The data also show that TI teachers' instruction is changing to be more aligned with inquiry as defined in the *National Science Education Standards*, according to robust observational data. Moreover, for TI teachers who primarily teach a year-long Chemistry I course, their students have shown statistically significant gains in achievement on the ACS High School Exam (post-TI as compared with baseline measures). Data collection for the first and second teacher cohorts is ongoing. Yezierski and Herrington are invited speakers at the 2009 Gordon Research Conference on Chemical Education Research and Practice at Colby College where they will share updated TI results.

The TI team at GVSU is comprised of PIs Yezierski and Herrington in addition to chemistry education colleagues Julie Henderleiter, Sherril Soman, and Nathan Barrows, past and present chemistry research mentors (Robert Smart, Dave Leonard, Dalila Kovacs, Steve Matchett, George McBane, Stephanie Schaertel, Andrew Lantz, Matt Hart, Min Qi, Randy Winchester, Rachel Powers, and Brad Wallar), and administrative coordinator, Janet VanRhee. For more information about the TI program and its study, visit www.gvsu.edu/targetinquiry.

TARGET INQUIRY:
Improving High School Chemistry

Chemistry Department Honors Students

In April of 2008, the chemistry department honored many of its most outstanding students for the 2007/2008 academic year. A total of eight awards in various categories were granted. The award winners in the different categories were the following.

Outstanding Freshman Award: *Chelsea Page* was the recipient of this award, which recognizes a student who must have completed CHM 115 and is either enrolled in or must have completed CHM 116 by the end of the current academic year. In addition, an eligible student must have fewer than 25 earned credits.

Outstanding Sophomore Award: *Todd Major* was the recipient of this award, which recognizes an outstanding student who must have completed CHM 245-248 by the end of the current academic year. In addition, an eligible student must have fewer than 55 earned credits and be a declared chemistry major.

Outstanding Junior Award: The recipient of this award was *Brittany Benson*. To be eligible for this award, a junior must be a declared chemistry major with at least 30 credits of chemistry completed, and have fewer than 85 earned credits. In addition, a junior must be enrolled in CHM 358 and 355.

Outstanding Senior Award: *Angela Bopra* was the recipient of this award, which recognizes a graduating senior with an overall GPA of 3.5 or greater. Other eligibility requirements for this award are: research participation; service to the department; chemistry-related extracurricular activities; and general attitude.

American Institute of Chemists Award: *Erick Lindsey* was the recipient of this award, which recognizes a graduating senior who meets all or most of the criteria for the Outstanding Senior Award.

Outstanding Analytical Chemist Award: *Kyle Schneider* was the recipient of this award, which recognizes a declared chemistry major who is outstanding in CHM 222.

Organic Chemist Award: The recipient of this award was *Timothy Goralski*. The award, sponsored by PolyEd (the polymer education committee of the A.C.S.), is given to a student whose overall GPA is greater than 3.3 and whose performance in the two semester Organic sequence is outstanding.

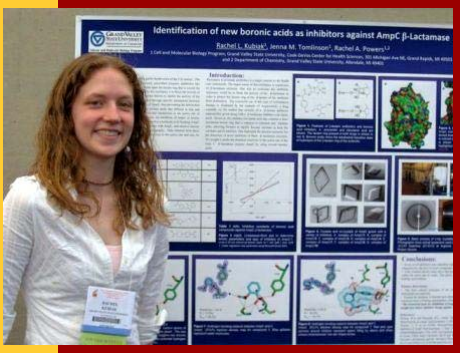
Shannon Biros with Dean Fred Antczak

2008 Distinguished Alumna-in-Residence

The CLAS Distinguished Alumni-in-Residence Program is an opportunity for various departments in the college to invite outstanding alumni to visit GVSU and share their post-graduation experiences with students, faculty, and staff. Our department's Distinguished Alumna-in-Residence for 2008 was Dr. Shannon Biros, Visiting Assistant Professor of Chemistry at GVSU. Dr. Shannon Biros graduated from Grand Valley State University in 2001 with a BA in Chemistry. For her alumna-in-residence seminar, Shannon gave an informal presentation to the chemistry majors on "How to Survive in Graduate School". Shannon's research work has resulted in many peer-reviewed publications and presentations at national and international meetings. For more details on Shannon's biography, see the New Faculty section of this newsletter.

GVSU Faculty and Students Present Research At National Meetings: ACS and ASMBM

Faculty and students from the Chemistry Department at GVSU presented research results at two national meetings: The national meeting of the American Chemical Society (ACS), and the national meeting of the American Society for Biochemistry and Molecular Biology (ASBMB). At the ACS, faculty/student presentations came from the research groups of Julie Henderleiter, Deborah Herrington, Dalila Kovacs, Felix Ngassa, Sherril Soman, and Ellen Yezierski. At the ASBMB meeting, faculty/student presentations came from the research groups of Dave Leonard, Rachel Powers, and Brad Wallar



Rachel Kubiak in San Diego

Student Scholarship Day 2008

More than a dozen Chemistry students presented their research results in either oral or poster form at the 13th Annual Student Scholarship Day in April 2008. Student scholars and their sponsors were the following:

Derek Loutzenhiser. "Affordable Simulated Martian Environment Chamber (SMEK)". Sponsor: *Cory DiCarlo*

Brittany Benson. "Antimicrobial Activity of BIBR 1532 and Its Derivatives". Sponsor: *Robert Smart & William Schroeder*

Evan Lund. "Biotinylated Peptide Synthesis & Substrate Specificity Determination Using Enzyme-Linked ImmunoSorbent Assays". Sponsor: *Laurie Witucki*

Nathan Craft. "Comparative Studies of 1,3,5-cyclohexanetriol and Inositol Hydrogenation on Metal Catalysts". Sponsor: *Dalila Kovacs*

Elizabeth Schenkel. "Computational Analysis of a Protein-protein Interaction Important in Actin Regulation: DID meets DAD". Sponsor: *Mary Karpen*

Daniel Meyers. "Computational Evaluation of Small Molecules Designed to Inhibit Estrogen Production". Sponsor: *Matthew Hart*

Katherine Stahrr. "Design and Synthesis of Peptide Substrates for Focal Adhesion Kinase (FAK)". Sponsor: *Laurie Witucki*

Joseph Loviska. "Exploring the Limitations of POMS Mass Spectrometry". Sponsor: *George McBane*

Jennifer Buchman. "Exploring the Mechanism of a Class D Beta-lactamase Through Site-Saturation Mutagenesis of OXA-1 at the Valine 117 Position". Sponsor: *Dave Leonard*

Renee Bouley. "Functionalization of a Solvent Free Martian Bioelectrocatalytic System". Sponsor: *Cory DiCarlo*

Brandon Haines. "Further Exploration of Sonogashira Coupling in the Synthesis of Modified 2'-Deoxynucleoside Derivatives". Sponsor: *Felix Ngassa*

Rachel Kubiak. "Identification of New Boronic Acids as Inhibitors Against AmpC Beta-lactamase". Sponsor: *Rachel Powers*

Benjamin Eggleston. "Inexpensive Multiplatform Polyaniline Chemical Warfare Agent Sensors". Sponsor: *Cory DiCarlo*

Brent Hehl. "Investigating the Formin Protein Family: A Focus on DAAM1". Sponsor: *Brad Wallar*

Kate Veltman. "Molecular Regulation of the Diaphanous-related Formins". Sponsor: *Brad Wallar*

Shannon Murphy. "Progress Toward the Synthesis of a Water Soluble Cavitand". Sponsor: *Shannon Biros*

Emily Jones. "Pulsed Oscillating Mass Spectrometer". Sponsor: *George McBane*

Sarah Anzell. "Selective Functionalization of 3,3',5,5'tetrakis (trifluoromethyl)biphenyl". Sponsor: *John Bender*

Jenna Tomlinson. "Synthesis and Structural Analysis of a Novel Series of Non-beta-lactam Inhibitors of AmpC Beta-lactamase". Sponsor: *Rachel Powers*

Uma Mishra. "Synthesis of Thiophene-Based AmpC Beta-lactamase Probes". Sponsor: *Robert Smart*

Ryan Wissner. "Target Inquiry: Impacts of a Research Experience for Teachers". Sponsors: *Deborah Herrington & Ellen Yezierski*

Laura Kennedy. "Target Inquiry: Teacher Professional Development Impacts on Classroom Practices Involving Inquiry Instruction". Sponsors: *Deborah Herrington & Ellen Yezierski*

James Marr. "Vibrational Spectroscopy of Carbonmonoxymyoglobin". Sponsor: *Christopher Lawrence*

Alex Gilde. "Water Evaporation From Tropospheric Aerosols". Sponsor: *Christopher Lawrence*

Departmental Research Update

Research in the department remains active. Many faculty members attended regional, national and international meetings in which the results of their research were presented. The department has also maintained as its priority the active involvement of undergraduate students in research. A summary of some faculty research update is presented.

Nathan Barrows continues his research involving developing a concept inventory for analytical chemistry based on student laboratory practices. At the 20th Biennial Conference on Chemical Education in Bloomington, IN, Nathan presented a talk "Keep them talking: Design considerations for think-aloud questions" and his research student Jennifer Heldt presented "Addressing student misconceptions: The development of a concept inventory for analytical chemistry."

Matthew Hart continues his research in the area of bioorganic chemistry. He had a funded Student Summer Scholar working on some research projects this past summer.

Julie Henderleiter was on sabbatical during the winter, 2008 semester. Her work involved rewriting the CHM 109 lab manual, now published through Hayden-McNeil. Special thanks to Linda Stevens for offering one of her lab sections for testing of the new manual. Julie also worked with Karen Matchett on some of the CHM 231 labs, and reworked some of the CHM 232 labs as well.

Debbie Herrington continues her research on Target Inquiry (TI) with Ellen Yezierski. Some work from her research group was presented at the national ACS meeting and BCCE this year.

Mary Karpen continues research on the use of molecular mechanics to explore conformations and electrostatic interactions of a positively charged, mobile region of the "DAD" protein with its target protein. This work, motivated by the work of Brad Wallar and colleagues, indicated that the binding of the mobile region is critical in regulating actin polymerization. Mary and her research student gave a presentation at the West Michigan Regional Undergraduate Science Research Conference, Van Andel Research Institute, Grand Rapids, MI, October 7, 2007. Mary was also a co-author on a peer-reviewed publication in the Journal of Molecular Biology. Mary continues her participation in two curriculum development projects, "Introducing Molecular Modeling Throughout the Chemistry Curriculum to Aid Student Learning", with Julie Henderleiter and Felix Ngassa, and "Curriculum Development for a Bachelor's Degree in Pharmacology", coordinated by Sherrill Soman. These projects are funded by Pew Faculty Teaching and Learning Center Presidential Teaching Initiatives Grants.

Dalila Kovacs continues her research in green chemistry. She gave three presentations: an invited talk at the 235th ACS National Meeting, New Orleans, LA, April 6-10, 2008; an invited talk at the 12th Annual Green Chemistry & Engineering Conference, held in Washington, DC, June 24-27, 2008; and a poster presentation at the 20th BCCE at Indiana University in Bloomington, July 27-31, 2008. Dalila was also a Co-PI on a MI DEQ grant, along with Andrew Lantz and Min Qi.

Andrew Lantz and co-workers Michael Delamarre, and Pam Scott have been busy examining cyclodextrins as potential complexation agents for pesticide extraction and delivery agents for natural antimicrobial essential oils. They will also be working on developing capillary electrophoresis methodology for the detection, identification, and separation of bacteria in commercial and medical samples this fall. Andrew was also involved in a small subcontract grant this past summer, under Iowa State University and Van Beek Scientific, with Byron Brehm-Stecher. Two publications, from graduate work, came out of the Lantz lab in 2008.

Departmental Research Update

Christopher Lawrence continues his research in computational chemistry. His research group was active this summer working on various computational projects.

David Leonard continues his research on beta-lactamase enzymes and antibiotic resistance. He worked with four undergraduates (Nick Renck, Kyle Schneider, Chris Davis and Casey Bartman) and a target inquiry teacher (Deanna Cullen) this summer. His lab published a paper in Biochemical Journal this year. Jenny Buchman, Angela Bopra and Kyle Schneider attended and presented posters at the American Society for Molecular Biology and Biochemistry in San Diego in April.

George McBane and his family spent the summer of 2008 in Göttingen, Germany, where he was a visiting scientist at the Max Planck Institute for Dynamics and Self-Organization. He carried out theoretical chemistry research on the photodissociation of ozone in collaboration with the group of Reinhard Schinke there. During the trip he also visited with collaborators in the Netherlands, and gave seminars at the Free University Amsterdam, the University of Leiden, and the University of Nijmegen.

Felix Ngassa continues his research on transition metal-catalyzed syntheses of modified nucleosides. He had a funded Student Summer Scholar, Kirk Wyatt, working on a project in collaboration with Laurie Witucki this past summer. The Ngassa group also presented research results at the spring ACS national meeting in New Orleans, and submitted a paper that has been accepted for publication in the Journal of Undergraduate Chemistry Research, with two undergraduate researchers Erick Lindsey and Brandon Haines. The Ngassa group currently has three undergraduates doing research this fall.

Min Qi received grants from R&D and Padnos international office at GVSU. The funds were used to support her research project, which was conducted in Xi'an, China during her sabbatical leave in the winter of 2008. She collaborated with faculty members in the College of Resources and Environmental Science of Northwest A & F University in China, and analyzed organic residues concentration in soil, crop, and food samples. More than 50 samples were collected and analyzed. It is clear that the information obtained will be an important component in the understanding of the regional environmental problems in China.

Stephanie Schaertel continues to work on two projects with GVSU students. One project, done in collaboration with George McBane, involves the improvement of a diode-laser-based spectrometer for the sensitive detection of $^{13}CO2/^{12}CO2$ isotope ratios, and the other project involves the construction of a modular, relatively inexpensive Raman spectrometer for monitoring structural changes in amino acids and proteins. Some results from the Raman project were published this year in Chemical Educator.

Brad Wallar continues his research in "The role of phosphorylation in the regulatory mechanism of the Diaphanous-related formins". Two of his undergraduate research students presented posters of their work at the American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, CA. In other news, Brad mentored an S3 student this past summer, earned tenure and promotion, and earned an NSF RUI Grant.

Laurie Witucki continues her research in bioorganic chemistry. She had a funded Student Summer Scholar, Kirk Wyatt, working on a project in collaboration with Felix Ngassa this past summer.

Ellen Yezierski continues her research on Target Inquiry (TI) with Deborah Herrington. Some work from her research group was presented at the national ACS meeting and BCCE this year.

Faculty Receive Teaching and Research Awards

Sandi Bacon

The Chemistry Department faculty continues a tradition of excellence in teaching and research as evidenced by various teaching and research awards received during the 2007-2008 school year.

Ellen Yezierski (Associate Professor) received the "Pew Teaching Excellence Award" for 2007-2008.

Deborah Herrington (Associate Professor) received the "Pew Teaching with Technology Excellence Award" for 2007-2008.

Robert Smart (Professor) received the Glenn A. Niemeyer Award for 2007-2008.

Sandi Bacon (Director of Laboratory Support for CLAS) received the A/P Achievement Award, the highest distinction given to a staff member.

GVSU Chemistry Alumna Awarded Graduate Fellowship to Pursue Ph.D.

Cynthia Luxford, a chemistry alumna (2008 graduate) is one of seven students awarded a graduate fellowship at Miami University in Oxford, Ohio. "The Chemistry Education Research Doctoral Fellowship will waive her tuition and provide a stipend, a laptop computer, medical insurance, and travel expenses to two national conferences per year." Six years ago, Cynthia first started taking classes at Grand Valley while she was still enrolled in high school; her passion for education is still very strong. She will be working towards a Ph.D. in Chemical Education, thanks to a five-year doctoral fellowship from Miami University. At Grand Valley, Cynthia did undergraduate research in Organic Chemistry and Chemical Education. In Organic Chemistry, she worked in the research group of Dr. Dalila Kovacs, and in Chemical Education, she did research with Drs. Debbie Herrington and Ellen Yezierski of the TI Program. Cynthia is among few undergraduates who have the unique opportunity to do research in two chemistry subdisciplines, and presenting her research results at two national meetings of the American Chemical Society (ACS). Cynthia writes, "I never thought I would be working towards a Ph.D. I realized that even if you think that you have your life plans figured out, you should explore other areas within your passions. If I would have shot down my opportunity for graduate school, I may have never realized my passion not only lies with teaching, but also with researching ways to understand how students learn." Cynthia, introduced to the doctoral program at Miami University by her mentors, is currently conducting research with Dr. Lowery Bretz in chemical education.

Cynthia Luxford

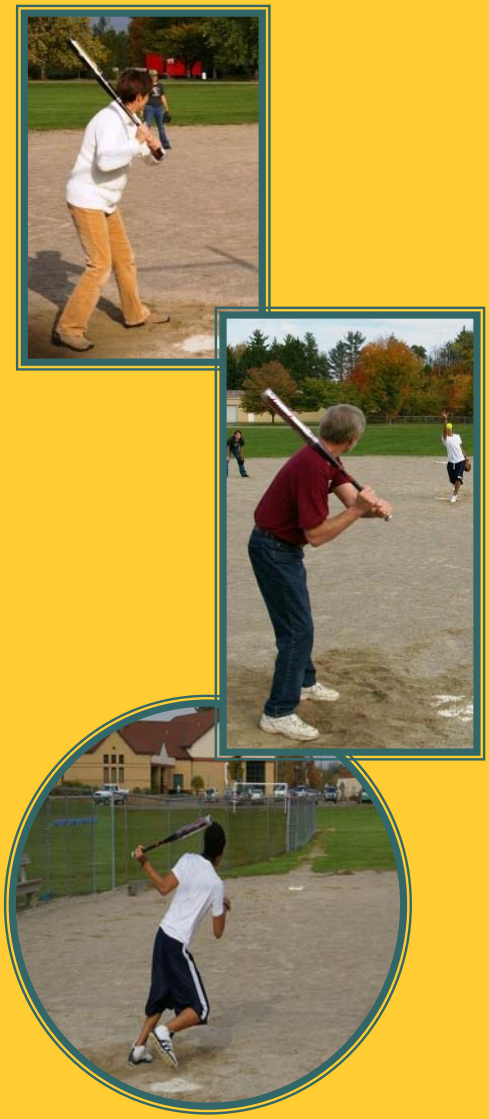
Alumni News

Andrew Berke, a **2006** graduate, is doing well in the research program of Fleming Crim at the University of Wisconsin Madison. He says he may have a publication soon.

Gillian Kupakuwana, a **2006** graduate, is attending graduate school at Syracuse University and is doing well. She was recently an awardee at the AGEP Academic Excellence Symposium, where she won a price for excellence in oral presentation. Competing against 86 other participants, Gillian was awarded second place for her oral presentation titled "Development of a One-Step Selection Method for DNA C-Probe Discovery".

Chemistry Club Challenged Chemistry Faculty at a Softball Game

Last fall the Chemistry Club challenged the Chemistry faculty to a softball game at Allendale Community Park. We were fortunate to have a beautiful afternoon so late in the fall in which to play. The faculty all-stars were Harvey Nikkel, George McBane, Blair Miller, Karen Matchett, Bob Smart, Brad Wallar, Mary Karpen, and Rachel Powers. The student lineup included Joe Loviska, Dan Jackson, Rachel Zoet, Angela Bopra, Dan Servito, Lisa Schenkel, Trevor Lott, and Kristen Courteau. The highlight reel (if there was one) would have included several home runs and a few potentially career-ending injuries (the dreaded "skinned knees" being the worst of it). There were also reports of numerous sore muscles the next day. What was the final score? Hmm…all I can say is that it was a close game, but the faculty was victorious once again and remains undefeated. Like a Chemistry faculty member, who chooses to remain anonymous, recently boasted, "Don't the students know they don't stand a chance as long as I am on the team? I am faster than 80% of all snakes." Quite a bold statement! This rivalry is definitely heating up. Look for a rematch next season.

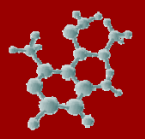


Chemistry Department Instrumentation Update

A few new additions have been made to the department's growing list of instrumentation. A fourth FTIR has been purchased to help outfit the new organic lab. The FTIR is our third Jasco 4100 unit and is equipped with a diamond plate ATR (attenuated total reflectance) which allows for high sample throughput with no sample preparation. We have also added a fourth UV-Vis spectrometer to the department. The new Shimadzu UV-2450 has more options for research but will also be used in higher level lab sections.

The nitrogen generator used in the advanced synthesis lab is now in full use and will save the department the expenses of purchasing nitrogen and tank rental. A fairly elaborate nitrogen storage system was built so that the generator can now supply nitrogen simultaneously to the glove box and both vacuum manifold lines.

Four additional Gow-Mac gas chromatographs were acquired and will be used to help equip the new organic lab and to replace an older unit that is beginning to show signs of age. For general teaching lab use the department also purchased four new centrifuges and eight new pH meters.



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Please send information to:

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Please remember to include your graduation year with any exciting news that you submit to us. We would love to know what you are doing!