



Chemistry Department Newsletter

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Welcome to the Chemistry Department's fall semester 2016 newsletter. We hope you enjoy reading about the exciting things going on in the department. The department is on the move with new Title III Grant and other exciting things going on.

Faculty Focus - Dr. Sandra Bonetti.

“SERVICE” is a term that we in the Chemistry Department can commonly use to describe our faculty and staff. However, service does not always look the same from one faculty or staff member to another. “Service” is certainly a word that can be used to describe Dr. Sandra Bonetti. Most students know Dr. Bonetti as the Biochemist in the Chemistry Department. Dr. Bonetti advises many Chemistry Majors especially those pursuing a Biochemistry Emphasis and Pre-Pharmacy students. Many days it is hard to walk past Dr. Bonetti's office and not find her engaged with advising students about course work or mentoring students working with her on various research projects. Dr. Bonetti earned her Ph.D. in Biochemistry at Georgia Institute of Technology where she studied the isolation and biotransformation of pyrrolizidine alkaloids and related compounds for her thesis research. Dr. Bonetti continues biochemistry research and engaging students in the laboratory studying fungal enzymes and complex biopolymers, interactions of molecules in micro emulsions, and proteomics.

In addition to direct service to students at CSU-Pueblo, Dr. Bonetti has served on many committees on the CSU-Pueblo campus. Far too many to highlight all of them here, but a few examples include the Academic Advising Council, the Institutional Review Board, and the Degree Audit Implementation Team. Additionally, Dr. Bonetti is a consistent contributor to the annual Chemistry Day activities held by the Chemistry Department, which brings local high school students to campus for fun and educational chemistry experiences.

What may set Dr. Bonetti apart from the many wonderful faculty on the CSU-Pueblo campus is her service that bridges the CSU-Pueblo campus and the broader community. This is especially evident as it relates to the American Chemical Society (ACS). This includes keeping faculty and students informed of Colorado ACS (COACS) activities and organizing COACS events and ACS “Program in a Box” webinars at CSU-Pueblo to name but a few examples. Other service includes managing the COACS Listserve, serving as a COACS Councilor, and volunteering at the Information Booth at the Spring 2015 National ACS Meeting held in Denver.

Dr. Bonetti is a tireless advocate for getting young people exposed to science at an early age, especially among low income and underrepresented students. There is one specific activity for which Dr. Bonetti has had a significant impact related to this passion—ACS-Project SEED. Project SEED is a summer research program for economically disadvantaged high school students to experience what it is like to be a chemist. Dr. Bonetti has mentored 5 Project SEED students in



Dr. Bonetti and Dr. Dillon with three Project SEED students.



Dr. Bonetti working with high school students doing fiber analysis—Chemistry Day 2016.

her research lab in recent years. Faculty hosting Project SEED students receive no compensation for their time or efforts just the satisfaction of providing a remarkable life changing opportunity for a young person. In addition to promoting Project SEED, hosting Project Seed Students, and recruiting students to participate in Project SEED, Dr. Bonetti has served on the national ACS Project SEED Committee for more than 10 years and served as the committee Chair from 2011 to 2014.

The Colorado Section of the American Chemical Society recently recognized Dr. Bonetti for her outstanding service with the 2015 ACS Section Volunteer Award.

Chem. Day 2016 at CSU—Pueblo

October 20, 2016 saw about seventy students from 4 area high schools participating in a day of activities for the 2016 Chemistry Day hosted by the Chemistry Department. This year's Chemistry Week theme was "solving mysteries through chemistry". True to this theme participating students used their chemistry and scientific skills to solve the mystery of the "Sabotaged Research".

Participating students engaged in activities including soil characterization, blood splatter analysis, ink analysis by TLC, fiber analysis, and unknown powder identification by GC/MS. By analyzing crime scene data and crime scene samples, participants were able to narrow down the list of five suspects to one likely culprit. Following the forensic activities participants were able to enjoy some chemistry demonstrations delivered by Chemistry Club members, Christa Dunlap and Sabrina Trevillian, while enjoying pizza for lunch provided by the Dean's office.

The planned activities were concluded with the 1st Annual Chemistry Poetry Slam competition. Some of the high school student participants performed their original works of chemistry poetry highlighting their creative and artistic sides. The winning poem was performed by would be chemistry poet Tezla Neighbours from The Pueblo Health Academy. Tezla's winning poem entitled "Electron Configuration" can be found



on Page 3 of this newsletter. Chemistry Day coincided with the College of Science and Mathematics Student Research Symposium. Chemistry Day participants were encouraged to view some of the research posters as they concluded Chemistry Day 2016.

Student Research

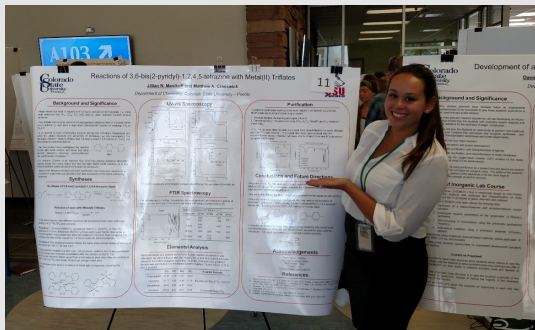
The Chemistry Department has a strong history of undergraduate student involvement in faculty mentored original research. Just last month the College of Science and Mathematics hosted its 12th Annual CSM Student Research Symposium on Oct. 20th. This is a forum for students to present the results of their research activities to their peers in a formal environment. Eight students working with Chemistry Faculty presented their research at the event.



Student poster presentations at the 12th Annual CSM Student Research Symposium

While the College and University provide multiple forums for students to gain experience presenting the results of their research, many students also have the opportunity to make research presentations at regional, national, or international meetings. Routinely chemistry students attend and make research presentations at the National American Chemical Society Meetings held each fall and spring, as well as at other scientific meetings held throughout the year.

This past August Assistant Professor Matthew Cranswick was invited to give a research talk at the "Young Talent in Colorado and Beyond Symposium" organized by Colorado ACS and held at CSU-Fort Collins. Dr. Cranswick's talk titled "From Modeling Tungstoenzymes to Making Tetrazine Complexes" was an overview of two research projects that students in his lab are currently working on. In addition to Dr. Cranswick's talk, three students from his research lab presented research posters. Mr. David Clair II presented "Development of an Inquiry-based Undergraduate Inorganic Laboratory". Mr. Travis Marshall presented "Understanding the Role of the Proposed Hydroxo/Aquo Ligand in the Reaction Mechanism of Acetylene Hydratase. And Ms. Jillina Manikoff (pictured) was acknowledged with an Honorable Mention for her poster presentation and 20 second elevator speech for her research "Reactions of 3,6-bis(2-pyridyl)-1,2,4,5-tetrazine with Metal(II) Tri-flates".



Ms. Jillian Manikoff in front of her poster at the Young Talent in Colorado and Beyond Symposium

Electron Configuration

by Tezla Neighbours

We all come in different shapes and sizes, you cannot convince us we are the same.

We can never be in the same place at once, you have Pauli's Exclusion to blame.

We are different levels of society starting from the bottom to the top,

Even when we are on the same level we differ with a spin of no stop.

Don't hate us for our individuality, we are just following the rules.

I know that seems counter intuitive but it keeps us from getting in duals.

We must keep our feet on the ground and not get too excited,

because if we do, we tend to get a little bit farsighted.

Crowdfunding comes to CSU-Pueblo

This fall the CSU-Pueblo Foundation initiated its first "crowdfunding" campaign. Those that follow the Chemistry Dept. on Face Book are likely aware of this campaign. The crowdfunding campaign for Chemistry Dept. is focused on raising funds for the Chemistry Club Scholarship Fund. This fund is designed to support those things that can be transformative in a student's education including participating in original research in the chemical

sciences and presenting the results of that research to peers at a regional or national scientific meeting. The fund also exists to help meet immediate financial needs that can arise and derail a student's progression towards their degree. It is not too late to support this worthwhile cause. You can access the crowdfunding information at <http://c-fund.us/a5g> through November 11th.

U.S. Dept. of Education Title III Grant

CSU-Pueblo was recently notified that one of proposals it submitted to support student success in the STEM disciplines was selected for funding. The successful proposal was a collaborative effort between STEM departments and colleges at CSU-Pueblo. The program supported by this award is titled "Communities to Build Active STEM Engagement" (C-BASE). The funding will be used to build active Student Research Communities, support the STEM Learning Center, establish a STEM Center for Engagement and Education, and stimulate Curriculum Redesign. The Chemistry Department will be heavily impacted by this grant through the purchase of new/updated instrumentation to support student education and research, and by a significant redesign of the general chemistry curriculum.

This grant will have profound effects throughout the STEM disciplines at CSU-Pueblo, but the greatest effects will be with the general chemistry curriculum. The award provides

funding to redesign, pilot, and implement a new method of introducing students to the fundamental concepts of chemistry. The redesigned general chemistry courses will employ many different pedagogies, including studio coursework, peer-led instruction, flipped classroom and experimental learning methods. This portion of the project is titled Primed, Adaptive Studio for Success in Chemistry (PASS-Chem). The new PASS-Chem general chemistry courses will blend lecture and lab components - the course will meet in the laboratory setting, and new concepts will be introduced through short experiments each week. The general chemistry courses were chosen for the initial trials for this new course structure because these courses are required for many STEM fields and majors. The intent of the new course design is to improve student success in general chemistry and to deepen understanding of fundamental chemistry concepts to improve overall success in later courses.



How can you help support excellence in education and research within the Chemistry Department?

If you are interested in supporting the Chemistry Department with a gift for program enhancement or student scholarships please call the CSU-Pueblo Foundation office at (719) 549-2380 or visit www.csuponthemove.com and simply specify that your gift is to support the Chemistry Department or Chemistry Student Scholarships

Recently the Chemistry Department used some funds donated to the department through the CSU-Pueblo Foundation to assist in the purchase of instrumentation as well as support students attending scientific meetings. Currently the Department is seeking financial assistance with replacing our aging and failing NMR.

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