



# Chemistry Department Newsletter

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Welcome to the Chemistry Department's spring semester newsletter. We hope you enjoy reading about the exciting things going on in the department. The department is on the move with new equipment and exciting things going on.

## Faculty Focus

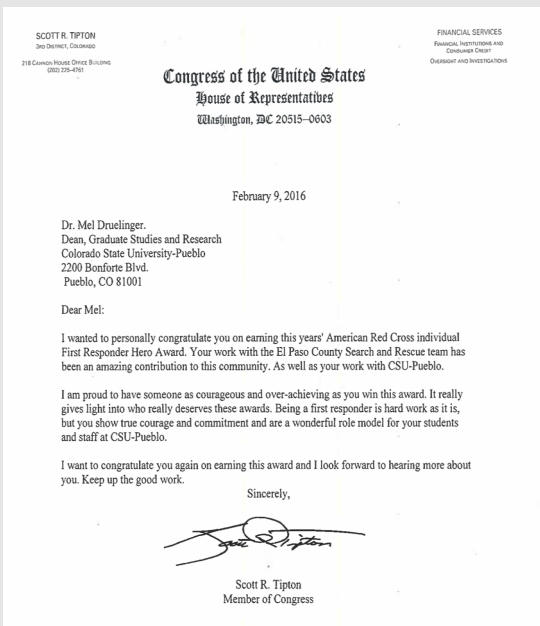
### Dr. Mel Druelinger.

**Did you know that besides helping students master organic chemistry Dr. Mel Druelinger also helps people across the Pikes Peak region?** Dr. Druelinger was recently awarded the American Red Cross individual First Responder award at the Pueblo Hometown Heroes award ceremony held at the Sangre de Cristo Arts and Conference Center on Wednesday, February 17, 2016. Dr. Druelinger has been in the business of search and rescue for 37 years. As a member of the El Paso County Search and Rescue team, Dr. Druelinger has participated in thousands of missions helping save numerous lives in the process. He was involved in the avalanche mission on Pikes Peak in 1995 as well as some of the bigger more challenging "out-of county" missions such as rescues on Crestone Needle, Little Bear and the Maroon Bells. Mel is also an On Duty Coordinator which means he is on call to coordinate mission response including the following: obtaining initial mission information, paging team members, briefing team members, and organizing the team's response.

Currently, Dr. Druelinger research interests include biocatalysts and the study and development of organic materials used as biocatalysts in the conversion of biomass into bio-fuels and other materials of interest, among others. Dr. Druelinger is a

champion of student engagement in research, especially undergraduate students.

Dr. Druelinger is a hero to his students, the research community and, most importantly, to those people who have benefitted from his work with search and rescue.



Dr. Mel Druelinger receiving First Responder Hero award

## Earth Day 2016 at CSU—Pueblo

Students from Heaton Middle School will be joining the Chemistry Department on April 21st to celebrate Earth Day 2016 with a variety of hands on educational activities led by Drs. Cranswick, Dillon, and Farrer. Dr. Cranswick will be exploring role of atmospheric carbon dioxide on ocean acidification, and its effects on ocean organisms. Dr. Dillon will use foam to understand the concept and effects of water hardness. And Dr. Farrer will intro-

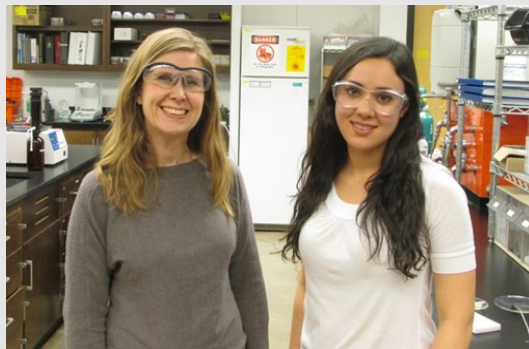
duce the concept of chromatograph while exploring the source of colors in leaves. And to wrap things up The Dean of CSM will be providing lunch for the participating students while they enjoy some chemistry demonstrations put on by the Chemistry Club.



## Our Featured Alumna

**From CSU-Pueblo to CSU.** Building on her successes at CSU-Pueblo Janet Pamela Yapor (Pam) is continuing her chemistry education in the Ph.D. program at Colorado State University (CSU) in Fort Collins where she is specializing in materials chemistry. It is always great to hear about former chemistry students moving on from CSU-Pueblo and doing great things. Pam is certainly no exception to this. Pam is now in her third year of the Ph.D. program at CSU continuing to develop her chemistry knowledge and skills under the mentorship of Dr. Melissa Reynolds.

Pam came to CSU-Pueblo in 2009 from Chihuahua, Mexico where she grew up, to begin her undergraduate studies. While at CSU-Pueblo Pam was fortunate to gain research experience working with Dr. Mel Druelinger and Dr. David Dillon, and even presented the results of her research at the 245th National American Chemical Society Meeting in New Orleans, LA. Pam attributes her time as a research student at CSU-



Pam (right) along with her advisor Dr. Melissa Reynolds in the lab at Colorado State University.

Pueblo as well as her time working as a lab assistant as important in the development of her laboratory skills and helping to prepare her the graduate program at CSU. In addition to fond memories of her research experience, Pam shared a humorous memory of Dr. David Lehmpuhl's impression of penguin surrounded by his penguin kin during an Instrumental Analysis (CHEM 419) lecture as a tool to help illustrate concept in the course. Dr. Sandra Bonetti served as Pam's advisor in her time at CSU-Pueblo. Pam recalls how enthusiastic Dr. Bonetti was to advise her with and assist Pam in planning out her schedule to accommodate a semester abroad in Italy. Moreover, Pam identifies Dr. Bonetti as a key inspiration for her to pursue a Ph.D.

Following graduation in 2013 from CSU -Pueblo with her Chemistry BS (ACS certified) and my minors in biology and Italian Pam was accepted into the graduate program at CSU where she is now nearing the

end of her third year. Pam is working on two projects under the direction of Dr. Reynolds. The first project is the synthesis of biodegradable polyesters that release nitric oxide for biomedical applications. These polymers have potential clinical applications because of their tunable mechanical properties and controlled drug release profiles. Most of the funding for this project comes from the U.S. Department of Defense, for the development of materials that can be used to promote wound-healing of large wounds such as those suffered in combat. The second project is the synthesis of materials that contain polydiacetylenes, which can be used as biosensors because of their chromatic changes (blue-to-red) when exposed to various stimuli such as heat, solvents, and pH changes. Pam's research has led to two recent publications. One in the *Journal of Materials Chemistry* ("Biodegradable citrate-based polyesters with S-nitrosothiol functional groups for nitric oxide release" *J. Mater. Chem. B*, 2015, 3, 9233-9241), which was selected for the journal cover, and a second article in *Materials* (Study of polydiacetylene-poly (ethylene oxide) electrospun fibers used as biosensors" *Materials* 2016, 9, 202).

For those chemistry students near graduation or recently graduated Pam encourages them to consider graduate school adding, "Even though you may be tired of being in school, you should remember that a couple of extra years as students will open many doors in the future." And for those with a little more time before reaching graduation Pam had this to say, "As for those who are still in school, I would recommend them to not miss class. There will be a time when they'll be at work every day and the only way of learning new things will be through self-taught activities. Professors are there every day giving them their valuable knowledge, and that should not be wasted." Faculty at CSU-Pueblo in the Chemistry Department and across campus are likely to echo this last point.

Pam serves as an encouraging reminder of the potential that the study of Chemistry has to improve the quality of life for people and impact technological advances. She also demonstrates that hard work as an undergraduate and taking advantage of the opportunities that exist at CSU-Pueblo, such as involvement in undergraduate research, can lead to many future opportunities. Pam is not exactly sure what the future holds for her, but what is for certain is that her strong background in chemistry and fantastic research accomplishments will open many opportunities for her after graduate school.



## National ACS Meeting in San Diego

Two faculty, one staff and four students from the Chemistry Department attended the National ACS meeting (March 13-17) held in San Diego, CA. Dr. Sandra Bonetti attended the meeting and was coauthor on a presentation made by Mr. James Carsella entitled "Bioaccumulation of selenium in the model bryophyte *Physcomitrella patens*." Dr. Mel Druelinger co-organized and chaired a session entitled "Starting a Successful Research Program at a Predominantly Undergraduate Institution."

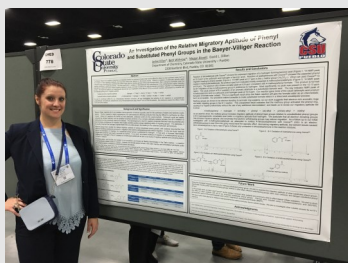
Although he was not able to attend the meeting, research from Dr. David Dillon's lab was well represented at the meeting thanks to four students from his research group attending and presenting at the meeting. Students Alisha Mason and Sarah Thompson presented a poster entitled "Synthesis and Antimicrobial Activity of Benzohydrazides Substituted at the Aryl and N' Positions." Drs. Dan Caprioglio and Jordan Steel were also coauthors on

this presentation. Two additional students, Jackie Killen and Beth Withrow, presented a poster entitled "Investigation of the relative migratory aptitude of phenyl and substituted phenyl groups in the Baeyer-Villiger reaction". Fellow student coauthor on this



Sarah (left) and Alisha (right) enjoying the ACS Meeting with a couple of moles

project Megan Bissell was not able to attend the meeting.



Jackie next to her poster presentation.

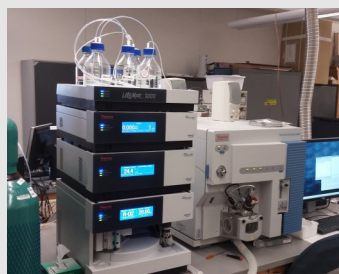
## New Instrumentation in the Chemistry Department

The Chemistry Department has been fortunate to add a few new pieces of instrumentation during the 2015-16 academic year. Two of the new additions are highlighted here. The department received a generous donation of an Agilent 7890 gas chromatograph/mass spectrometer (GC/MS) from the Colorado Bureau of Investigation. John Hatfield, the instrument specialist in the department, worked his usual magic and got the new GC/MS up and running quickly. The new GC/MS is already being used in lab courses and to support student research projects.



New, to CSU-Pueblo, Agilent 7890 GC/MS.

Another new addition is the Thermo Quantum Access liquid chromatograph triple quadrupole mass spectrometer (LC/MS/MS). This new instrument was funded through the U.S Dept. of Education grant that supports the PROPEL program on campus. The LC/MS/MS was recently installed in the department and is just being incorporated into a variety of student research projects. These new instruments represent important updates and expansion the department's analytical capabilities.



New Thermo Quantum Access LC/MS/MS.



**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](http://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 students attend and present research at the National American Chemical Society Meeting in San Diego in March, 2016.

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