



GROVE CITY COLLEGE CHEMISTRY eNEWSLETTER SUMMER 2016



Departmental News

From Dr. Tim Homan, Chair

Another eventful year for the GCC Chemistry Department has come to a close. Spring commencement saw the largest chemistry department class in over 25 years graduate with 11 chemistry majors and 15 biochemistry majors. They were an outstanding group of students who excelled both academically and in their campus commitments. They are off to medical school, graduate school, NIH post-baccalaureate research appointments, seminary, and industrial employment. Others are taking a gap year before beginning further study. We wish them the very best in their future endeavors.

Dr. Harold Conder retired at the end of the academic year. He is highlighted later in the newsletter. It is hard to imagine Rockwell Hall without him. We are grateful for his 42 years of dedicated service teaching and mentoring students in the chemistry department.

The local circle of the Omicron Delta Kappa (ODK) honorary along with the Alumni Association sponsors the Professor of the Year Award. Dr. Charles Kriley was named the 2016 Professor of the Year in April. The award was presented in Chapel where Dr. Kriley addressed those in attendance. Dr. Kriley joins Dr. Homan (2002) and Dr. Jones (2008, now retired) as chemistry department faculty members who have received the award.

The department proposed a few changes to the curriculum which were adopted in the spring semester and will take effect in the 2016-2017 academic year (more on this later in the newsletter).

Dr. Mike Falcetta and Dr. Chuck Kriley took six of our students to the National ACS meeting in San Diego in March. The students presented four posters of their research work, and Dr. Falcetta gave a talk on his current research into the lifetimes and stability energies of temporary anions. Dr. Kriley attended a class at the meeting on modern 1D and 2D NMR techniques. The students had 50% of the cost of their trip covered by the

GCC Swezey Fund, and another 25% covered by the chemistry department. Thank you for your gifts to the department. We are grateful to be able to use a portion of those gifts each year to assist our students in taking advantage of these great opportunities.

As some of our more recent graduates can attest, our 300 MHz NMR spectrometer has had an equal amount or more down time than working during the past few academic years. Finally, after 18 years of service, the NMR is being replaced. The department was notified early in the spring semester that we could pursue the purchase of a new NMR. This summer a 400 MHz JEOL ECZS NMR spectrometer will be delivered and installed. The instrument has a 24-tube auto sampler, and autoshimming capabilities. What will our students do with all their free time now!?! We are extremely grateful to the college for their generous support of the department in this significant purchase.

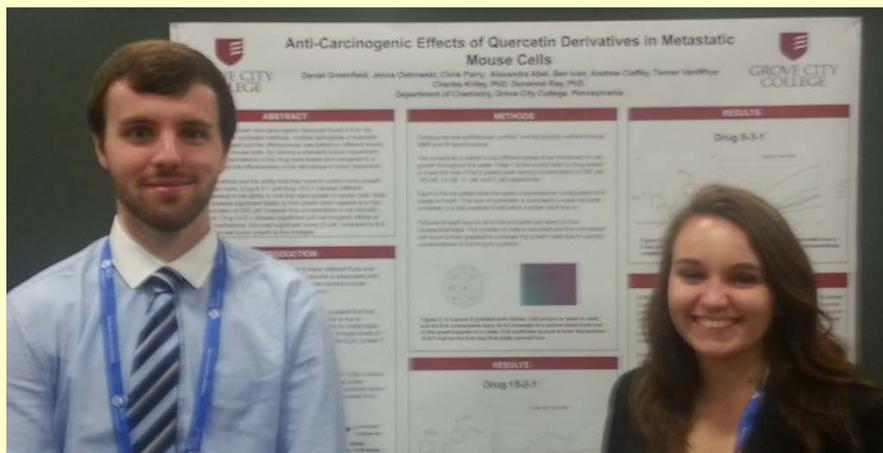
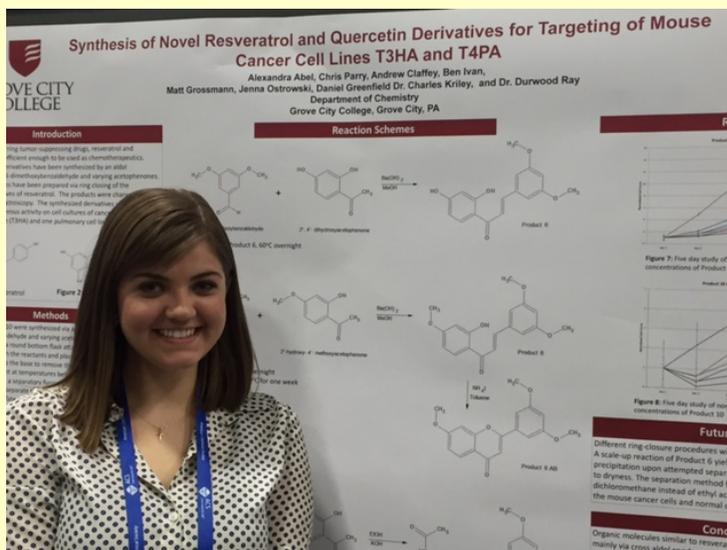
I also want to express my gratitude to Dr. Joe Augspurger for organizing, assembling, writing and sending out the Chemistry Department Newsletter each semester. The quality of the newsletter reflects his commitment to it, and to the department and alumni.

JNM-ECZS Routine NMR Spectrometer
Next generation 2-channel NMR spectrometer



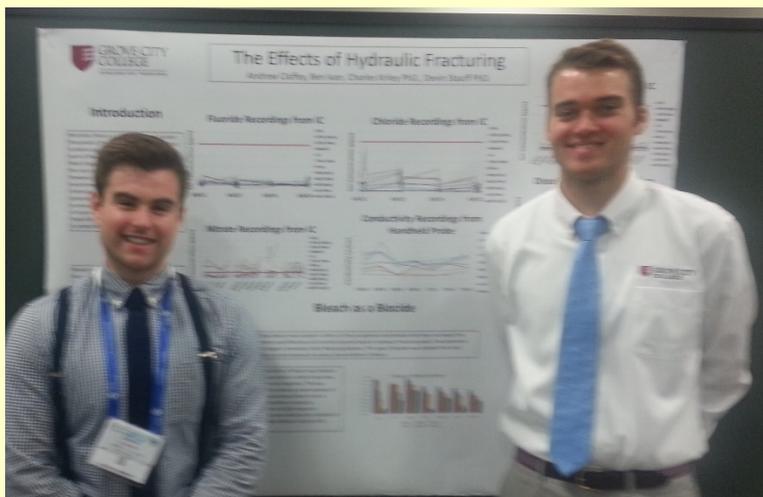
Research Highlights

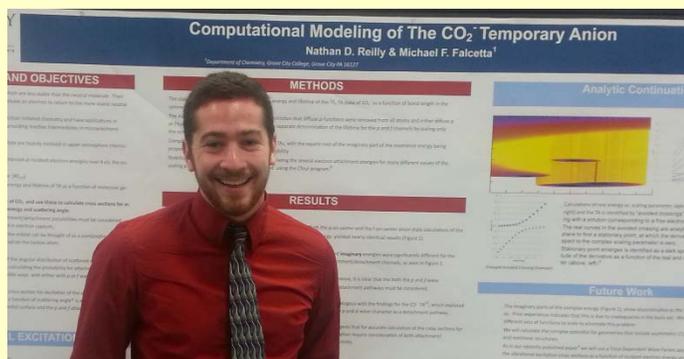
Drs. Kriley and Falcetta led six of their research students on a trip to San Diego in March for them to present their research in the student poster sessions of the National American Chemical Society Meeting. Pictured at right is Alex Abel (CHEM, '16). She has been working under Dr. Kriley's direction to synthesize new derivatives of resveratrol and quercetin in the search for potential anti-cancer agents.



Dan Greenfield (BIOC, '16) and Jenna Ostrowski (BIOL, '16) were also involved in this project, testing the new derivatives on cancer cell lines developed by Dr. Ray (biology department, retired). They grow cells and then expose them to the potential anti-cancer agents, looking for cell populations to decrease.

Andrew Claffey (BIOL, '17) and Ben Ivan (BIOL, '17) are pictured here with their poster which describes the ongoing monitoring of water quality from surface and underground sources. They are testing water from areas near sites where fracking has been carried out or potentially may be in the future.





Nathan Reilly (BIOC, '17) has been working with Dr. Falcetta in his computational studies of the lifetime and stability of negative anions. Nathan has been carrying out calculations on CO₂⁻.

Dr. Falcetta presented a talk at the meeting titled, "Computational Modeling of Resonant Vibrational Excitation Via Electron Impact" as part of the session on Electronic Structure and Dynamics of Metastable States. Dr. Falcetta co-authored an article in collaboration with Ken Jordan (University of Pittsburgh), Dr. Mark Fair (GCC), Emily Tharnish (CHEM, '17), Nate Hayes (CHEM, '16) and Lorna Williams (CHEM, '16) in the March 14, 2016, issue of the Journal of Chemical Physics on the subject, titled, "Ab initio calculation of the cross sections for electron impact vibrational excitation of CO via the ²Π shape resonance." Much of this research has been accomplished by students spending the summer on campus, and he will have two more students this summer supported by the Swezey Research Fund, Danielle Heiner (CHEM, '18) and Nate Reilly (BIOC, '17).

Curriculum Changes

The department completed a comprehensive curriculum review in the 2008 -2009 academic year. The result of that review was a curriculum that met ACS certification standards and provided more flexibility in the major. The changes in the curriculum went into effect in the 2010-2011 academic year, and the department received ACS certification in 2014. The curriculum has been in place for several years, and the department has made adjustments to strengthen the curriculum that will take effect this coming academic year.

Inorganic chemistry has been reorganized into a sophomore level course and a senior level course. The sophomore level course is required for the chemistry and biochemistry majors. The senior level inorganic chemistry course and lab will still be required for chemistry majors. The biochemistry major now has a required senior level biochemistry course which will build upon the Biochemistry I & II sequence. The department also added a sophomore level *Introduction to Molecular Modeling* course which will be required for chemistry majors, and moved the senior level *Instrumental Analysis* course from an elective to a required course for the chemistry major.

You can see the details of the new curricula for all of our majors in the Status Sheets located on the Registrar's website: [GCC Registrar](#), then click on ADVISING GUIDES →YEAR 2016-17, and then click on the appropriate major.

Faculty Spotlight

Dr. Harold Conder will be retiring from the chemistry department after the Spring, 2016, semester. His retirement will signal the end of a generation of chemistry at GCC. He joined the department in the fall of 1973, along with Dr. Arnie Sodergren. They joined Dr. and Mrs. Naegele, Dr. John Shaw, and Mr. Chab. The department faculty did not change for nearly 15 years, until Dr. Sodergren moved to the Biology Department and the Naegeles retired in 1990. Dr. Shaw retired in 1991 and Mr. Chab in 1996. With his retirement, the generation who taught chemistry at GCC in the 70's and 80's will have finally completed its service.

Dr. Conder earned his PhD from Purdue University in 1971 by completing his thesis titled "Transition Metals as Lewis Bases. Complexes of Mercury with Transition Metal Carbonylate Anions, Halides, and Neutral Ligands", under the direction of Dr. William R. Robinson. He continued his studies of transition metal chemistry as a Petroleum Research Fund Postdoctoral Fellow at Tulane University working first with Dr. Joel Mague for one year and with Drs. Donald and Marcetta Darensbourg, and has continued to collaborate with the Darensbourgs ever since. After the Darensbourgs became professors at Texas A&M, several of Dr. Conder's research students from GCC have either spent a summer in the Darensbourgs' lab or gone on to earn their PhD with them.

In 1981, Dr. Conder took a one-year leave of absence to return to Purdue to conduct research with Dr. Richard A. Walton. His connections to Purdue University and Texas A&M also allowed him to work with Dr. Albert Cotton, resulting in several publications. As a result of this longstanding connection with Texas A&M, Dr. Conder received the 2003 Abbott Excellence in Pre-Graduate Mentoring Award from Texas A&M University.

Drs. Conder and Sodergren moved into Rockwell 101 together and shared the small office for many years. While Dr. Sodergren eventually moved out when he transitioned from the chemistry department to the biology department, Dr. Conder has remained in 101 to this day. He has taught our core Inorganic since his arrival and taught both Analytical courses for 18 years. He has taught Advanced Synthesis and Spectroscopy in various incarnations, along with Organometallics as an elective. He also taught other classes both in and out of the department.

Dr. Conder has had an active research program throughout his career, mentoring a multitude of research students over the years. Several novel transition metal compounds have been synthesized and characterized through his and his students' efforts. He authored or co-authored 13 papers in *JACS*, *Inorganic Chemistry*, *Journal of Organometallic Chemistry*, and *Inorganica Chimica Acta*.

While Dr. Conder is retiring from GCC, he is not retiring completely. As his students know, he has farmed the land that has been in his family since not long after the Revolutionary War. His ancestors owned the original deed to the land, and so have been the only owners for over 200 years. He will continue to farm the family property.

While we are hiring a new faculty member, Dr. Conder will never be replaced. Many students were the recipient of his (faint) praise upon completing a task in lab, "Even a blind squirrel finds a nut sometimes." Thanks, Dr. Conder, for 42 years of service to the Grove City College Chemistry Department.



Student ACS Chapter

The students of our local ACS Student Chapter had an active and successful year. This year's officers were President Rachel Schmidt (BIOC, '16), Vice-President Jocelyn Seaton (BIOC, '16), Event Coordinator Lorna Williams (CHEM, '16), Treasurer Rebecca Holmes (BIOC, '17) and Secretary Natalie Ziemer (BIOC, '18). Under their leadership the group sponsored many Social events which developed connections between students and faculty:

- Sept. 15, Meet'n'Greet, an opportunity for new majors to meet upperclassmen and faculty,
- Homecoming – hosting alumni at a tent on the Quad,



ACS Christmas Party

- Dan Ackerman (BIOC, '14) gave a talk April 5th sharing about his first two years pursuing a PhD at Carnegie-Mellon University, where his research involves developing *in vivo* inflammation sensors,
- ACS helped sponsor an Informational Meeting April 13 for all science students where research opportunities at GCC for the 2016-17 year were presented, and
- Conducted a tour of the Chemistry Department at the University of Pittsburgh on April 22.



The Fall ACS party was held at Dr. Cramer's (seated front) home. Dr. Wong is standing at the far left.

- organized the Fall Party held at Dr. Cramer's home,
- sponsored the Christmas Party at Dr. Homan's,
- held the Spring Party at Dr. Augspurger's home, and
- had a final end-of-year get together at Dr. Homan's house.

ACS provided weekly tutoring sessions for General Chemistry students. The tutoring was free for ACS members, and offered for a nominal charge for non-ACS members.

The Chapter also sponsored several events to provide students with opportunities to learn about future career options:

- A panel discussion was held Oct. 7th where student who had internships last summer told about their internships and shared advice of how to find internships,
- Laura DiFalco (CHEM, '14) spoke Oct. 13 to ACS members about her experiences in the chemical industry,