

### News from Chemistry

Since our last newsletter in 2019, we've seen more changes and many challenges. Our greatest challenge was the almost instant pivot in the week following spring break 2020. We've made a few changes to the curriculum and learned to be flexible.

#### TEACHING THROUGH THE PANDEMIC

It's hard not to reflect on the past two and half years is disbelief and amazement on our ability as a Department to quickly adjust and accommodate. One week we were all resting and enjoying our spring break and the next week we were scrambling to learn how to teach classes remotely, administer quizzes and exams, and perform laboratory experiments from the safety of our homes. We quickly started holding virtual faculty department meetings trying to pool resources and knowledge about setting up Zoom lectures, about proctoring exams in Blackboard/Canvas, and about "how in the world are we going to teach labs!!?" In the first semester on the Pandemic, we taught courses synchronously, pre-recorded lectures, turned our phones into overhead projectors, bought Wacom sketch pads and tablets. We scoured the internet for videos of titrations and distillations, utilized existing

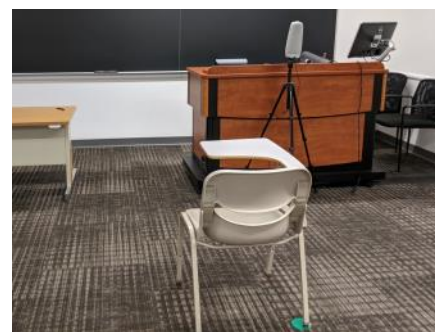
virtual-reality experiments, and even resorted to our children's chemistry set to perform demonstrations.

As the Fall of 2020 approached, faculty and students were allowed back on campus again. Due to heightened restrictions on socializing, most students stayed home and attended remotely. Some faculty choose to return to the classroom, some choose to remain virtual. Those who taught in-person had to balance presenting lectures to students both in the classroom and over Zoom simultaneously. To increase social distancing, on-person classes and labs were split into groups where students alternated—attending in-person one week and over Zoom the next. We had to adapt curricula so in-person and remote students had as similar of an experience as possible.

As restrictions lifted and vaccinations

become more available, more and more students (and all faculty) returned to the classroom in the Fall of 2021. Lecture courses remained a hybrid of in-person and remotely as students and faculty needed to quarantine. Lab courses have required in-person attendance and students could once again perform hands-on experiments.

What will it be like when we return from break in mid-March? What will it be like next year? What we know is that we can be creative and we will likely incorporate some of the new strategies in our classes for the future.



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#### CURRICULUM UPDATES – NEW TWISTS ON OLD COURSES

**Biochemistry** – Teaching a single section to a diverse group of students biology and biochemistry, Chemistry and chemical engineering was a challenge. The Bio and Biochem student, many of whom are pre-med, are more interested in how chemistry helps biology while the chem and chem majors and chem engineers are interested in how to use biochemistry as a tool. The new **Fundamentals of Biochemistry** course presents the basics

of biochemistry without as much detail on the biological interplay and instead examines how biochemistry can help in chemical industries such as fermentation, biofuels, and protein design. Students are also introduced to important biological concepts not covered in the chemical engineering or chemistry curriculum. These changes will help to better serve both groups of students. Biology and biochemistry majors will be able to dive deep into

## NEWS FROM THE PITT-JOHNSTOWN CHEM SOCIETY

*Congratulations! The Chem Society has won a "Commendable" award 3 years in a row!*



Our Pitt-Johnstown Student Affiliate of the ACS, commonly called the Chem Society, has been very active. Outreach to the community has been a major focus. Each fall during National Chemistry Week, we hold our annual Chem Camp for Elementary school students K-6. In fall 2019 we presented a demonstration show followed by 3 hands-on labs based on the theme "Marvelous Metals" for 65 students. When COVID put the live activities on hold, like the faculty, we adapted to and presented virtual demo shows the past two years. The shows for 2020 and 2021 can be seen on YouTube. See below for the links.

Dr. Marsha Grimminger, faculty advisor

for the Chem Society, is part of a new ACS filming cohort preparing demonstration videos for a national audience. Several Chem Society members and faculty are also involved including Chem Society members Kaylee Shook, Kiersten Henry, and Tina Osman and Dr. Laura Ritchey, Mrs. Tracey Fisanick, Dr. Matt Tracey.

The Chem Society had several social activities in the fall: s'mores at the fire pits and pumpkin carving contest in October, and a movie night in December.

We are planning a bowling tournament between TriBeta, the Biology club, and the Geology Club in March and an outdoor event in April with the St. Francis student affiliate of the American Chemical Society (SAACS).

Catch the Chem Society YouTube videos:

2020 [https://www.youtube.com/playlist?list=PLCT8MeAslbWD\\_f3cDygOvkTgMTAHMV-sK](https://www.youtube.com/playlist?list=PLCT8MeAslbWD_f3cDygOvkTgMTAHMV-sK)

2021 <https://www.youtube.com/playlist?list=PLCT8MeAslbWAYiXKk4BWEbq8-qU4ijrm>



Elephant Toothpaste - Demonstration at Richland Elementary School during National Chemistry Week, Fall 2021 by Dr. Marsha Grimminger.



Dr. Marsha Grimminger with students from Richland Elementary School during National Chemistry Week, Fall 2021.

## HIGHLIGHTING OUR STUDENTS—ALEX KEIM AND KAYLEE SHOOK

**Alex Keim**, a chemistry major and recent graduate, was honored the Spring with the Campus Association of the University of Pittsburgh at Johnstown Ruby Biddle Award for his exceptional dedication to completion of his undergraduate degree program. Specialist Kiem is a Combat Engineer in the U.S. Army and has served with the 420<sup>th</sup> Route Clearance Company and the 169<sup>th</sup> Combat Sustainment Support Battalion. This past year, Alex was stationed in Camp Arifjan in Kuwait from February to May of 2020, when his deployment then transferred him to Ft. Bliss, Texas due to Covid-19. At Ft. Bliss he helped operate and manage Covid-19 quarantine sites. SPC Kiem has since safely returned to our campus for the spring semester to finish his degree. While on campus, Alex has performed exten-

sive work on the Ruthenium(I) carboxylate dimer project. Specifically, he worked on complexes where the bridging ligands are trifluoroacetate, and the supporting triphenylphosphine ligands are fully fluorinated. He has worked on product isolation, product characterization, and the determination of organic phase vs. perfluoro phase partitioning. Alex has presented project related posters at numerous occurrences of Pitt-Johnstown events, including Fall-into-Research and SPACE. He has also presented at Duquesne University's Annual Undergraduate Chemistry Research Symposium.

**Kaylee Shook**, a senior biochemistry major, was honored this Spring with the Dr. Jem Spectar Award as the top Junior student. Ms. Shook

has a strong academic record and has consistently been on of the top students in her class. She has spent two years collecting and analyzing microwave spectra of chemicals to determine their structure and bonding properties. From this research Kaylee has presented posters at both local and national conferences, including the National American Chemical Society Conference, SPACE at UPJ, and Duquesne University's Annual Undergraduate Chemistry Research Symposium. Additionally, she uses her talents and excitement for learning to help her fellow students as a tutor for General Biology, General Chemistry, Genetics, and Writing courses. Kaylee is scheduled to graduate next Spring and plans pursue graduate school as a Pathologists Assistant.

**Help us Update our Database – We'd love to know what you are doing. As part of our program assessment we are collecting information about our alumni.**

We'll be sending an email in the next week or so, asking you to complete our survey.

## CURRICULUM UPDATES – CONTD

the intricacies of biochemistry in the two-semester sequence, while chemical engineering and chemistry majors will have the opportunity to practice and appreciate some important industrial applications of biochemistry in Fundamentals.

**Polymer Chemistry** – Taking a new twist on a course we hadn't offered for many years, Dr. Tom Malosh has revived **Introduction to Polymer Chemistry** which compares and contrasts polymer syntheses via free radical, ionic, step growth, ring-opening, and coordination processes. The role of reaction kinetics on the degree of polymerization, and thus, average molar mass and additional polymer reactivity including end-group functionalization, chain crosslinking, and copoly-

merization are explored. Discusses structure-property and structure-morphology relationships. Polymer blends, polymer solubility, and the characterization of polymers round out the course content.

**Med Chem and "Drugs"** These two courses, first developed by Dr. George Trimitsis, have evolved over the years in the hands of other Chemistry faculty. Most recently, Dr. Matt Tracey offered a new version of Medicinal Chemistry in the fall of 2020. COVID and the development of vaccines presented excellent opportunities to discuss infectious diseases and drug and vaccine development This spring Matt has revived "Drugs and the Human Body", a popular Gen Ed course. This cohort of students has many lively conversations!

## INSTRUMENT UPDATES

In our last Newsletter, Spring 2019, we shared news of the recent instrument updates. Our wish list included an ATR-FTIR. With a \$6,000 grant from the Spectroscopy Society of Pittsburgh and your generous donations, we purchased the instrument in December of 2019. Students in the Synth Lab use it regularly. It certainly beats making KBr pellets to study the IR spectra of the transition metal complexes we study.

This summer we updated the NMR workstation to run Windows 10.

Next on our wish list are three biggies: and HPLC and qPCR (quantitative PCR for Biochemistry) and an AA. They are all big ticket items so it will take a several years acquire these.



## TRANSITIONS

Many of you will remember Sam (Simeon) Martinus who taught Organic lab. He retired in the spring of 2020 and moved back to Montana to be with family.

Sam joined the Department in the fall of 1998. During his tenure he overhauled the Organic Lab program introducing unique and creative ways to teach lab skills (separation and characterization) while introducing important organic chemical reactions. One of his most creative was the “box” method for solving spectroscopy

problems. He developed a lab practical that served as a model for the other lab courses. The lab practical has become a key component of our program assessment. When the Engineering program introduced a BS in Chemical Engineering, Sam developed a one-semester organic chemistry lab courses for the Chemical Engineers.

We are sad to see him go and wish him well in the next stage of his life.

## PITT DAY OF GIVING 2022: 2-22-2022 – CONTRIBUTE TO THE CHEMISTRY FUND

Since 2018 we have raised over **\$10,000 for the Chemistry Department Gift Funds**

This year we hope to raise at least \$5,000 for the Chemistry Department Fund. Your donations will serve as matching funds toward the purchase of a HPLC, the one missing piece in our instrument inventory. We can do it ... if we can access challenge funds.

Pitt has two school and college challenges: one for the highest number of unique donors and a new one for the school that surpasses their

total number of unique donors by the most from 2021. Add to that Pitt-Johnstown is distributing challenge any funds to funds with the highest number of unique donors. It's not about how much you give (though that always helps), but how many donors contribute.

For instance, if Pitt-Johnstown places first in that new challenge, we would receive \$10,000 in additional funds from Pitt. A Pitt-Johnstown win plus a Chemistry win could mean additional funds for Chemistry! That puts us

beyond our goal!

So, we are hoping that you will help. It's not about how much you give, but how many give. If spouses and partners split their combined gift – giving two smaller gifts – that would get us twice the number of unique donors!



**Every dollar you contribute goes to Chemistry!**

Go to <https://pittdayofgiving.com/pages/pdog-2022>

- Select “MAKE A GIFT” (gold box far right of the Main menu)
- Where it says “Select a Category” scroll to “Pitt-Johnstown”
- Scroll down and select “UPJ Chemistry Fund”
- Indicate the amount of your gift.
- Complete the form.