Our last newsletter was written during the 2014-15 year (sorry about that), but we have been extremely busy since that time. I have been teaching my usual General Chemistry (Chem 116 and 117) and Inorganic Chemistry (Chem 222 and 341) over the past few years. I have also taken care of the Trustee’s Fellows in Chemistry class, where we have performed chemical demonstration shows for prospective students for the last few years.

My research took a good turn this last summer in that my students and I developed a method to attach DNA and RNA to fluorescent quantum dots for prostate cancer detection. For years, we struggled to attach the two, but we have now found a method that is reliable and easy. This work could extend to work with antibodies and viruses. Next summer, I plan to work with cells (look what Augie has done to me – I am an inorganic chemist, for goodness sake!).

On a personal note, my family and I have taken vacations to northern Minnesota, New Orleans and Yellowstone over the past few years. My wife Kathy has moved a few doors down in the Humanities Building and added to her duties as the Humanities Division Coordinator - she is now also the Performing and Visual Arts Coordinator. Our daughter, Maddie, is 9 years old and goes to Brandon Elementary, where she is in the Gifted Education program and plays the piano and violin. After the loss of two cats in recent years, we adopted 2 new cats (Sasha and Luna) from the Sioux Falls Humane Society to go with our “senior” cat, Lucky.

DEPARTMENT

Personnel
We have also welcomed some new faces in the Department, so I invite you to read their notes in this newsletter. Dr. Cyndey Johnson-Edler joined us from SDSU in the Spring of 2016 and is currently serving as a laboratory instructor and as the campus-wide chemical safety officer. Dr. Satya Sadhu joined us in Fall 2016 also from SDSU as a two-year sabbatical replacement for Dr. Jared Mays and Dr. Jetty Duffy-Matzer. Dr. Anna George joined us this fall from the University of Wisconsin-La Crosse and has been hired as a Science Education faculty member and has a specialization in Chemical Education.

Froiland Science Complex
We are now in the second full year of enjoying our new building the Froiland Science Complex. If you have not seen it in person yet, please stop by for a visit – it is AWESOME! This last summer was the first year that I performed research in the new building and it was a wonderful experience. The classrooms are great to teach in and the building has served our purpose well.

Research
After a slight slow-down due to building construction for summer 2016, we are going
FROM THE FACULTY

Continued from page 1

full steam ahead with our research endeavors. Summer 2017 had us working with 14 students in the Department and all of the students presented their research at the Sioux Valley ACS Local Section Meeting and Poster Competition in September, as well as the ACS Midwest Regional Meeting in October in Lawrence, KS. Yes, again we swept the awards (top 3) at the Sioux Valley ACS poster competition, with 5 out of the top 6 spots and 1 out of the top 5 spots at the Midwest Regional Meeting. We have great students at Augustana! We are also sending 7 of those students to the National ACS Meeting in March in New Orleans.

**Instruments**

Last year we purchased a Shimadzu differential scanning calorimeter and thermogravimetric analyzer (DSC-TGA). This instrument is used to detect things like solvent loss, conformational changes and even decomposition, and it is used a lot in the field of polymers. The Jeol NMR had a significant software update and a new computer was installed. We also purchased an Ocean Optics near-infrared (NIR) spectrometer (spectral range 1000-1650 nm).

**Curriculum**

Over the last few years, we underwent a "re-approval" process by the American Chemical Society (ACS) guidelines in order for our ACS Chemistry and Biochemistry majors to meet its standards. This was a long process, but we are now (pending official approval from ACS) in compliance with ACS rules with both of these majors. We are also currently reviewing the "Augie" Chemistry major curriculum. In collaboration with the Business Administration Department, we have also put forward a proposal for a Chemistry major with a Business emphasis earlier this year and we await approval from the Curriculum Council.

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**Duane Weisshaar**

My Sabbatical Leave in 2015-16 allowed me to finalize the AA analysis method for Barry’s quantum dots that Kim Stalling and Jake Dancler developed the previous summer. That work was published in the *Journal for Undergraduate Chemistry Research*. I also finalized the procedures for several labs we are using in Chem 116 and 117, the 2 semester gen chem sequence. Summer 2016 I chose not to take on any research students as we prepared for moving into the new building.

After the Leave I resumed teaching my usual set of courses that now include the 2 semester gen chem. Teaching in the new space is great, especially labs. We are in our fourth year of teaching the 2 semester sequence and this is the first time we have not made some significant tweaks to the content split. Since Chem 116 students can go to either Chem 117 or Chem 145 (Survey of Organic and Biochemistry), the first semester is a bit different from a traditional Gen Chem 1.

Last summer I made the decision to retire from full time teaching at the end of this academic year. The Department is working with the VP for Academic Affairs to create a part-time Instrument Technician position for me that would allow me to still play with the toys. The tricky requirement is that the standards used have to have a matrix similar to the samples. We were able to generate reasonably linear calibration curves, but QD compositions determined from these curves were significantly different from AA results (>100% error). We suspect this is due to a matrix mismatch between the QDs and the standards. I hope to continue this work this summer (one last summer of research) attempting to find a matrix match and complete the method development.

**Cyndey Johnson-Edler**

Hello Vikings!

As Dr. Eichler indicated I came to Augie in the Spring of 2016 from SDSU as a temporary sabbatical replacement for Dr. Weisshaar. Since then I have successfully defended my dissertation and been fortunate enough to return to Augie to teach Chem 116 and Chem 145 labs and serve as the campus Chemical Hygiene Officer. My duties allow me to regularly interact with the wonderful students here at Augie (which I love!) and offer my previous Environmental, Health and Safety experience to the Risk Management Task Force. I have sincerely enjoyed the past almost two years that I have been a part of the Augie Chemistry Department and am looking forward to the coming year.

Assistant who worked half time with Brandon doing some marvelous reorganizing of the stockroom, and half time with me developing an x-ray fluorescence (XRF) method to analyze Barry’s quantum dots (QDs). While the AA method works well, it destroys the QDs and takes several hours to complete. XRF can analyze the solid QDs non-destructively and in much less time. The tricky requirement is that the standards used have to have a matrix similar to the samples. We were able to generate reasonably linear calibration curves, but QD compositions determined from these curves were significantly different from AA results (>100% error). We suspect this is due to a matrix mismatch between the QDs and the standards. I hope to continue this work this summer (one last summer of research) attempting to find a matrix match and complete the method development.
significant progress on the project! Together, these three students were a joy to work with and I was proud of all of their accomplishments, including: (1) Claire and Katie’s 2nd place poster at the South Dakota Undergraduate Research Symposium (Pierre, SD), (2) Claire and Katie’s 3rd place poster at the Sioux Valley American Chemical Society Symposium Poster Competition (Sioux Falls, SD), and (3) Carl’s 2nd place poster at the Sioux Valley American Chemical Society Symposium Poster Competition (Sioux Falls, SD).

The past year has also involved significant alterations to Augustana’s curriculum for the ACS Biochemistry major. My former junior/senior-level course, CHEM 330: Biochemistry & Medicinal Chemistry, was split into a two-course sequence. In Fall 2017, students enrolled in our first section of CHEM 305: Biochemistry, which we plan to offer yearly and serves as our foundation course in biochemistry. Then, CHEM 330: Medicinal Chemistry will be offered in spring terms and will build on the content from Biochemistry. This restructuring and expansion has required a complete overhaul of course goals and content coverage to provide a more cohesive and well-paced experience for our students.

This coming Interim, I will again be offering a course for Civitas, Augustana’s Honors Program. This course was designed to address Bonhoeffer’s theme of “pertinence” and is titled, “Taking Our Medicine?: An Evaluation of Drugs and the Pharmaceutical Industry.” In this course, (prescription) drugs were the central focus and class topics provided the platform to understand and evaluate 1) the history of drugs, 2) drug development strategies and approaches, 3) considerations relating to the pharmaceutical industry (e.g. pricing, marketing, generics), 4) the nature of diagnosis and prescription, and 5) factors affecting drug use and abuse. This intentionally interdisciplinary course was reliant on examining the multiple perspectives and considerations relating to the science of drugs, their role as a product or commodity, and the way(s) in which they reach patients and affect their behavior.

On a personal note, life outside the confines of Augustana remains as busy as ever! My wife, Jennifer, and our three children, Elliot (8), Aurelia (6), and Rosalind (4) are always on the run; between Taekwondo practice, gymnastics practice, (pre)school pickup/dropoff, and everything else, the days go by all too fast. We’re all looking forward to the spring and being able to spend more time outside once the weather warms up!
Andrew Strandjord

I continue to teach Organics Chemistry (Chem201) and A Survey of Organic and Biochemistry (Chem145). We had over 90 students in Chem145 last spring and the numbers look to continue to grow as we increase the number of nursing and sports science cohorts at Augustana. The new chemistry labs worked out exceptionally well for both of these classes. The layout and organization made for a much improved learning experience for the students.

I will teach Chemistry in Our World (Chem130) again this Interim. This is a class for students who rarely (if ever) get over to the science building. We learn some general chemistry, organic, chemistry and biochemistry as it relates to everyday life in our world. Part of the learning experience for this class is to branch out beyond Augustana and see chemistry in action at several sites across Sioux Falls, including: Sanford Research, Poet Research, Fernson Brewery, and the Sioux Falls Crime Lab. This will be the last year I will be teaching this course because we are taking students to Germany during interim in 2019. We will spend 3½ weeks travelling across Germany visiting and leaning about the industrialization of chemistry (woohoo).

When I moved to Sioux Falls I purchased (online) a fixer-upper out at the edge of town. My wife and I are close to finishing up the “reclamation.” Note: do not buy a house online without seeing it first in person! I also became a grandfather this year. My oldest daughter welcomed a son into the world this past November.

SMACS

The Student Members of the American Chemical Society (SMACS) have been very active over the last year. They built an award winning float for the Viking’s Day parade, initiated several outreach programs to local schools and clubs, performed science demonstrations at a number of Augustana events, organized several social and fund-raising events for members, and put on an panel discussion were former Augustana student came back to campus to describe opportunities in life and chemistry after graduating. This year’s members includes a record number of first year students who are very active in the organization and are looking to increase the scope and participation within the SMACS group.
Andrew Klose

I am the resident physical chemist, and as the newest (tenure-track) member of the department many of you may not know me - so I’ll introduce myself! I am originally from Jamestown, ND, and earned my PhD from Michigan State University. After a stop as a postdoc at NIST in Boulder, CO, I came to Augie in the fall of 2015. In the classroom have enjoyed teaching physical chemistry, nuclear chemistry, and general chemistry. Andy Strandjord and I are planning to each a study abroad course next interim: The History of the Chemical Industry in Germany. Andy is leading the charge, and I am happy to help get this exciting new course off the ground!

My research centers around precision laser spectroscopic measurements both on and off campus. Here at Augie, we perform cavity-enhanced spectroscopy for analysis of trace gases. Our group also collaborates with researchers at the National Superconducting Cyclotron Laboratory at Michigan State University were we are interested in laser probing of radioactive isotopes. I have enjoyed working with Augie students and getting the research activities up and going.

My wife, Kristen, and I have three girls, Brittany (5), Erika (3), and Natalie (2 months). As you can imagine we’re very busy with the kiddos! We enjoy spending time outside, and with our extended family in the Sioux Falls area.

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What’s ν (nu) With You? Fill us in on what’s happening in your life. If you find that any of the information mentioned in this newsletter is inaccurate, please let us know.

Name: ____________________________________________
FIRST       MAIDEN       MARRIED

Year Graduated: _______ Phone: ________________________

Address: __________________________________________

Email: ____________________________________________

Occupation/Place of Employment: ______________________

Graduate/Professional School Preparation in Progress or Completed: __________________________

Personal News/Professional News you want us to know: __________________________

If you know of potential students for Augustana University, please provide us with their name, address and phone number so that we may contact them.

Name: ____________________________________________

Address: __________________________________________

Phone: ____________________________________________

Name: ____________________________________________

Address: __________________________________________

Phone: ____________________________________________

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Or email information to: marlys.vanthul@augie.edu