

AUGUSTANA

DEPARTMENT OF CHEMISTRY

NEWSLETTER



AUGUSTANA
COLLEGE
SIOUX FALLS, SD
57197
www.augie.edu



THE DEPARTMENT CHAIR

Barrett (Barry) Eichler
The past year has been the usual blur of activity that comes with being an Augie chemistry professor. I became department chair on August 1st and by the middle of September, we learned about the \$20 million donation from Sanford. I will be busy for the next few years! I will be involved with other chairs in planning our new facility as well as the remodel of the Gilbert Science Center. I have been teaching Advanced Inorganic Chemistry (Chem 341) this semester and my class is performing a research project on binding transition metals to the surface of TiO₂ nanorods in conjunction with Dr. James Hoefelmeyer at the University of South Dakota. My students will go to USD to observe transmission electron microscopy (TEM) on their samples. I am also teaching the Trustee's Fellowship in Chemistry (Chem 102) with some of our freshmen. We have read parts of "Letters to a Young Chemist" and I am very hopeful that we have some great students to work with in the near future. I will be teaching Inorganic Chemistry (Chem 222) over interim and General Chemistry (Chem 120) during spring. I hope to incorporate the data collection units made by PASCO into many of the labs. I gave a presentation of my work over the past four years relating to Chem 120 honors section and the research project performed at the end of the semester at the Midwest Regional American Chemical Society (ACS) meeting in Omaha in October. My research keeps rolling along. I continued

my collaboration with Dr. Daniel Engebretson (Augie, '91), who is the chair of Biomedical Engineering at USD in the GEAR Center in Sioux Falls. My students, **Dane Schroeder** and **Jade Hovet**, worked with quantum dots, DNA and Forster Resonance Energy Transfer on their way to designing prostate cancer detection systems. Their work won them first place at the Sioux Valley American Chemical Society undergraduate poster competition. My student, **Evan Gardner**, developed an improved route to our interesting ligand and has tried to complex them to transition metal ions. Two other students, **Garret Heiberger** and **Eric Habbe**, worked on a project that had them improving dye-sensitized solar cells (DSSCs). Eric won one of nine best undergraduate posters award at the Midwest Regional ACS meeting. I submitted a grant to the National Science Foundation in collaboration with Dr. Hongshan He at South Dakota State University. My wife, Kathy, started work as Division Coordinator in the Humanities Division at Augie last December. She is really enjoying her time at Augie! My daughter, Maddie, is finishing her last year at Augustana's Campus Learning Center (CLC) and will be going to kindergarten next year. We took a vacation to the Black Hills last August during Sturgis Week (not smart) and visited classic tourist traps like Wall Drug, Bear Country USA, Sitting Bull Cavern and Reptile Gardens. We may go to New Orleans next April, which happens to coincide with the National ACS meeting!

RESEARCH

Research remains strong in the Department. Even before the summer, we had 6 students present at the National ACS Meeting in San Diego. We trained 20 students this summer and it was a lot of fun. The students' productive summer resulted in the top 5 spots at the Sioux Valley ACS undergraduate poster competition. The success continued at the Midwest Regional ACS Meeting in Omaha, NE, where 20 students presented posters and Amanda Johnson (Mays) and Eric Habbe (Eichler) took 2 of the top 9 undergraduate research prizes for best poster. We hope the success continues at the Spring ACS National in 2013 in New Orleans.

INSTRUMENTS

Summer 2012 brought us two new instruments: a fluorimeter and a new GCMS. The Horiba Fluoromax-4 fluorimeter was purchased through EPSCoR funds primarily for Barry's research, but we are finding other uses as well. It's great to have that capability in the department. Our old GCMS (purchased in 1994), although still working fine, is beginning to show it's age and is living on borrowed time. The Administration provided us an "advance" from the Wright Endowment to purchase a new system before the old one dies and pay back over a 3-4 year period from endowment income. This summer we took delivery on a new Shimadzu GCMS with the capability of directly injecting into the mass spec. Both GCMS's were in use in the summer and this fall we used both of them for the Chem 120 experiment determining the atomic mass of three elements.

NEW SCIENCE BUILDING

New science building hopes have been bandied about for several years now, but recently plans have moved to the front burner with a donation from Sanford Health. That donation is a \$20 million challenge grant and a parcel of land adjacent to the hospital campus (exact location to be determined). At this point we envision a \$30 million building on the hospital site and a \$10 million renovation of the current GSC building. The total project is a little smaller than we had been contemplating and the split location presents some challenges that we still need to work through. The Natural Science Division Chairs are serving as the building committee.

The new building will be named in honor of Dr. Sven G. Froiland, professor of biology, who served as chair of the biology department and chair of the Natural Sciences Division. Froiland served Augustana from 1946 to 1987 and was the central figure in the design and construction of the Gilbert Science Center, built in 1966. For more details on the building, visit <http://www.augie.edu/news/2012-09/augustana-unveils-plans-new-40-million-science-project>.

If you are interested in joining forces with Augustana to make the new facility a reality, visit How to Make Your Gift on the Advancement Office's web page (<http://www.augie.edu/giving/how-to-make-your-gift>).



NEW FACES

We welcomed two new faces for the 2012-2013 academic year. Dr. Steve Schultz, who has come to us from the University of Colorado and Minnesota West Community and Technical College, has done very well in his first few months of a one-year appointment, which we hope continues in the near future. Please read his section in this newsletter.

Dr. Jason Stenzel was hired recently at the Sioux Falls Crime Lab, but he has a great desire to keep teaching as he left Gonzaga University to move to Sioux Falls. Jason has been filling in for a few labs for us and we hope to have him teach more courses during the 2013-14 academic year, possibly a forensics course.

FROM THE FACULTY

Duane Weisshaar
It's been a couple of years since we published a newsletter, so I'll start with a couple year's update on research with students. Gary Earl retired in May 2010, but he taught part time with the department in 2011 and continued our research collaboration in the summer of 2011. That summer we worked with seven students (see group photo) on several projects. That summer marked the end of funding from the NSF Northern Plains Undergraduate Research Center (4 students) and the first summer of funding under the NSF SD EPSCoR grant (2 students). One departmental assistant (half time research assignment) was also included in the group that year.

Two of the projects centered around the work with methyl carbonate quats, studying the effect of pKa on the reaction of the methyl carbonate with an acid to exchange the anion on the quat. **Erika** and **Sarah** continued development of an anion HPLC method to follow the reaction while **Nic** and **Kai** explored the exchange reaction starting with pKa = 10 acids. The weak acids reacted too slowly to be of any practical value. Injection of these analysis mixtures into the HPLC tended to significantly degrade column performance and subsequent clean up was time consuming. It was determined that the problem was degradation products from stored methyl carbonate quat. Using freshly prepared methyl carbonate quat for the anion exchange reaction solved the problem.

Emily's project was a collaboration with Barry Eichler. To finalize a publication Barry needed an electrochemical analysis of several of his substituted siloles to estimate the energy gaps between the HOMO and LUMO from the difference of the oxidation and reduction potentials. The solubility of the siloles required using acetonitrile for the solvent. Most of the summer was spent getting solvent and electrolyte (tributylmethyl ammonium tetrafluoroborate) clean and dry. In the end Emily was successful in collecting the data Barry needed. He is now trying to find the time to write the paper.

Austin and **Mat** began development

of a syntheses for several deuterated analogs of N,N-butylmethylpyrrolidinium bis(trifluoromethanesulfonyl)imide (BMP Tf2N) for Dr. Stanley May at USD. Dr. May was using this non-coordinating ionic liquid as a solvent for fluorescent lifetime studies of lanthanide ions and wanted deuterated analogs of the solvent to characterize the extent of quenching caused by this solvent.

Summer 2011 Gary and I finally published our paper on the stability of methyl carbonate quats. That work started in the summer of 2004 and



Niki Altona (So), Riley McManus (Fr), Rachel Anderson (So), Duane Weisshaar, (seated).

engaged 7 students in the process. It was a great relief to finally get that done. For those who are interested, the citation is Weisshaar, D. E.; Earl, G. W.; Amolins*, M. W.; Mickalowski*, K. L.; Norberg*, J. G.; Rekken*, B. D.; Burgess*, A. M.; Kaemingk*, B. D.; Behrens*, K. C. Investigation of the Stability of Quaternary Ammonium Methyl Carbonates. *J. Surfact. Deterg.* 2012, 15(2), 199-20. (DOI: 10.1007/s11743-011-1292-1).

At the end of summer 2011 Gary decided it was time to be fully retired. The end of NPURC also meant there would be less support for our group and thus fewer students in the coming years. So, in summer 2012 there were just three students in the group (see group photo), two supported by EPSCoR and one as a departmental assistant.

This group completed the synthesis of the perdeuterated analog of BMP Tf2N

building on Mat and Austin's work. The synthesis required four steps: synthesis of BMP Br starting with methyl pyrrolidine and perdeuterated bromobutane, recrystallization of the BMP Br to remove colored impurities, anion exchange with Li Tf2N, and extraction of the excess bromide. The anion exchange proved to be a neat and simple procedure. Aqueous solutions of the BMP Br and Li Tf2N were simply stirred together for three hours. The hydrophobic BMP Tf2N separated out as a separate phase. Excess bromide was then removed by a series of aqueous extractions. Dr. May's initial study with the non-deuterated ionic liquid we synthesized produced the same results as with the commercial product, so we know our synthesis method was not introducing any new twists to his studies. We are still waiting to hear how the deuterated study went. Dr. May thought this analog had enough deuterium substitution to provide the information he needed, so at present there are no plans to work on other analogs.

In summer 2012 I also collaborated with Jetty Duffy-Matzner and one of her students, **Joe Keppen** (Sr) on an electrochemical study of thiophene derivatives. Jetty is collaborating with Wayne Jones (Binghamton University, NY)

studying polythiophenes as fluorescent sensors for metal ions. Joe spent most of the summer synthesizing the compounds he wanted to study, so the electrochemical collaboration is likely to continue but it is still too early to see exactly what that will entail.

Students from both summers presented their work as posters at the Midwest Regional ACS meetings the following fall.

Interim 2013 is my interim for a leave (no teaching assignment) and I plan to spend a good part of that determining what direction(s) I would like my research to take, assessing past results for possible publication, and perhaps working on a proposal.

The rest of the time has been pretty much business as usual. Intro to Chem

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FROM THE FACULTY

(Chem 120), Inorganic Chem (Chem 222 which used to be Inorganic Qual Chem 135), Analysis (Chem 242), and Advanced Analytical Chemistry (Chem 311) have become standard assignments. This year we were allowed to hire a 6th person in Chemistry to help with teaching organic. This is a one year appointment that we hope the new Dean will allow to continue. This position would enable the department to expand the courses we offer to possibly include a non-science majors course in chemistry (Chem 110), a Civitas course (Augie Honors Program), or a Capstone course. The department is developing two tracks for general chemistry, the standard Chem 120 and a two semester general chemistry track primarily for non-chemistry majors. So my teaching assignments may be changing in the future.

Augie faculty are also in the midst of a study of the Gen Ed Core and contemplating some changes there which would present possibilities for new courses as well. I'm on the Curriculum Council and we have been expending considerable effort working out details of a proposal we hope to bring to the faculty this spring.

Through the school year it is a scramble just to keep up with the daily grind. In the summer I still try to play softball with the church team (St. John and St. Mark's Saints). In summer 2011 we took first place in our division, but this last summer we lost our winning ways and finished next to last. However, the team has the right attitude, we enjoy the game no matter what the score.

Bijoy Dey

The work begins anew. The hope rises again. Such is the demeanor in my everyday life both at home and work. Teaching itself has remained an ongoing research project for me during the past years. This fall, I have started developing a physical chemistry quiz-bank for different topics including thermodynamics, kinetics, statistical thermodynamics, quantum chemistry, and spectroscopy. The goal is to publish a series of quiz-book for physical chemistry covering different topics. I am already in contact with a

publisher. This has been particularly useful to the physical chemistry students this fall, but I will be continuously tweaking a few things and adding more questions so as to cover each and every concept in physical chemistry. This type of project is a typical sabbatical-year project for many, but I am excited that I am still able to do it.

This fall I taught Chem 120 honors section. I cannot believe that I had covered 20 chapters in just one semester including nuclear chemistry, colligative properties, solid state,



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electrochemistry, molecular orbital theory. In addition, I have instituted research component to Chem 120H which includes viscosity, conductivity, molecular modeling with Spartan, and acid-base chemistry. I am hoping that this list will grow and I am excited about this.

In addition to teaching various courses during 2009-2012, I maintain an active research program in the broader field of theoretical and computation chemistry. The focus is twofold: (i) develop new theoretical methods and implement them in efficient computer programs, and (ii) apply these and other methods to solve interesting chemical problems. Although the problems are rooted in chemistry, it represents the vibrant interfaces between chemistry, physics, material science and biology, and encompasses application of mathematics and computational techniques.

In 2011, I have published a book chapter "The fast marching method for determining chemical reaction mechanisms in complex systems" which appeared in a book Quantum Biochemistry: Electronic Structure and Biological Activity published by Wiley International. I have also

published a paper in Journal of Mathematical Chemistry "Optimal non-linear dimension reduction scheme for classical molecular dynamics" last year. Two more papers "Exploring bifurcation reactions with classical action wave-front" and "Computing reaction force: What can we learn from reaction force?" are nearly completed. I am hoping to submit these two papers in January, 2013 when I am not teaching any interim course. A number of students in chemistry, **Nathan Truex, Taylor Kapsch, Robert Fick, Collin Noldner, Kyle Knapp** are co-authoring these papers. All these students have presented their research at numerous venues, including ACS meeting, ACS Midwest meeting, ACS Sioux Valley local section and Augustana Annual Symposium. I have recently given two talks and presided over a physical chemistry session at the Midwest ACS meeting in Omaha. I have also given a talk at the ACS national meeting in San Diego. My research program has been supported by funding from NSF-NPURC and SD-EPSCOR.

Two physics students **Marcus Edington** and **Jordan Kuiper** have done research with me in the summer of 2011 and 2012. We have developed computer software that can solve quantum dynamics of multi-particle systems and offer means to control such dynamics guided by the laser field. This is an emerging field of research in both chemistry and physics, and I am excited with the progress.

I have also maintained research collaboration with people from Creighton University and University of California Berkeley. As part of this, we are currently exploring two new research areas "Theoretical and experimental investigation of drug-polymer interaction and drug diffusion through polymeric membrane" and "Diffusion of molecules through structural labyrinth of polymeric matrix: A fast marching method".

On personal side, my daughter Torsha is now a fourth grader and my son just turned four. They are ever ready to keep us occupied at home. My daughter joined the Dance Gallery where she learns ballet and hip-hop. She also plays violin. Time is hard to keep track of but we try to keep it worth our while.

FROM THE FACULTY

Jetty L. Duffy-Matzner
The Jetty Duffy-Matzner research group involves three major areas of interest these days. For the first are of interest we are still involved in the production of novel biologically active molecules. There are several different research projects but in general this work involves the production of heterocycles that have either anti-microbial and/ or anti-fungal properties and can be produced from 1,3 -dipolar cycloadditions with nitrile oxides or nitrosilones as intermediates via intramolecular cycloadditions. The anti-fungal project that **Jenna Kuhle** (summer 2012, funded from BRIN) participated on was directly based on the work of Anne PfiEFFle (summer 2010). This work is trying to develop a synthesis for a novel class of compounds, lacto-isoxazoles, that have been previously attempted tried by a variety of groups without success since the early 1900s.

A second project examines the synthesis of polymers to include the production of heterocycles as comonomers for the development the next generation of fluorescent polymeric organic/inorganic hybrid chemosensor materials based on a molecular wire approach. These new materials will be developed to be highly specific and selective for metal contaminants in aqueous solutions such as ground water or biological systems. This work combines recent advances in polymer synthesis and coordination chemistry, a new approach to develop selective metallopolymer chemosensors that uses photoinduced electron transfer and energy transfer to create a "turn-on" and "turn-off" fluorescent sensor response. We will be specifically working on turn-off chemosensors that are sensitive for iron and mercury ions. In time we would plan to further this research from in-solution to solid-state detectors of these toxic and environmentally important metal ions. This summer **Manar Alherech** (from Binghamton University, NY - funded by SPUR) and **Joe Keppen** (funded by EPSCOR) worked on different aspects of this research.

A third project investigates the design, synthesis, and characterization of a novel dioxypyrrrolopyrrole-

difurano-thiophenyl-diethynyl polymers for use in organic photovoltaics. The novelty of these polymer systems is derived from the incorporation of an ethynylene spacer that will hopefully reduce steric hindrance within the polymer itself, as well as, create a better interface between donor and acceptor layers. Alteration between furan and thiophene based monomers has been previously reported to greatly increase solubility, allowing for shorter alkyl chains to be inserted, thus decreasing steric hindrance. Our final polymer was shown to be extremely soluble in most organic solvents and believe it or not – a beautiful cobalt blue solution when dissolved in chloroform. **Alan Julius** and **Peter Ruppelt** worked on the production of this polymer and were both funded through the NSF EPSCOR grant.



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All five of my summer research students participated in the Midwest Regional ACS meeting by presenting their work. This year the meeting was in Omaha and they got a chance to meet the ACS President of the Board, Dr. Bill Carroll.

On a personal note I got a chance to visit Augustana College as a prospective student/parent for our oldest son is who currently a senior at Lincoln High School. It is a very exciting time in the Duffy-Matzner/Matzner household and I am not sure how I am going to handle having one of our three boys leave the nest next year –argh!!! My husband and I are also continuing our interest in ballroom dancing and maybe one day we might actually get beyond the counting stage as we dance.... As always I would be more than happy to welcome back any alumni, please keep in touch – we love to hear from you!

Jared Mays
Greetings! It's hard to believe that it's been over three years since I joined the Augustana faculty in September 2009. While I remain the youngest member of the Department of Chemistry (and am still occasionally referred to as, "rookie"), I feel a stronger connection to my colleagues and the greater Augustana community with each passing day.

During my first year on campus, the Augustana faculty approved a new, interdisciplinary American Chemical Society approved Biochemistry major. Since that time, Dr. Mark Larson (Department of Biology) and myself have served as co-administrators for the major and have overseen its initial implementation and student cohorts. The ACS Biochemistry major continues to be quite popular and accommodates 28 current Augustana students. Since its inception, 7 students have graduated with a major in Biochemistry and all of us look forward to seeing the first full class of biochemists graduate in Spring 2014.

Over the past several years, I have taught courses in General Chemistry, Organic I, Organic II, and Biochemistry/Medicinal Chemistry. Given recent changes in curriculum guidelines from the Center for Professional Training at the American Chemical Society, Dr. Jetty Duffy-Matzner and I have worked hard to convert our second semester organic chemistry course into an introductory biochemistry course. A large portion of this was accomplished by 1) fully integrating the discussion and application of biochemical topics to our coverage of organic functional groups, 2) a more comprehensive overview of biological macromolecules and metabolic processes, and 3) an increased number of biochemically-relevant laboratory experiments. Our efforts toward this conversion were recently described in a jointly-authored book chapter titled, "Revamping a second semester organic chemistry course to meet the new ACS biochemistry requirements." This

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chapter is included in *Advances in Teaching Organic Chemistry*, published by the American Chemical Society, sponsored by the Division of Chemical Education.

Since our last newsletter, my medicinal chemistry research program on campus has continued to grow and develop. My research group is interested in glucosinolates and isothiocyanates, two classes of compounds that are naturally found in cruciferous vegetables, especially broccoli. These compounds are some of the primary agents responsible for the cancer-preventing and cancer growth-inhibiting activities associated with diets rich in such foods. Each summer, our department engages in a 10-week research experience with undergraduate students (most of which are current Augustana students). During Summer 2011, I worked with three Augustana students and one student from St. Olaf college to investigate novel glucosinolates and isothiocyanates and their potential uses as anti-cancer agents. This past summer, I again worked with three Augustana students and one student from Mount Marty College (Yankton, SD) to continue and expand on the isothiocyanate-related projects. Given their investment in these research projects, I want to share a brief overview of the contributions made by each student.

Kayla Vastenhout (class of 2012, Dell Rapids, SD) spent Summer 2011 continuing her project from the previous summer on the synthesis and evaluation of non-natural, synthetic glucosinolates. Most of Kayla's time was spent working out the kinks the high performance liquid chromatography (HPLC) kinetics assay she had developed. By the end of the summer, Kayla had completed the analysis of her two synthetic compounds. In Fall 2011, Kayla was awarded the best poster in the biochemistry category at the Midwest/Great Lakes Joint Regional Meeting of the American Chemical Society Meeting in St. Louis, MO. In May 2012, Kayla graduated from Augustana

and is currently enrolled in the forensic chemistry program at Nebraska Wesleyan University. Combined with the results of studies performed this past summer, I am currently writing a manuscript on Kayla's work, which I hope to publish in *Phytochemistry* in early 2013.

Elle Tornberg (class of 2014, Harrisburg, SD) has worked the past two summers continuing Cody Lensing's project on the synthesis and multifaceted evaluation of library of non-natural isothiocyanates. Over the past two summers, Elle has personally prepared over 24 novel compounds and has been busy evaluating their capacity to inhibit the growth of breast cancer cells after variable incubation periods. Combined with the data generated by our collaborator, Dr. Peter Vitiello (Sanford Research, Sioux Falls, SD), that



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measures a compound's capacity to prevent the onset of cancer, we have generated a tremendous amount of data. Together, this combined data has allowed us to develop a comprehensive model to understand the structural features responsible for these two divergent anti-cancer activities. This past fall, Elle received 2nd place at the Sioux Valley Section of the American Chemical Society, an honor which provides a free trip for her to the National Meeting of the American Chemical Society in New Orleans this coming spring. We are currently putting the finishing touches on Elle's project and anticipate submitting a manuscript for publication in the next year.

During Summer 2011, **Joseph Keppen** (class of 2013, Sioux Falls, SD) worked on the synthesis of nitrogen-

containing heterocyclic glucosinolates. Preparation of these compounds has proved to be particularly difficult and Joe's project was to evaluate several parallel synthetic routes. Unfortunately, none of the routes investigated by Joe were ultimately successful in generating the desired intermediates and my research group continues to evaluate alternative synthetic methods towards these targets.

Zachary Erickson (class of 2012, Anoka, MN), a student at St. Olaf College (Northfield, MN), was placed in my lab through the Sanford Program for Undergraduate Research (SPUR) and worked with me at Augustana College during Summer 2011. Zach's project concerned the synthesis of our group's first hybrid isothiocyanates, drawing upon initial biological results and trends. Although the final steps toward Zach's target compounds remained elusive, a large portion of his developed synthetic methodology has been heavily utilized by other projects in my group. In May 2012, Zach graduated from St. Olaf College with honors in chemistry and is currently pursuing graduate studies at the California Institute of Technology.

Amanda Johnson (class of 2014, Sioux Falls, SD) worked on the construction of 19 non-natural isothiocyanates this past summer and was especially productive! As Amanda's compounds were finished, she was able to complete a first-round of evaluation against breast cancer cells. Although the biological evaluation of Amanda's compounds is ongoing, several of her analogues have demonstrated pronounced activity and will likely be the subject of several future studies. In October, Amanda's poster was awarded one of nine "outstanding" designations at the Midwest Regional Meeting of the American Chemical Society in Omaha, NE and she looks forward to presenting her research at the National ACS Meeting in March 2013.

This past summer, **Taylor Yseth** (class of 2015, Sioux Falls, SD) completed a variety of research projects towards the synthesis and evaluation of non-natural isothiocyanates. Taylor

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quickly completed a panel of 6 isothiocyanates and started work on the preparation of several synthetic analogues of the natural product isothiocyanate, L-sulforaphane. Together with the data generated by Amanda and Michaela (see below), Taylor's work will constitute a third publication for my research group; although the project was only started this past summer, substantial progress was made and it is possible that the project may be completed this coming summer.

Lastly, **Michaela Bunde** (class of 2014, Sioux Falls, SD), a student at Mount Marty College (Yankton, SD) was awarded a research fellowship through the South Dakota Biomedical Research Infrastructure Network (SD BRIN) and worked with myself and my students at Augustana College this past summer. Michaela's project entailed the preparation and evaluation of a panel of synthetic isothiocyanates, which was successfully completed by the end of the summer.

Overall, I have been thrilled with the success and results generated by my research program! Since arriving at Augustana in 2009, individuals in my research group have made 74 presentations/seminars, 18 of which at the regional or national level. As I round out my fourth year, we are looking to publish two peer-reviewed manuscripts, with a third in the not-so-distant future. Partially in response to some of the novel compounds developed by my group, Augustana has drafted their first-ever, intellectual property policy aimed at protecting the work and results generated by faculty and students on campus.

Outside of Augustana, life with my wife, Jennifer, has been equally as busy. Our son, Elliot, is now 3 and has started preschool two days a week. In between, he has taken an interest in following the two of us around the house and "helping" with all of our various projects. Elliot continues to like spending time outdoors (curse you cold South Dakota winters!), listening to variety of music (Michael Jackson is always a hit), and practicing the alphabet. In May 2011, our daughter,

Aurelia, was born and the sleepless nights began anew. Now that Aurelia is 19 months old, she is starting to talk and "express" her opinions...both to us and to her big brother Elliot. Although Elliot is 2 years older, Aurelia has proven to be an equal match as they compete for attention, the best couch spaces, and who gets to pet our cat Mocha.

Steve Schultz joined the organic chemistry faculty this year here at Augustana College. Originally from southwestern Minnesota (Jackson), Steve went on for a Bachelor's degree in chemistry from Carleton College, a Ph.D. in chemistry from the California Institute of Technology (Caltech), postdoctoral research in biophysical chemistry at Yale University with Dr. Thomas Steitz (2009 Nobel Laureate in Chemistry), and then worked as an Assistant and Associate Professor in Chemistry and Biochemistry at the University of Colorado, Boulder.

His research at Boulder explored the structures and functions of proteins and nucleic acids in important systems such as telomeres, viruses, and RNA binding proteins. Beneath the science, however, were deep interests in the relationships between science and society and how various communities access, interact with, and influence ongoing and emerging science. After exploring these interests through diversity and discussion groups at Boulder, Steve immersed himself in a variety of unique educational settings such as Dine' College (the Navajo Tribal college) in northeastern Arizona, MNWest Community and Technical College in Worthington, MN, and formal studies in public policy at the University of Minnesota's Humphrey School of Public Affairs where he received a Master's in Public Affairs (MPA) degree in 2011. Steve hopes to continue his work toward bridging the many divides between science, education, local communities, and larger society within the rich academic environment here at Augustana College and the diverse local communities in and around Sioux Falls, S.D.

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DEPARTMENT OF CHEMISTRY

2012 CHEMISTRY ALUMNI FILE UPDATE

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 College, please provide us with their name, address and phone number so that we may contact them.

Name: _____

Address: _____

Phone: _____

Name: _____

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