Merry Christmas from everyone in the Chemistry Department!

I hope this letter meets you with the joy of the season and I wish all of you a prosperous new year! This year has been a good and productive year for us. Many of you may know 2011 is the *International Year of Chemistry* where all the triumphs of chemistry are to be celebrated. We join in that celebration and take pride in our vocation to prepare our students to serve society through their training chemistry–wherever that may take them.

One of the most bittersweet aspects of our jobs is to see our senior chemistry majors leave us to go on to bigger and better things. We miss them but know, as they join the ranks of our alumni, they're always near to us. You alumni are a continuous source of pride and inspiration for us. We are happy to share our year with you and look forward to hearing from you.

In addition to the graduation of the last group of seniors, we are happy to be involved in many other aspects of the college. Our faculty are deeply involved in many initiatives within the science division. We hope to provide leadership in keeping Concordia in-line with the continuously evolving nature of science. This means participating in interdisciplinary activities like discussion of the new/renovated science complex, perusing external funding for our science initiatives, engaging students in our research, and developing new and innovative pedagogy.

We were able to take advantage of new ACS guidelines that give chemistry departments more freedom to design specialized programs. Last year I reported to you about our new track in neurochemistry. This has taken off with our first graduate to come in May and other underclassmen on the track. We have just recently been approved to offer a more general ACS biochemistry track.

The Science Academy, continues to grow. We have included the Dilworth-Glyndon-Felton district in our rotation. We have developed the Science Academy programming to include several trips to the Fargo Library which are very well attended. To date, thousands of elementary school children have experienced a Science Academy event.

Regarding our faculty, I am pleased to report on promotions within the department. In May, Mark Jensen was promoted to full professor, Julie Mach was promoted to associate professor. Earlier that academic year Pam Mork was promoted to associate professor. This fall, Graeme Wyllie was moved from a staff position to a faculty position as an assistant professor. These promotions reflect the dedicated and caring service our faculty bring to our students.

So, I hope as you read this newsletter you have a chance to reconnect with your professors, update yourself with some of the recent activities of the department, and to reflect fondly on your time at Concordia. May the warmth of the season be in your heart.

Darin Ulness -Chemistry Chair

Faculty Senate just approved a new track for the ACS major this fall: The ACS Biochem major. The addition means we now have three "flavors" of the ACS major that we offer.

The **ACS-Traditional** major includes Gen Chem I and II, Organic Chem I and II, Analytical Chem I and II, P-Chem I and II, Biochem I, Advanced Inorganic and Senior Seminar. In addition, one other course is chosen from Chemistry offerings for a total of 11.5 courses in chemistry. Supporting required courses include a year of Calc, and a year of Physics.

The **ACS-Neurochem** major includes Gen Chem I and II, Organic I and II, Analytical I, P-Chem I, and Advanced Inorganic, Biochem I and II, Neurochemistry, and Intro to Research (with a Neurochemistry topic) and Senior Seminar. One additional course is chosen from the Chemistry offerings for a total of 12.5 courses in chemistry and two supporting courses of Intro to Neuroscience and Physical Neuroscience from Neuroscience plus Calc I & II and Physics I & II.

The **ACS-Biochem** major includes Gen Chem I and II, Organic I and II, Analytical I, P-Chem I, and Advanced Inorganic, Biochem I and II, Neurochemistry, and Intro to Research (with a Biochemistry topic) and Senior Seminar. One additional course is chosen from the Chemistry offereings for a total of 12.5 courses in chemistry, two supporting courses in Biology - Bio 121 Vertebrate Biology and one other Biology elective plus Calc I & II and Physics I & II.

We have not done away with the Concordia College 8-course major, but with these three different "flavored" offerings for the ACS major, we are hoping to draw students on to deeper exploration in chemistry in a field that intrigues them. Ultimately, we would like to double the number of ACS majors graduating from Concordia College.

Summer Chemistry

The research labs of 3rd floor Ivers were once again buzzing with activity this past summer as seven Concordia students worked under the direction of three chemistry faculty on a variety of research projects.

Nathan Rodeberg '12, Mac Ree '12, and Keveen Flieth '14 worked with Dr. Chopper Krogstad on the development of water-soluble multinuclear metal complexes for use in catalysis. Specifically, the students worked to prepare a new phosphorus-phosphorus ligand that contained a pyridyl backbone. Complexes of gold, palladium, and platiunum were developed with this ligand and employed as catalysts for the intramolecular hydroamination reaction (a C-N bond formation reaction).

Dr. Graeme Wyllie worked with two freshmen, Molly Haugen `14 and Alex Jorgenson `14, on their continued research into the degradation of sulfa drugs by the environmentally friendly oxidizing agent, ferrate(VI). Building on the work from the previous summer, the students spent their time refining methods for ferrate synthesis, carrying out reactions, and analyzing post-reaction mixtures. Their work resulted in better quantification of the degradation of the different sulfa drugs based on the variations in structure, and they are now interested in determining the identities of all of the major by-products of the reactions with the hope of elucidating the mechanism of this degradation.

In a project carried out in collaboration with Kris Knutson '03 from Moorhead's Water Treatment Plant, Chelsea O'Hara '13 and Lauren Tjaden '13 worked with Dr. Mark Jensen in using gas chromatography-mass spectrometry (GC-MS) coupled with solid-phase microextraction (SPME) to detect and identify odorous organic compounds in drinking water. Their work focused on the production of these compounds through the degradation of agricultural products, the detection of these compounds with SPME-GC-MS, and the determination of detection limits using prepared standards. Future work will focus on various methods for eliminating these compounds from drinking water.

Results of all three projects were presented at the 2011 Homecoming Research Poster Display and the 2011 Undergraduate Research in the Molecular Sciences conference. Funding for these research activities was provided by the Concordia College Chemistry Research Endowment; Concordia's Office of Undergraduate Research, Scholarship & National Fellowships; Moorhead Public Service; the American Chemical Society Petroleum Research Fund; and the National Science Foundation

Update on Chemistry Research Endowment:

Some of you may remember that this fund was created only a few years ago, at Dr. Ann Taylor's instigation, to endow undergraduate research opportunities here in the chemistry department. Thanks to the faithful support by chemistry department alumni, the fund has grown consistently to its current $140,000. The proceeds off of this fund have given a number of students opportunities for research. We targeted this fund at $500,000 to $1,000,000 but even at this stage students are getting significant benefit from the endowment.

Below is a listing of Concordia College faculty papers with students as co-authors that have the Chemistry Research Endowment as part of the support for that work. You who have faithfully given should be able to see what the proceeds generated by the endowment have meant in the undergraduate experience of these students. They couldn't have done it without you!

Gifts large or small may be designated specifically to the Chemistry Research Endowment fund.

For more information, contact Darin Ulness: ulnessd@cord.edu .

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$ **Publications supported by** $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

The Chemistry Research Endowment

(Undergraduate students underlined)

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2010

Hakk, Heldur; Huwe, Janice K.; Murphy, Kris; Rutherford, Drew. "Metabolism of 2,2',4,4'- Tetrabromodiphenyl Ether (BDE-47) in Chickens", Journal of Agricultural and Food Chemistry (2010), **58**(15), 8757-8762.

M.B. Jensen and D.E. Tallman, "Application of SECM to Corrosion Studies," in *Electroanalytical Chemistry, A Series of Advances*, A.J. Bard and C.G. Zoski, Eds., CRC Press; Vol. 24, (in press).

2009

Fan, H.; Eliason, J.K.; Moliva A. C.D.; Olson, J.L.; Flancher, S.M.; Gealy, M.W.; Ulness, D.J. "Halogen Bonding in Iodo-perfluoroalkane/Pyridine Mixtures," *J. Chem. Phys. A.*, (2009) **113**,14052.

Krogstad, D.A. Gohmann, K.E.; Sunderland, T.L.; Geis, A. L.; Bergamini, P.; Marvelli, L.; Young, V.G. "Preparation, spectroscopy, X-ray analysis, and water-solubility studies of the first bis-PTA (PTA = 1,3,5-triaza-7-phosphaadamantane) derivatives" *Inorganica Chimica Acta*(2009),**362**(9),3049.

Fan, H.; Moliva, A. C.D.; Eliason, J.K.; Olson, J.L.; Green, D.D.; Gealy, M.W.; D.J. Ulness; "Effects of hydrogen bonding on the ring breathing mode of pyridine in pyridine/chloroform and pyridine/bromoform systems,"*Chem. Phys. Lett.*, **2009**, *479*, 43.

2008

Jensen, M.B.; Guerard, A.F.; Tallman, D.E.; and Bierwagon, G.P. "Studies of Electron Transfer at Aluminum Alloy Surfaces by Scanning Electrochemical Microscopy" *Journal of the Electrochemical Society*, **2008**, *155*, C324-C332

Berg, E.R.; Green, D.D.; Moliva D.C.; Bierke, B.T.; Gealy, M.W. and Ulness, D.J. "Ion-Pair Interaction in Pyridinium Carboxylate Solutions" *J. Phys. Chem A*, **2008**, *112*, 833–838.

2007

Krogstad, D. A.; Ellis, G. S.; Gunderson, A. K.; Hammrich, A. J.; Rudolf, J. W.; Halfen, J. A. "Two new water-soluble derivatives of 1,3,5-triaza-7-phosphaadamantane (PTA): Synthesis, characterization, X-ray analysis, and solubility studies of 3,7-diformyl-1,3,7-triaza-5phosphabicyclo [3.3.1]nonane and 1-pyridylmethyl-3,5-diaza-1-azonia-7-phosphatricyclo[3.3.1.1]decane bromide." *Polyhedron* **2007**, *26*, 4093.

Berg, E.R.; Freeman, S.A.; Green, D.D. and Ulness, D.J. "Effects of Hydrogen Bonding on the Ring Stretching Modes of Pyridine" *J. Phys. Chem. A*, **2007**, *110*, 13434-13446.

Weisel, L.R.; Ta, T.M.; Booth, E.C., and Ulness, D.J. "Polarization Coherent Anti-Stokes Raman Scattering Using Noisy Light,"*J. Raman Spectrosc.*, **2007**, *38*, 11-20.

As I reflect on my year, I am reminded why I embrace my professorship at Concordia as my vocation. I am grateful for the opportunity to teach with wonderful students and colleagues. I'm back in the physical chemistry classroom and it feels good to be discussing that material again after a year off from it. I have a great group of students who are working really hard. In addition to physical chemistry, I'm teaching general chemistry and in my second year of experimenting with the "inverted classroom" concept.

Research has taken a bit of a hiatus because I was the principal writer for our Howard Hughes Medical Institute grant proposal. The theme of the proposal is Mathematical Infusion into the Life Sciences (MILS) and it is geared to help students use mathematics as natural language with which to address problems in the life sciences.

Allison is 12 and in the 7th grade. She greatly enjoys her friends and classes. She continues to have a strong interest in soccer and has had the opportunity to do a lot of traveling with that. RoseAnn still works as the head of the early childhood/family education program for the Dilworth-Glyndon-Felton school district. It will be a couple of years yet before she and I share common students but that day is rapidly approaching.

I wish all of you the happiest of holidays and a glorious new year.

Darin Ulness

Here is a little news from the newest member of this Department. I actually started in the Chemistry Department last year but thought it was enough for me to just get the newsletter put together and out last year without having to add my own blurb. This year though I decided to join in and of course I wish to include special Christmas greetings to the Chem Class of 2011! You were my first group of students who I really got to know and will always hold a place in my memories of Concordia Chemistry.

Now for a little bit about me...I celebrated my 25th Concordia Homecoming this fall and had a great time reuniting with other Cobbers. (Whoops, that might have been more info then you wanted to know since I just gave away my age.) Anyway I guess that explains why I was more than happy to find a job and work for this great college. Next year I get to join the other side of things by being a parent of a Concordia College student since my eldest son has already been accepted here. Give me another year and my twin sons who are juniors will probably be here as well. It does seem like life has its way of circling around and coming together.

If you add all of this together, you now know that I live in a male dominated household which includes my husband and the male cat who is part of our family too. Somehow we seem to all get along and even my husband, who is an NDSU grad, is excited for our boys to come to Concordia. Just thinking of the college and the word itself brings peaceful images...CONCORDIA, the latin word for HARMONY! Hamony is beautiful music blended together that brings joy. Harmony is peace, love, cooperation and togetherness within a family; any family, whether it's the ones we live with or work with, play with or pray with. I pray that all of your families live in harmony this Christmas Season and throughout 2012!

Marcie Camrud

"Rejoice with those who rejoice; mourn with those who mourn. Live in harmony with one another. Do not set your mind on high things, but associate with the humble. Do not be wise in your own opinion. Do not repay anyone evil for evil. Be careful to do what is right in the eyes of everyone."

Romans 12:15-17

This has been a year of milestones for our family. For most of the summer, we only had two kids at home. Shocking! Joshua worked at Boy Scout Camp all summer and Hannah worked at horse camp most of the summer. Of course, these two camps were about 80 miles apart; needless to say, we drove a lot of miles across Minnesota in June and July!! Joshua turned 18 this fall and will graduate this spring. He plans on attending Concordia College next year. Officially, we will have only three children in our home school next year. I can definitely attest to the saying "the days are long, but the years are short" being very true!

Rebekah and Leah got to experience being in a smaller family and having Mom and Dad all to themselves for many weeks this summer. They also enjoyed the family trip to Mount Rushmore in May. It was so cold that it snowed on us every day, but the trip was delightful. We hiked, camped, toured, and photographed wildlife for a week before returning for summer school and summer activities.

I taught Forensic Science again this past spring and had an extraordinary group of students for summer OChem. This fall I am teaching the newest class we offer: Integrated Chemistry & Biology. The idea behind this class is that students would be grouped together for chemistry and biology lectures and that the laboratory experiments would combine the two disciplines, leading to a greater understanding of both disciplines.

Milestones like graduations, first jobs, and new courses remind me that I am so blessed to teach at Concordia. I pray that God richly blesses all of you in the coming year.

Pam Mork

How the years fly by! This year was a busy year for the department. Most of us taught heavy loads. Lots of students: that is a very good thing.

This Fall, I am teaching five Biochem labs and Biochem lecture for 77 students! Working with Julie Mach and Darin Ulness, we got an approval from Senate to offer a 10-course ACS Biochem major. Along with the regular ACS major and the ACS Neurochem major, this adds a third flavor offered to students desiring the longer ACS major. Hopefully, many students will find that this fits well with their career goals. Looks like I will have 20 students in Biochem II, so maybe a number of them will be ACS Biochem majors. I continue to supervise research with one student this fall.

Speaking of ACS, I was elected last Fall as ACS local Red River Valley Section Chair, so went to Dallas in January for training. Went to Denver in August for the ACS convention and our local section won a national award for leadership development—for the second year in a row! That, and being chair of the FM Lutherans for Life and singing and working with the College Board at our church have kept me diversified. Lately, I have been working through Focus on the Family's Truth Project with students from Concordia College and MSUM. Pam mentioned some of what our family did this last summer, we have not been bored!

Sometimes when we get as busy as we do get, we forget what we should remember, and crowd out what we should make room for. "She wrapped him in cloths and placed him in a manger, *because there was no room for them in the inn.*" (Luke 2:7) That last phrase has been bothering me lately. Why do I keep myself so busy I have "*no room*" for others, for quiet reflection, for praying, and for my God? In this Christmas season, at least, we should "treasure up all these things and ponder them in [our] hearts". (Luke 2:19) Have a Very Merry Christmas and a Blessed New Year!

Dave Mork

After my time away on sabbatical, the past year has been nice to return to a more "normal" existence. I've had the pleasure of teaching General Chemistry I and II while also being active in the lab. I missed teaching the introductory students while I was in Italy, and I am very appreciative to be a part of their lives and be back in the classroom.

I have also been fortunate to return to my research lab at Concordia. This past year, I've worked with 6 students on independent research projects relating to the development of water-soluble phosphines and their transition metal complexes. Three of the researchers worked with me during the summer, and we were able to prepare 18 new Au, Pt, and Pd compounds and to test their ability to catalyze C-N bond formation reactions in water. To the best of our knowledge, this was the first study to illustrate that Au(I) complexes may be employed as effective aqueous phase intramolecular hydroamination catalysts.

My sabbatical research has also been continuing over the past 12 months. During this time, my Italian colleagues and I were able to publish two manuscripts in the journal *Organometallics* that detailed the synthesis and catalytic hydrogenating abilities of several Ru complexes. At the present time, we are further expanding the research. With a collaborator at Institut de Sciences et Ingenierie Chimiques in Lausanne, Switzerland we are examining the abilities of the Ru compounds to destroy or retard the growth of testicular and breast cancer cells. If any of the compounds show promise, we will develop new derivatives of the compounds here at Concordia in the future.

This is a very exciting and promising time for my lab as my sabbatical has opened new avenues for my research while providing new collaborations that will undoubtedly last into the distant future. These collaborations will not only benefit me, but also the undergraduates involved while increasing Concordia's reputation regionally, nationally, and worldwide.

I hope that your family enjoys a peaceful holiday season
and a prosperous new year!
Soli Deo Gloria!

Don "Chopper" Krogstad

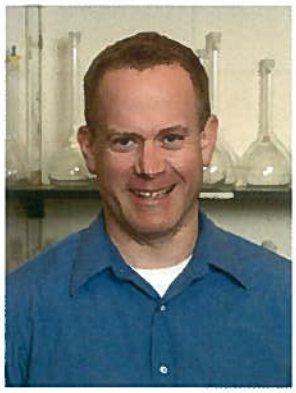
Merry Christmas, everyone! I hope this season finds you well. Another busy fall semester is quickly coming to a close. I've been teaching both an inquiry seminar (Water and the Environment) and Analytical Chemistry II. I've got 10 students in Analytical II and we're busy building circuits and writing LabVIEW code. I've renamed this course from the previous "Instrumental Methods of Analysis" since the first semester (Analytical I) now has a strong emphasis on instrumentation.

I continue to stay busy on the research front as well. This past summer two students and I worked in collaboration with the Moorhead water department to use mass spectrometry to detect and identify odor-causing chemicals in city water, and we're hoping to continue that collaboration through this coming summer. I also continue to work with Dr. Dennis Tallman from NDSU's Department of Coatings and Polymeric Materials on applications of scanning electrochemical microscopy in corrosion science. Dennis has now formally retired from NDSU, but we continue to write papers based on our work from the past few years. In 2012 I'll begin working with Dr. Vicki Gelling, also from NDSU's CPM department, on other SECM applications in corrosion. My intent is to spend a sabbatical year working in her laboratory, and then continue the collaboration with the involvement of Concordia students in the future.

There's not much new to report with my family. Tracy still works for the interactive division of Forum Communications, and writes an occasional column for the paper as well. Our daughters continue to make our lives interesting as we juggle schedules to get them to dance, choir, soccer, skating, piano, etc. Laura is 9 and in 4th grade. Her goal is to be an Olympic gymnast or an Olympic figure skater – ideally both. Jordan is 7 and in 2nd grade. She wants to be an artist or a historian, and continue to bother her sister as much as possible.

Once again, I wish everyone a Merry Christmas, a wonderful holiday season, and a blessed 2012. Please send us a note or stop in to see us sometime. We really enjoy hearing from you.

Mark Jensen



Another great year for the Rutherford family and we wish each of you a joyous holiday season! Last year turned out to be a good year to return full-time to the Organic Chemistry course, despite my apprehension of facing 85 students on day one. It had been five years since I had the privilege of teaching the organic chemistry sequence from start to finish. The students put forth a very strong academic showing and I look forward to watching this (large) cohort progress through the sciences in the years to come. I see a lot of potential for growth in the Chemistry Department with this "crop" of students.

In the spring organic chemistry laboratory, I rolled out a new experience called the "Pharmaceutical Role-Playing Project" and students seemed to enjoy it (despite being the guinea pigs). Students formed pharmaceutical "companies" within each lab section and competed with one another to design the most cost-effective, environmentally-friendly synthesis of a known drug. Within each company, the students rotated through the roles of synthetic chemist, analytical chemist and project manager. Considering the scope and complexity of this new endeavor, it went pretty smoothly and students seemed genuinely enthralled with the premise. I'll make some small modifications this year and am excited about its potential to provide our students a liberal arts perspective to modern scientific challenges. Look for future updates.

Life on the homefront continues to keep Julie, Eliana and me busy. I am very happy to report that our "4-month" home remodel wrapped up officially on Aug 11 (that's 13 months if you were counting) and we are thrilled with the final product. We hosted both Biology and Chemistry Department's families to celebrate - what great fun! Our family also resumed our annual road trip this past summer, this time visiting the New England states. Eliana enjoyed New York and Boston as we made our way into Canada before heading home. I think the Ben & Jerry's factory was Julie's favorite. We took along one of our dogs (Chloe) for the 3-week adventure, and the extra traveler (at 15 lbs) did not overly crowd the Prius and added a lot of fun to the trip.

Eliana, now 10 and in the 5th grade, dabbled in several new activities last year including volleyball, basketball, tae kwon do and flute in addition to her "regular" activities of piano and soccer. She started band this year so flute looks like a "permanent" addition to her activities, and she has really immersed herself in tae kwon do since August, sometimes putting in 8-10 hours per week. Her breaking a board after 6 weeks was a proud moment for the family.

Well, that seems like enough updating for this year. I wish you a very warm, happy, and memorable Christmas season, and a fruitful and joyous New Year!

Drew Rutherford

It is really amazing to consider how close we are to the end of another fall semester I have begun to settle into a new groove for the fall which is teaching the capstone CHEM 475 – Neurochemistry course along with a section of CHEM 111 – Survey of General Chemistry. With this schedule, I have the two extremes found in the chemistry catalog keeping me on my toes!

We have added an extremely exciting component to the Neurochemistry course this fall. The significant writing component found with all capstone courses is achieved in Neurochemistry by the students "blogging" their thoughts and comments about the literature article and topic of the week. I have found these blog posts to be most enjoyable and am very happy to see what impact is being made on the students. I encourage you to check out our Cobbers on the Brain blog at http://cobbersonthebrain.areavoices.com/.

Last May, I ventured into the trenches of biochemistry and offered CHEM 373 – Biochemistry I in the first summer session. This was new to me – having only taught Biochemistry II in the past. The summer pace as many of you well know is a crazy pace – makes me think of being in one of those tornado money machines trying to frantically grab as much money as one can! I had nine students in the course and for being the first time through, found it to be very rewarding and look forward to teaching it again in May 2012. Dave, Darin and I have been working on boosting the biochemistry component of the chemistry curriculum and giving students more options for getting biochemistry will hopefully help our large class sizes in the fall semester. We also saw the faculty Senate approve our newest track within the ACS major – Biochemistry. We are very excited about this option for the students.

On a personal note, our daughter Reilly is now in junior high and loving it very much. She is such a busy girl (she was in five sports at one time for about 2 weeks this fall!). Currently, she is full out in hockey season – first time – but really loving it.

Andy is in 4th grade and anxiously awaiting the snow to fall. The mild fall weather has really been difficult for him to handle! He is the avid snowmobiler and looks forward to racing this winter. Eli is in 2nd grade and for a class project listed his hobby as "TV". It's great that Eli is so willing to be carted around for all of his brother's and sister's practices and games!

Jamie and I are simply keeping pace with the kids. It's taken our time management and communication to a new level, that's for sure.

Here's wishing you and your family a very
Merry Christmas and Happy New Year!

Julie Mach

Happy Christmas from the windowless end office aka Scotland II: Electric Boogaloo and what a year it's been. Just before Christmas last year, my Green Card was approved and then this past September saw my promotion from Lab Coordinator to Assistant Professor so it's been a good year. Next year, I'm apparently to ask Santa for something called a Red Rider BB Gun – I'll be honest, I have no idea what that is being the department's official non-American but Mark Jensen assures me it'll be worth it.

As for around the department, I continue to work on our General Chemistry labs further refining our research project model in 128L in the spring and producing the first ever "Concordia College Journal of Sulfa Drug Research", a 500 page monster of a compilation of all student projects from spring 2011. This is intended to form a foundation for work of the new teams this year to draw upon. I talked about the project and other aspects of the lab at the national meeting of the ACS in Denver in August and I am trying to find the time to write this up for publication still.

And then there's ChemBio. Wow, talk about a rollercoaster. The College received a major grant from the NSF with the focus on retaining science and technology majors so one aspect was to be an integrated chemistry and biology course. Students would be in the same lecture section of chemistry and biology and there would be no traditional chemistry or biology lab, just 2 labs a week which break down the discipline barriers and teach an integrated model using a common language. And I volunteered to do all the lab stuff alone. It's just before thanksgiving when I am writing this and this week we have lab #20 tomorrow, all labs written from scratch and tested frantically as best I can. The course has been a huge amount of work but we are hitting a point where I think students in the class are seeing the blurring of boundaries and as important, enjoying the labs. We've looked at protein structures, myoglobin spectroscopy and oxygen binding, DNA and photosynthetic pigments all from a molecular perspective, we've considered the importance of properties such as polarity from solvents all the way to cells and much more. I'll keep the same students 2nd semester so continue to build on this even further and next year, do the same again but with the benefit of this years' experience.

My research lab this summer was staffed by two freshmen, Molly Haugen and Alex Jorgenson as part of a STEP program to interest students in research early in their careers. Progress was made in looking at sulfa drug degradation by ferrate and the summer social program which drew students from all the sciences was a lot of fun culminating in SweatQuorn(my band) playing the end of the year picnic. Outreach efforts in getting children more interested in science continues with the larger after school Science Academies and some smaller workshop style labs at the public library in Fargo. More details elsewhere in the newsletter on this.

Outside the lab, I continue my musical interests, a lot of good concerts this past year including Lollapalooza over the summer, I visited Boston with my parents in July and I'm hoping for a quick trip to Indiana over Christmas break, weather depending. Best Wishes to all for the Holidays.

Graeme Wyllie

Science Academy

Another busy year for our Science Outreach efforts and the main Concordia Science Academy program continues unabated. Our after school activity fest that is the actual Science Academy visited 3 schools in 2010, we made a stop at S. G. Reinertsen Elementary in South Moorhead in January to an absolutely packed 200+ attendee event then this fall, we visited Robert Asp Elementary in north Moorhead in September and Oak Grove Elementary over in Fargo in November.

As well as these larger shows, the department has also continued to be active in other aspects of exposing younger students to science. We visited the Naytahwaush community charter school on the White Earth reservation in April and a party of students from Waubun High School visited for a day in the lab in May. In addition, Dr Graeme Wyllie has started Saturday Morning Science, a program in association with the Fargo Public Library where 90 minute science workshops allow 4th and 5th graders a chance to get more hands-on experience in carrying out a range of experiments. The workshop has 2 separate sessions of 24 students each and is run in both the downtown and Carlson libraries. Our first workshop drew from all the sciences while our second, Chemistry Matters, which took place in October allowed students to look at vitamin C levels in orange juice, identify unknown metals and break eggs into liquid nitrogen. More are planned over the coming year as is a program in association with Trinity Lutheran Church in Moorhead to develop a faith and science linked experience for their younger attendees.

As always, we are open to ideas or contributions to help in this or related programs so please feel free to contact Dr. Graeme Wyllie at wyllie@cord.edu

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