



A Note From The Department Chair

Dear AlasChemist Reader,

This is my first appearance on this page of the AlasChemist as an author – and is it a thrill! As indicated in last year's edition, Tom Clausen stepped aside as department chair in summer 2008 and yours truly is currently trying to fill those shoes. Thanks to Tom's solid leadership for most of the past decade, the department is on a sound financial and academic footing, and this has made my job easier. For Tom Clausen, a tip of the hat, and a loud chorus of Thank You's!

Along with this change, this year we have had several other earth shaking personnel changes. Both Todd Gouin, assistant professor of analytical chemistry, and Marina Castillo, assistant professor of biochemistry, decided to move on to

greener pastures. Todd and his family are moving to London, England where he will take a position doing environmental modeling with ICI Industries. Marina is moving to Southeast Texas where she will explore the academic and pharma job scene and continue to provide guidance to their three teenage daughters. Todd and Marina were valuable members of the faculty who made huge contributions to our teaching and research missions. Their contributions were recognized by special citations and gifts from coworkers at the annual College of Natural Science and Mathematics (CNSM) end-of-the-year bash. They will be sorely missed.

Another significant development was the successful application for tenure and promotion to associate professor by Tom Kuhn. Tom is co-leader of the graduate

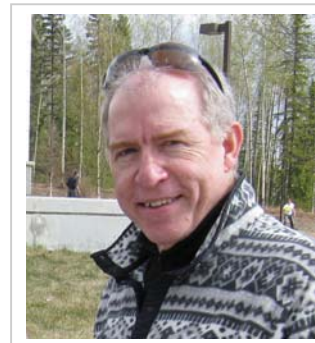


Photo by MADIG

John Keller

program in biochemistry and molecular biology, along with Marvin Schulte. He teaches biochemistry and neurochemistry, and he and his students do research on molecular mechanisms of oxidative stress in neuronal cells. Congratulations, Tom!

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Cathy Cahill ~ Physical and Atmospheric Chemistry

The past year has been very busy and successful for me and my graduate students.

I had a lot of fun teaching Chemistry 105 (General Chemistry I) in spring. I had a wonderful bunch of students. Also, it is great to teach an introductory class because I have to do exciting demonstrations to keep the students (and professor) interested in the topics!

My doctoral graduate students, **Taryn Lopez** (Environmental Chemistry) and **Peter Rinkleff** (Geology), who are both examining volcanic emissions, had an

eventful year with work on Russian volcanoes last summer and eruptions from four Alaskan volcanoes (Cleveland, Kasatochi, Okmok, and Redoubt) during the year. They were joined in fall by **Mitali Patil** and in spring by **Ashley Wallace**. Mitali is pursuing a M.S. in Biochemistry and Molecular Biology focused on bioaerosols and Ashley is pursuing a M.S. in Environmental Chemistry looking at hazes in Denali National Park and Preserve. All of my students are progressing well towards their degrees.

The research highlight of my year was my ongoing air sampling in Baghdad, Iraq, to examine the air the soldiers are breathing. The first chemical results have just come back from the laboratory and I can't wait to dig into them!

My other research projects are proceeding nicely as well. I am continuing my work on developing a UAV (unmanned aerial vehicle) mounted aerosol sampler that will help determine the spatial and temporal composition, including biological species, size, and concentration of atmospheric

aerosols. The regional haze study examining the particles causing visibility degradation in Denali National Park and Preserve is coming to an end and it appears that the samples collected during the study will give us great information on the sources of aerosols entering the Park and causing any observed visibility degradation. After getting skunked last summer by the lack of wildfires available for smoke sampling, I hope to collect wildfire smoke aerosols this summer for my wildfire aerosol characterization research. In addition, I have been helping the Fairbanks North Star Borough and the Alaska Division of Public Health with particulate matter issues (fine particulate pollution in Fairbanks and the health effects of volcanic ash, respectively). Lastly, I was lucky enough to go to Chile last October for a study of aerosol interactions with stratus clouds. It's a tough job, but someone has to do it!

It has been an interesting and productive year for me and my group. I hope the next year is even more exciting and fulfilling!



Photo by S. Anderson

Cathy Cahill at Polychrome Pass in Denali National Park and Preserve

A Note From The Department Chair continued from page 1...

Brian Edmonds, formerly of UA Southeast, joined the department in May 2009 as an assistant professor of biochemistry and biophysics. Brian is a nationally recognized expert in cell receptor structure and function. He has been collaborating with Marvin Schulte on various cell receptor projects, which will be accelerated now that he and Brian are both located in Fairbanks. Brian will play an important role in the department as a teacher in the 100-level courses. He also plans to develop a graduate course in his specialty in the future.

Speaking of 100-level courses, thanks to Tom Clausen's skill as a negotiator, we recently enjoyed extra funding originating in the tuition payments by students in some of our freshman chemistry courses. During a typical academic year about 700 students, mostly science and engineering majors, enroll in these courses.

This experience emphasizes that besides playing a vital role in the educational program of the University, freshman chemistry also is an economic engine that generates tuition income for the University, and employment for our graduate teaching assistants. Teaching general chemistry requires the mental agility to teach chemistry topics outside one's area of specialization, excellent organizational skills, the ability to master the modern electronic

teaching tools that go along with freshman chemistry these days, and an understanding and supportive attitude toward these nascent scientists and engineers. We appreciate the effort of the staff and professors who taught in the freshman series this year, including Cathy Cahill, Marina Castillo, Tom Clausen, Larry Duffy, Todd Gouin, Bill Howard and Emily Reiter.

This issue of the AlasChemist is chock-full of interesting articles, plus a good selection of news from individual faculty members. Bill Simpson, co-leader of the graduate program in environmental chemistry, explains some recent changes and improvements in the UAF chemistry curriculum and Natalie Monacci, our stock clerk extraordinaire, tells us about the department's outreach activities she has been involved with this year.

Please read and enjoy this issue of AlasChemist. I hope you will agree that our staff, faculty, and students are making waves in the world of chemistry.

Sincerely,

John Keller

Thomas Trainor ~ Environmental Chemistry and Geochemistry; Surface Chemistry

We've had another busy and productive year in the lab. **Kunal Tanwar** completed his Ph.D. degree in the fall of 2008 with a thesis entitled "Surface Structure of Hydrated and Fe(II) Reacted Hematite (1-102) and (0001)". Kunal's thesis resulted in four excellent published papers that help form a core body of literature regarding the reactivity of environmental interface systems. He is now working for Intel Corp. in Portland, Oregon.

Doctoral student **Anastasia Ilgen**, M.S. students **Vanessa Ritchie** and **Ashley Jones**, and research associates **Dr. Sarah Petitto** and **Dr. Chris Iceman** continue in the lab. Anastasia has made excellent progress on her thesis work and will likely be submitting her first manuscript this summer. She is doing a great job balancing her schedule as both a new mom and graduate student. Vanessa has switched to part-time student as she begins her career in the local environmental consulting industry, and will be wrapping up her thesis this fall. Ashley continues working with Dr. Tom Douglas of CRREL (the U.S. Cold Regions Research and Engineering Lab), a UAF Environmental Chemistry affiliated faculty member, investigating the adsorption of nitroaromatic compounds on soil clay minerals. Ashley and Michael Jaramillo, a fellow chemistry graduate student, were recently married. Sarah Petitto is finishing up her postdoctoral work on the structure and reactivity of magnetite surfaces this spring. She has just accepted a position as Assistant Professor of Chemistry at St. Cloud State University, Minnesota. Chris Iceman is building off

Kunal's thesis using theoretical/computational methods to study the structure and properties of interface systems, primarily using the local computational resources available at the Arctic Region Supercomputing Center (ARSC).

We had two visiting students in the lab this spring. **Frank Heberling**, a Ph.D. student from the Institut für Nukleare Entsorgung Forschungszentrum in Karlsruhe, Germany, visited for a month this spring to work on a surface crystallography project. **Florent Michel**, an M.S. student from University Pierre et Marie Curie in Paris, France, is doing an internship with us this spring. Florent is using our new X-ray diffraction facility to perform structure refinements of antimony oxide mineral phases collected from local mine sites.

Another visitor in the lab last summer was **Logan Daum**, a former West Valley High School student, now an MIT undergraduate. Logan worked as an ARSC intern developing software for surface crystallography analysis and thermodynamic simulations. We look forward to working with this year's intern to continue the project.



Photo by MADIG

Tom Trainor

William Howard ~ Inorganic Chemistry

It has been a productive year for my students and their research. **Zachary Pickett** and I published one peer-reviewed article describing the X-ray structures of 4-chloro-2,6-*bis*(hydroxymethyl)pyridinium chloride and 4-dimethylamino-2,6-*bis*(hydroxymethyl)pyridinium chloride hemihydrate. Zach has prepared a number of water-soluble vanadium complexes that could possibly serve as drugs for treating hyperglycemia in type 2 diabetes. These organic salts are obtained when two of these vanadium complexes are decomposed in acidic solution, simulating conditions in the human stomach. Zach has begun writing his M.S. thesis and is expected to defend in the summer of 2009. Zach is currently employed as an environmental chemist for Sivuniq, Inc. in Anchorage, Alaska.

Ashley Anderson continued her M.S. research this past year. While serving as the TA for Basic Inorganic Chemistry CHEM 202, Ashley with the help of the CHEM 202 students, prepared and characterized a number of novel ruthenium *tris*(bipyridyl) derivatives. For instance, Ashley prepared and crystallized $[\text{Ru}(\text{bipy}-\text{Cl}_2)_3](\text{PF}_6)_2$ (bipy- $\text{Cl}_2 = 4,4'$ -dichloro-2,2'-bipyridyl), and the crystals were submitted for single crystal X-ray diffraction; the ORTEP for the X-ray structure is shown at right. Ashley will study the chemistry of these derivatives in the summer and fall of 2009.

David Phillips, an advanced undergraduate chemistry major, has begun a senior research project in my lab

as a Chemistry 488 student. David is comparing the rates of nucleophilic substitution in reactions between $[\text{Ru}(\text{bipy})_2\{\text{bipy}-\text{Cl}_2\}]^{2+}$ and NaOCH_3 and $[\text{Ru}(\text{terpy})(\text{terpy}-\text{Cl})]^{2+}$ and NaOCH_3 (bipy = 2,2'-bipyridine; terpy = 2,2':6',2''-terpyridine; terpy-Cl = 4'-chloro-2,2':6',2''-terpyridine).

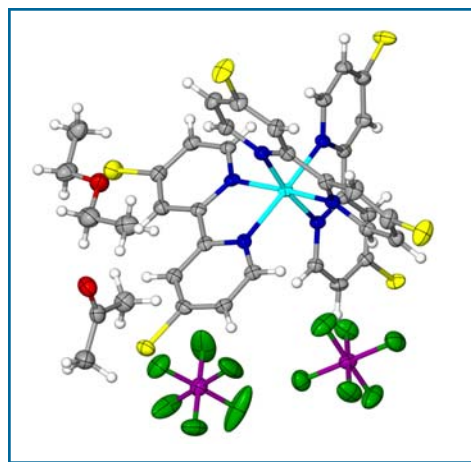
Interestingly, NaOCH_3 reacts with $[\text{Ru}(\text{bipy})_2\{\text{bipy}-\text{Cl}_2\}]^{2+}$ to give $[\text{Ru}(\text{bipy})_2\{\text{bipy}-(\text{OCH}_3)_2\}]^{2+}$ significantly faster than with $[\text{Ru}(\text{terpy})(\text{terpy}-\text{Cl})]^{2+}$ to give $[\text{Ru}(\text{terpy})(\text{terpy}-\text{OCH}_3)]^{2+}$. David will continue this research project in the Fall 2009 semester with the aim of understanding why nucleophilic substitution is faster with the former complex.

I enjoyed the privilege of teaching General Chemistry 105X, Inorganic Chemistry 402, Basic Inorganic Chemistry 202, and Advanced Inorganic Chemistry 602 this past year. The Advanced Inorganic Chemistry 602 course was recently modified to be an introductory course in organometallic chemistry. There seemed to be some unusually good students in each of my classes, which made teaching easier and much more enjoyable!

I have continued to serve as the Chair of the Alaska Local Section of the American Chemical Society (ACS). In this role, I select two ACS speakers each year, who tour Fairbanks, Anchorage, and Juneau and give high quality research seminars. In the 2008-2009 academic year, **Dr. R. B. King** (Dept. of Chemistry, University of Georgia) and **Dr. Joseph J. Lagowski**

(Dept. of Chemistry, University of Texas Austin) visited Alaska. We eagerly anticipate a visit by **Dr. Thomas P. Fehlner** (Dept. of Chemistry, University of Notre Dame) in the fall 2009 semester. He will give a lecture entitled "Inorganometallic Chemistry" at UAF, UAA, and UAS.

Finally, I should mention that **Arianna Demmerly** will join my research group in the fall 2009 semester as a Ph.D. student in the Biochemistry/Molecular Biology program. Arianna will graduate from Whitworth University in Spokane, WA with a B.S. in chemistry after the spring 2009 semester, and we would like to extend a warm welcome to her as she makes the transition to UAF.



ORTEP of $[\text{Ru}(\text{bipy}-\text{Cl}_2)_3](\text{PF}_6)_2 \cdot \text{O}=\text{C}(\text{CH}_3)_2 \cdot \text{O}(\text{CH}_2\text{CH}_3)_2$.

Lawrence K. Duffy ~ Neurochemistry & Biochemistry

My appointment as Interim Dean of the Graduate School is continuing. **Anna Godduhn** is making good progress in her Ph.D. degree program and is expected to graduate in May 2010. **Linda Nicholas-Figueroa** returned from NIH to complete her M.S. degree and attended the 14th International Congress on Circumpolar Health in Yellowknife NWT, Canada to report the results of her project.

I am now working on a sled dog project with Lathrop high school teacher, Wendy Ehnert. With the help of funding from the National Science Foundation and outstanding colleagues, Cathy Middlecamp (University of Wisconsin-Madison), Dave Barnes (UAF Civil and Environmental Engineering) and Cindy

Fabrizi (UAF School of Education), we started a new course "Environmental Radioactivity, Stewardship and People in the North." In developing this course, we successfully integrated a service-based learning option along with in-class activities. In this way students learned about key nuclear and health processes, but also how an understanding of culture helps scientists solve relevant community-based, science-related problems. This course is part of a continued, coordinated effort by UAF to leave a lasting impact from the International Polar Year (IPY) in the form of improved science courses. I am now attempting to add some of the engaging components developed in this course to CHEM F100X course Chemistry in Complex Systems.

Graduates Honored Commencement 2009



Photo provided by T. Clausen

Front Row: S. Hummel, J. Nigg, J. Vonnahme (B.S. Biological Science), D. Wilkinson, B. Meyer, S. Giles
Middle Row: T. Clausen, M. Schulte
Back Row: C. McGill, K. Drew, C. Cahill, B. Rasley, J. Keller

Doctor of Philosophy Degrees

- Laura Alvarez-Aviles *
Ph.D., Environmental Chemistry
B.S., University de Puerto Rico,
2003
- Randy L. Apodaca *
Ph.D., Environmental Chemistry
B.S., Texas Tech University,
1996. M.S., Texas Tech
University, 2003
- Daniel L. Kirschner
Ph.D. Bioanalytical Chemistry:
Interdisciplinary Program
B.S., University of Alaska
Fairbanks, 2004
- Kunaljeet S. Tanwar **
Ph.D. Environmental Chemistry
B.T., Institute of Technology
Banaras Hindu University
(India), 2003. M.S., University of
Alaska Fairbanks, 2004

Master's Degrees

- Suraj Cherian *
M.S., Biochemistry and
Molecular Biology. B.S., Kerala
Agricultural University (India),
2002
- Abraham E. Harms-Smyth **
M.S., Biochemistry and
Molecular Biology. B.S.,
University of Alaska Fairbanks,
2001

Baccalaureate Degrees

- Christopher Eversman
magna cum laude, B.S.,
Chemistry. Golden Key Honor
Society
- Spencer Lawrence Giles
cum laude, B.S., Chemistry.
Golden Key Honor Society
- Stephen Christopher Hummel
B.S., Chemistry: Biochemistry
Molecular Biology
- Angela Largen
B.S., Chemistry: Biochemistry
Molecular Biology
- Ben Meyer
cum laude, B.S., Chemistry:
Biochemistry/Molecular Biology.
Golden Key Honor Society
- Jonathan Nigg
magna cum laude, B.S.,
Chemistry: Environmental
Chemistry
- David A. Wilkinson
summa cum laude, B.S.,
Chemistry: Environmental
Chemistry. Honors Program.
Golden Key Honor Society

* Summer 2008 degree recipient
 ** December 2008 degree recipient

Celebrating Excellence

Outstanding Chemistry Student

David Wilkinson

Elaine Jacobson Scholarship

Emily Hummel

Freshman Chemistry Award

Dana Ranum

Undergraduate Award in Analytical Chemistry

Jennifer Chambers

Alaska Chapter American Chemical Society Award

Jonathan Nigg

American Institute of Chemistry ~ Undergraduate

Chris Eversman & Ben Meyer

American Institute of Chemistry ~ Graduate

Taryn Lopez

HyperCube Scholar Awards

Spencer Giles & Daniel Kirchner

Outstanding Teaching Assistant in Chemistry

Ashley Anderson & Ashley Jones



William Simpson ~ Physical and Atmospheric Chemistry; Laser Spectroscopy

This has been a busy year in the Simpson Lab. Our biggest news is that we have a new daughter, Lelisha Hallam Simpson, whom we call Layla and is now 15 months old. We adopted Layla from Ethiopia in August, and this has been an incredible experience. Our older daughter, Amelia, now age 7, is thrilled to have a sister, as are Maggie and I to have a younger daughter. Maggie is working as an illustrator and with her selling hand-crafted boxes and stamps from her artwork. Amelia has completed first grade and is really developing. We have a lot of fun around the house and garden and skiing, biking, and just playing at the park.

This year I taught thermodynamics in Physical Chemistry CHEM 606 and Atmospheric Chemistry CHEM 691. We have continued to develop the Research Presentation Techniques class, which is proving to be successful in preparing our students for presenting and defending their work. I was honored by receiving the **CNSM outstanding teacher award** for the Department of Chemistry and Biochemistry in this year. As a part of re-structuring physical and analytical

chemistry curriculum, we are integrating laboratory sections into Physical Chemistry, and we received a grant from CNSM to purchase equipment for these course changes. I am excited to develop laboratories this summer and integrate them into the courses in during the next academic year.

Late in the summer of 2008, two students graduated with their Ph.D. degrees, **Laura Alvarez-Aviles**, and **Randy Apodaca**. Each also completed manuscripts based upon their work, two of which have been published, and two are soon to be completed. Laura went on to a postdoctoral position at EPA in North Carolina working on mercury atmospheric chemistry, and Randy went to a postdoctoral position in Professor Ronald Cohen's laboratory at the University of California, Berkeley.

We continue to develop remote-sensing instruments to detect Arctic Atmospheric Halogen Chemistry. With **Dan Carlson** (Ph.D. candidate in Environmental Chemistry) and **Deanna Donohue** (postdoctoral researcher), we have continued to work with the NASA Arctic Research of the Composition of the

Troposphere from Aircraft and Satellites (ARCTAS) field data from Spring 2008 and developed and deployed the low-power "obuoy" sensor that has been tested at Barrow in Spring 2009 and will be deployed to drift with sea ice in the Beaufort Gyre this autumn. **Dea Huff** (Ph.D. candidate in Environmental Chemistry) is advancing Randy's work on understanding what types of ice surfaces are responsible for losses of nitrogen oxides in the Fairbanks pollution plume. A new student, **Peter Peterson** (Ph.D. candidate in Physics) is working with our group and Tom Trainor's to study how impurities segregate from ice in frozen systems and how these impurities may then affect atmospheric chemistry.

In the summer of 2009, I was awarded the **Terrence and Katrina Moore Prize** for 2009 from the Geophysical Institute. This annual prize recognizes a researcher in GI for research excellence. I feel honored to receive this prize and recognize that it is the product of the students, postdoctoral associates, and collaborators that I have been privileged to work with in the past. I look forward to continuing excellence in teaching in research.



Photo provided by B. Rasley

Jonathan Nigg, Dr. Brian Rasley
& Spencer Giles

Brian Rasley ~ Analytical & Inorganic

The past year has been very busy with teaching and undergraduate research projects. I taught two distance delivery classes for the College of Rural and Community Development and two classes for the Department of Chemistry and Biochemistry. The overall experience was challenging but very rewarding. During the past year our lab has been working on an applied synthetic chemistry project focused on developing self-decontaminating surface coatings. The project is funded for three years and is progressing nicely. In the Fall 2008 semester I was invited to attend an ACS sponsored workshop on increasing participation of Native American undergraduate students in chemistry in Omaha Nebraska.

In November, I attended the National Science Teachers Association regional conference in Portland Oregon. In the spring, I attended a conference related to the self-decontaminating coatings work we are doing in the lab. This summer I am continuing to work with Joseph (Buddy) Wentzel, Spencer Giles, and Jon Nigg on various projects. Overall, the past year has been busy but very productive.

Thomas Green ~ Organic Chemistry

Bonjour! I am writing this year from Lyon, France, where I am on sabbatical. I am collaborating with Luc Denoroy and Sandrine Parrot at the Laboratoire de Neuropharmacologie, Université Claude Bernard here in Lyon. We are developing a new fluorescence detection technique of adenosine using capillary electrophoresis. My family and I are having a wonderful time here, enjoying the great food, cultural history and the beautiful city of Lyon. The French people have been so kind and welcoming to us. My former students of organic chemistry ought to recognize the name of the street in my photo. Here in France, the streets are often named after famous scientists. It was in Lyon in 1898 that Victor Grignard heated a mixture of magnesium turnings and isobutyl iodide in dry ethyl ether. Voila! The Grignard Reagent!

My research group has grown a bit lately, with the addition of several undergraduate and graduate students. Undergraduates working in the lab during the spring semester of 2009 were **Mary Curry**, **Dan Widener**, **Dan Neetz**, **Jennifer Stuvek**, **Amber Thompson** and **Scott Hummel**. All of these students were working on some form of cyclodextrin synthesis. Thanks go out to **Michael Jaramillo**, M.S. candidate, who directed their research and taught the Organic Lab course while I was in France. He did an amazing job. The undergraduate students all presented posters at the spring departmental

potluck.

Michael Jaramillo is continuing to make progress on his research on the synthesis of phase-transfer cyclodextrins. He will be presenting his work at the Northwest Rocky Mountain regional meeting of the American Chemical Society in June.

Daniel Kirschner graduated this spring with a Ph.D. in Bioanalytical Chemistry. Congratulations Daniel! Daniel accomplished great things here at UAF, both as an undergraduate and graduate student. He was a co-author of six publications in six different journals.

Jim Warner, Ph.D. candidate in Biology, is continuing to work on hibernation research of arctic ground squirrels. Jim is co-directed by Brian Barnes of the Institute of Arctic Biology. Jim has developed sophisticated experimental skills to examine protein markers in serums using liquid chromatography and mass spectrometry.

New graduate students include **Zhipeng Dai (Adai)** who comes to UAF from the People's Republic of China. Adai is pursuing a Ph.D. in Biochemistry. He will be starting work this summer on the stereoselective synthesis of D-erythro-sphingosine, a common base structure of sphingolipids, a major class of biological lipids in plant and animal cells. Adai received an IAB Director's Fellowship for the summer of 2009 to initiate his research. **Jamie McKee** is a new graduate student pursuing a Ph.D. in environmental chemistry. He comes to



Photo provided by T. Green

Tom Green in France

UAF from Philadelphia. His research focuses on the development of metal ion selective reagents using cyclodextrins/silica particles as support. Such materials are of interest to applications such as water treatment and environmental remediation. Jamie is initiating the synthetic aspects of the research this summer.

I continue to enjoy teaching and research as always. Daniel Kirschner and I wrote a review on separation and detection of D-serine in biological matrices, which was a lot of fun. I also continue to collaborate with Perry Barboza (IAB) and Monica Sundset (University of Tromsø, Norway) on reindeer and lichen metabolism. We submitted a paper to *Naturwissenschaften*. I look forward to an exciting time upon my return to Alaska. Au revoir!

Department Outreach Activates ~ Natalie Monacci

Our department was involved in several exciting outreach activities this past academic year. October was a busy month beginning with our involvement with the annual pledge drive for KUAC, the public radio station. A big thanks to Tom Clausen, John Keller, Natalie Monacci, Tom Trainor, Emily Reiter, Vanessa Ritchie, and Bill Simpson for answering phones during the *What'd Ya Know* program.

We also held the first University Chemistry Teaching and Research Fair as part of the American Chemical Society-National Chemistry Week (ACS-NCW) in October. Local high school students, parents, and teachers were invited to learn about what the department has to offer its majors, the research being conducted in our various labs, and a chance to meet UAF chemistry and biochemistry faculty and students. ACS-NCW is an annual occurrence. *It's Elemental* is the national theme for Fall

2009, and we look forward to opening our doors again for this event.

The 16th annual Science Potpourri of course was the major outreach blowout in April for the entire college and our department. Marlys Schneider did such an excellent job directing this event during its first fifteen years that it took the combined efforts of myself, Jeff Drake and Kate Pendleton from the college Dean's office, and many other volunteers to pull it off this year. Thank you so much to everyone that was involved and we look forward to participating in this event again in April 2010.

Overall, this was a great year for science outreach. It has been a pleasure getting to know all of the members of the department and helping them reach the community. We hope to see you at next year's events!

Tom Clausen - Organic and Natural Products

As I near retirement I find I need to shift my focus to new goals and abandon past duties. For instance, my current graduate student, **Colin McGill**, is finishing up his Ph.D. studies and it is unlikely I will be able to mentor another graduate student to completion. Much of my research will be thus writing up past results and mentoring nongraduate research students. Still, if this year is to be any guide, I believe this new focus gives me lots of latitude to keep me productive.

This spring I have had two papers accepted. Dr. John Bryant (Emeritus Professor from the Institute of Arctic Biology) took the lead in the first paper to the *American Naturalist* in which we looked at the biogeographic variation in the chemical defense of Alaska Paper Birch (a triterpenoid called paperiferic acid). We reported that the variation in defenses found across Alaska, Canada, and the Northern U.S. was well predicted by the frequency of natural wildfires. The evolutionary mechanism for this result is presumably fires => create early succession forests => favors high hare populations (at the peak of their cycle) => selects for highly defended trees. The other paper was to *Phytochemistry Letters* and describes the structure and biosynthetic significance of a new diterpene that was studied by former UAF students **Loda Griffeth** and **Brian Englund**.

Another paper has just recently been submitted to the *Journal of Chemical Ecology* that resulted from collaborations with a retired biochemist from Australia (Professor Stuart McLean). In this paper we determined that the chemical defense

of Alaska Paper Birch (Paperiferic acid) is a potent noncompetitive inhibitor of succinic dehydrogenase (a key enzyme part of the Krebs cycle) and this action probably forms a basis for why herbivores avoid highly defended birches. It is extremely rare for an ecological study in plant-animal interactions to get to this level of detail and I am grateful for the chance to work with Dr. McLean.

Of course other papers are being planned. I am currently working on putting the final touches on a paper for submission to the *Journal of Chemical Ecology* that describes some work that a Alaska State High School Science Symposium (ASHSSS) student did some years ago (**Janice Chen** who is currently working on her Ph.D. in Neuroscience at Stanford). I also am working on a paper to the *Journal of Chemical Education* that describes a new organic laboratory experiment. Both of these papers should be submitted by September.

Of course I still enjoy teaching. The courses that I tend to be responsible for include General Chemistry, Organic Lecture, Organic Laboratory, and Biosynthesis of Plant Secondary Metabolites CHEM 622 (a graduate course that I taught last Fall). Every year I meet exceptional freshman to upper division students who humble me when I look back on my early college years.

My biggest new challenge that has kept me quite busy over the last academic year, however, arose from my becoming director of the UAF Alaska Native Science and Engineering Program

(ANSEP; www.uaf/cnsm/ansep/). The program at UAF has about 60 students (ca. 90% Alaska Native from all corners of the State) pursuing undergraduate and graduate degrees in Biochemistry, Biological Sciences, Civil Engineering, Computational Physics, Fisheries, Geography, Geology, Mechanical Engineering, and Mining Engineering. Active students have several obligations including maintaining a full-time status, a minimum of a C grade in every course, attendance at weekly meetings, participate in a professional organization, and work in a professional internship each summer. I thank Dan Solie (past director of ANSEP at UAF) and Robin Weinant (my Administrative Assistant) for making my new job so much easier than it would have been otherwise. I am also grateful to the 60 ANSEP students for their achievements.

I would finally like to thank Professor John Keller for taking over the duties of Department Chair which has allowed me to pursue new quests that I am finding most enjoyable.



Photo by MADIG

Tom Clausen

Awards ~ Faculty

Tenure and Promotion to Associate Professor

Thomas Kuhn

Terrence and Katrina Moore Prize Geophysical Institute for Research Excellence

William Simpson

Other Awards and News:

Thomas Trainor was awarded the 2009 Mineralogical Society of America Award. The award recognizes outstanding published contributions to the science of mineralogy by individuals near the beginning of their professional careers.

Lawrence Duffy, interim dean of the graduate school and professor of chemistry and biochemistry at UAF, has been elected a SENCER Leadership Fellow by the National Center for Science and Civic Engagement. As part of the program, Duffy is working to encourage SENCER projects through the UAF honors department as well as in the rural community campuses throughout Alaska.

John Keller ~ Organic and Biochemistry

In the 2008-2009 school year I continued with about the same amount of teaching as in past years (four courses), but with decreased research emphasis and increased service due to the added responsibilities of being department chair. Diagnostic of this change was the rapid expansion of my email Inbox to more than 4000 messages! Nevertheless, I do answer email from real persons within a day or less, so please continue to send queries or comments my way.

In the teaching arena, I taught two consecutive semesters of Chem 322, 2nd semester organic chemistry: one small class and one large (46). These were quite different: in the small class we did a weekly problem-solving session where students worked on assigned problems (with advice from JK), then gave brief oral explanations of their solutions. This worked well, except that students who had already done the problems finished them quickly, while students who had not done them often required considerably more time. To make this approach work better, I may just have to create new problems that are similar, but not identical, to the assigned ones. I try to keep chemistry fresh by working on new ideas and course improvements.

The other courses I taught were Chem 105X and 106X (General Chemistry I and II). This year we introduced several new (for

us, anyway) strategies to increase the retention and success rates in these courses. For as long as I can remember the percent of students earning A/B/C grades in these classes has ranged from 55 to 70% in various semesters. This year we significantly increased the success rate to 75-80% by enforcing a prerequisite of placement in pre-algebra (Math 107X), hiring tutors for the Student Study Room (170 Reichardt), and splitting 200-student section of Chem 105X into 100-student sections.

In research, **Sifat Chowdhury** and I continued our computational studies on sulfur dioxide-formic acid complexes. Sifat, a West Valley high school student who is also taking calculus at UAF, presented a poster on the subject at the 7th Mercury Conference on Computational Chemistry at Hamilton College in Clinton, NY. Gas-phase non-covalent complexes are fertile ground for computational studies because they contain small numbers of intermolecular interactions that are also present in the liquid or solid phase. Once the geometries and energies of the interactions are determined using a supercomputer (or even experimentally!), other scientists can input the data into an algorithm modeling the properties of liquids, solids, or macromolecular assemblages.

Marvin Schulte ~ Biochemistry & Neuropharmacology

This past year has brought many changes to my work at UAF and both research and teaching continue to develop in exciting new ways. Of the four graduate students who began the year in my laboratory only two remain. **Abraham Harms-Smyth** graduated with an M.S. degree in the Fall of 2008 and **Anshul Pandya** completed his Ph.D. this spring and is now at the National Institute for Environmental Health Sciences. Remaining in the lab are **Yeganeh Atain** and **Meagan Weltzin**; both are pursuing their Ph.D.s and are expected to finish within the next couple of years. I look forward to adding additional lab personnel this fall.

Our research continues to focus on nicotinic acetylcholine receptors with a emphasis on allosteric modulatory agents and high-throughput drug screening approaches. This has been a very profitable area for us and continues to expand rapidly. Last summer, I was fortunate to receive an NIH R01 grant to fund the drug screening project and this summer we received another to fund the allosteric modulation work. Maegan Weltzin also received a grant this spring that will continue her support over then next two years. We currently have two other proposals pending at NIH and are hopeful that at least one will ultimately receive funding.

In addition to research, I continue to work to improve undergraduate and graduate education at UAF. This year, I co-authored a grant with Tom Clausen aimed at increasing the involvement of Alaska Natives in research at UAF and this

summer we admitted our first students into this program. The BMB graduate program remains my top priority with respect to the educational mission of the Chemistry department and, along with Tom Kuhn, I am continuing my efforts to make this the premier graduate program for Biomedical and Neuroscience oriented students at UAF. To this end, I have been continuing efforts to expand the program. This spring I was happy to see us recruit an excellent biophysical scientist, Dr. Brian Edmonds, who will be participating in both graduate and undergraduate education. Dr. Edmonds hire is consistent with a focus on cell signaling mechanisms and represents an important focus of the efforts in Biochemistry. We are hopeful that in the coming years we will be able to add additional expertise in this area.



Photo by MADIG

Fairbanks Sunrise January 2009

Tom Kuhn ~ Cellular/Molecular Neuroscience

Looking back at all the events of the past year, it seems there was more than enough material to actually fill two years. Research in my lab focuses on neuroinflammatory mechanism in the central nervous system and its negative impact on neuronal plasticity pertinent to aging and the progression of chronic and acute pathologies, and the health benefits of berry fruit in particular Alaskan Wild Bog Blueberries. We have made much progress in identifying and characterizing individual natural compounds that potentially inhibit molecular, biochemical events in inflammatory signaling. My collaborations with Dr. Joseph (Tufts University, Boston, MA) and Dr. Ingram (Pennington Biomedical Research Center, Baton Rouge, LA) are instrumental to my research in addition to many others.

Brian Barth (Ph.D.) has successfully passed his thesis defense and he is putting the finishing touches to his thesis. Brian is now a postdoctoral fellow at Penn State College of Medicine (Hershey, PA). He made considerable progress in linking molecular targets in the sphingolipid metabolism and the development of oxidative stress. **Sally Gustafson** (Ph.D.) is making excellent progress in her quest to identify and characterize a specific NADPH oxidase inhibitor present in Alaska Wild Bog Blueberries. **Shane Rideout** (undergraduate student) is

working in collaboration with Dr. Schulte investigating the effects of oxidative damage on the functional reorganization of the neuronal actin cytoskeleton underlying neuronal plasticity. **Kriya Dunlap** (post-doc) has not only expanded our insight into the inhibition of neutral sphingomyelinase through compounds in Alaska Wild Bog Blueberries, she has also been instrumental in managing many aspects of the lab with great support from all other lab members. She is working hard on establishing her own research avenue linking nutrition, exercise, inflammation and obesity. Only recently, we have moved our lab again joining with Brian Edmonds, our new biochemistry faculty. Brian and I are very excited about this new situation for us as well as our students. Comes to mind that I move my lab on average once a year! Last but not least, we will welcome a new graduate student this fall, **Mary Hogan**.

Teaching always has its surprises. Turns out most students in my undergraduate course enjoy chalk talks more than powerpoints. I guess I will “regress” to a more old fashioned style in the coming semesters. With a new biochemistry faculty on board, I hope that we can strengthen and expand our graduate program offerings for our students.

Aside from research, teaching, and co-directing the biochemistry graduate program, I spend much time to clear the path for translational research at UAF – a necessary endeavor for our university to contribute to economic progress, retaining our students in the state, attracting third parties to set foot in Alaska, and rejuvenating relations between UAF and public. In this context, we held the 5th UABRC meeting (UA Biomedical Research Conference) in Fairbanks with generous support from the Vice Chancellor for Research, Buck Sharpton. We enjoyed two days of student presentations of the highest quality. Several keynote speakers provide excellent insight and information regarding the translation of research to actual health benefit measures for the public.



Photo by MADIG

Reichardt Building Fall 2008

Kelly Drew ~ Neuropharmacology

It seemed slow to green up this year, but we made it. Flowers are blooming, birds are singing and ground squirrels are chirping, wide awake after a long winter’s lull. Signs of summer activity are seen in the lab as well. Ph.D. student, **Dan Kirschner** is teamed up with technician **Jeanette Moore** and together they are applying Dan’s novel, micro-scale brain slice chamber to investigate why ground squirrel brain resists damaging effects of cardiac arrest and stroke. Technician **Heather McFarland** is assisting M.S., Interdisciplinary Students (INDS) student **Velva Combs** with an in vivo cardiac arrest model in rats to see if replicating what we think is happening in ground squirrels will improve outcome after cardiac arrest in rats. Heather, before leaving for vet school, is also training our new BMB, Ph.D. student **Lori Bogren** on the in vivo cardiac arrest model. Biology & Wildlife, Ph.D. student **Kim Iceman** is leading the way in our newly acquired ground squirrel neuronal cell culture model of stroke. Kim received an IAB biomedical research fellowship to support her summer research and an

award for her work presented at the 2009 University of Alaska Biomedical Research Conference. BMB M.S. student, **Joel Vonnahme** is assisting Kim while getting his own project off the ground. INDS Ph.D. student **Tulasi Jinka** is writing up his discoveries about how the brain regulates hibernation. Chemistry and biochemistry undergraduate student **Zac Carlson** was awarded a Flint Hills undergraduate research grant for the 2008-2009 academic year and presented his results at the departments poster session and awards potluck. Our work is also supported by US Army Medical Research and Materiel Command grant 05178001, US Army Research Office grant W911NF-05-1-0280, and by NS041069-06 from The National Institute of Neurological Disorders and Stroke and The National Institute of Mental Health. This year has been marked by the loss of two important mentors in my life, my father James V. Drew and my UAF chemistry professor Charles T. Genaux. May they rest in peace while we endeavor to carry on their traditions of inspiration, quality instruction and creating opportunities for Alaskans.

Environmental Chemistry ~ William Simpson

The Environmental Chemistry program continues to be active in studying chemical change processes in the environment, particularly ones relevant to the high latitudes. During this year, there has been a lot of Alaska-related research trying to understand particulate pollution in Fairbanks. On roughly 20-30 days in the winter, Fairbanks violates the EPA's 24-hour sub-2.5 micron diameter particulate matter (PM-2.5) regulations. Members of the Environmental Chemistry group (Cathy Cahill and Bill Simpson), Fairbanks North Star Borough, and members of the Atmospheric Sciences Department are doing research to try to understand sources, chemical processing, and dispersion of these particles. We hope that these studies will allow for clear delineation of sources and their dependence upon environmental conditions, which would then assist regulators to develop effective regulatory strategies.

Within the program, we continue to improve the curriculum and grow the program. We have identified Environmental Toxicology as an important area that is currently underrepresented, and have brought in affiliate faculty members so as to increase our strength in this area. We hope to grow this direction in the future. Professor Todd Gouin

improved the senior-level laboratory courses and had students do exciting new projects studying air, particulate, snow, and water sampling for organic and inorganic (metal) contaminants. Todd's students had a strong presence at the departmental poster session with their excellent posters. In addition to these course improvements, we have continued to develop the research presentation techniques course so as to prepare students for presenting and defending research.

Todd Gouin decided to take an excellent offer to continue his research into organic contaminant levels and environmental processes at Unilever in the UK. We are saddened by the loss of Todd, his expertise and teaching and research ideas, but wish him the best in his new position. We have been approved to replace this position, and a search process is currently in progress. We hope to interview candidates on campus in the late summer/early fall. Please watch for the seminar announcements. We continue to have the Wednesday Noon seminar series, with thanks to Chris Iceman for organizing the speakers and bringing great snacks. Please stay in touch and stop by the seminars. Chris Iceman (fcncr@uaf.edu) maintains an email list for the e-chem seminar group.

Brian Edmonds ~ Molecular Neurobiology; Fast Signaling at Central Synapses

I am delighted to have the opportunity to introduce myself as a new member of the Department of Chemistry & Biochemistry. During my first year, I will teach the introductory chemistry series for non-majors (CHEM 103 and CHEM 104). Beginning in the spring of 2011, I will also contribute to the BMB Graduate Program curriculum and teach a course on the structure and function of voltage- and ligand-gated ion channels. I am excited about my teaching assignment and about the upcoming opportunities to meet engaging new students!

My primary research interest is to understand how neurons communicate by

transmission of information at chemical synapses in the brain. I am particularly interested in how binding of neurotransmitter, released by a presynaptic neuron, leads to fast activation of ligand-gated ion channels in a postsynaptic cell. I am also interested in the mechanisms by which centrally acting drugs modulate these receptors. Finally, what are the consequences of modulation for neuronal signaling? I use molecular and biophysical approaches to study how single molecules (ion channels) are activated by brief, physiologically relevant, pulses of neurotransmitter concentration.

The current focus of my work concerns

modulation of recently discovered subtypes of neuronal nicotinic receptors. For this work, I am fortunate to be able to continue what is now an intra-departmental collaboration with Dr. Marvin Schulte. I currently have one graduate student, **Bjoerg Edberg**, who is studying the mechanism of modulation of $\alpha 4\beta 2$ receptors (a major type of nicotinic receptor found in the brain) by a novel compound, desformylflustrabromine. Bjoerg is currently making good progress toward an M.S. degree in the BMB Program.



Young Moose by the Reichardt Building

Instruments:



Daniel Widener, undergraduate chemistry major, and Michael Jaramillo, chemistry M.S. student work with the NMR.



Flame and Graphite Furnace
Atomic Absorption Spectrometer
Perkin-Elmer AAnalyst 800



Agilent GC-MS
Agilent 5895C Inert XL gas chromatograph-mass spectrometer

Alumni Notes ~ Out & About News Wanted

Department of Chemistry & Biochemistry graduates, where are you? We would like to hear from you. Please feel free to clip out this form and send it to us or send us your update via email to: fychem@uaf.edu with the subject line ALUMNI UPDATES. All news will be published in the next issue of AlasChemist.

Visit our web site at: www.uaf.edu/chem

Name: _____
Please include maiden name if applicable

Address: _____

City: _____ State: _____ Zip: _____

Year Graduated: _____ Degree Received: _____

News for *AlasChemist Out & About* (education, employment, travel, or family news)



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Selected Publications:

Selected Publications. This list includes several articles from previous years that have come to our attention. They are included so that, year-to-year, this section of the AlasChemist more accurately reflects the department's research productivity. Not listed here are grant proposals and U.S. patent applications, which can also contribute to our overall productivity.

- Alvarez-Aviles, L., W. R. Simpson, T. A. Douglas, M. Sturm, D. Perovich, and F. Domine.** 2008. Frost flower chemical composition during growth and its implications for aerosol production and bromine activation. *Journal of Geophysical Research, [Atmospheres]* **113**:D21304/1-D21304/10.
- Apodaca, R. L., D. M. Huff, and W. R. Simpson.** 2008. The role of ice in N₂O₅ heterogeneous hydrolysis at high latitudes. *Atmospheric Chemistry and Physics* **8**:7451-7463.
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- Bryant, John P., Thomas P. Clausen, Robert K. Swihart, et al.** 2009. Fire Drives Transcontinental Variation in Tree Birch Defense against Browsing by Snowshoe Hares. *The American Naturalist* **174**:13-23.
- Cahill, C. F., T. A. Cahill, and K. D. Perry.** 2008. The size- and time-resolved composition of aerosols from a sub-Arctic boreal forest prescribed burn. *Atmospheric Environment* **42**:7553-7559.
- Chen, C.-f., and K. L. Drew.** 2008. Droplet-based microdialysis-Concept, theory, and design considerations. *Journal of Chromatography, A* **1209**:29-36.
- Christian S. L., Ross, A. P., Zhao, H. W., Kristenson H. J., Zhan X., Rasley B.T., Bickler, P.E., and Drew, K.L.** 2008. Arctic ground squirrel (*Spermophilus parryii*) hippocampal neurons tolerate prolonged oxygen-glucose deprivation and maintain baseline ERK1/2 and JNK activation despite drastic ATP loss. *Journal of Cerebral Blood Flow & Metabolism*, **28**(7), 1307-1319.
- Gao, H., K. R. Buchapudi, A. Harms-Smyth, M. K. Schulte, X. Xu, and H.-F. Ji.** 2008. Improved Surface Modification Approach for Micromechanical Biosensors. *Langmuir* **24**:345-349.
- Gouin, T., M. Shoeib, and T. Harner.** 2008. Atmospheric concentrations of current-use pesticides across south-central Ontario using monthly-resolved passive air samplers. *Atmospheric Environment* **42**:8096-8104.
- Gouin, T., F. Wania, C. Ruepert, and L. E. Castillo.** 2008. Field Testing Passive Air Samplers for Current Use Pesticides in a Tropical Environment. *Environmental Science & Technology* **42**:6625-6630.
- Gustafson, S. J., B. M. Barth, C. M. McGill, T. P. Clausen, and T. B. Kuhn.** 2007. Wild Alaskan blueberry extracts inhibit a magnesium-dependent neutral sphingomyelinase activity in neurons exposed to TNF α . *Current Topics in Nutraceutical Research* **5**:183-188.
- Ji, H.-F., H. Gao, K. R. Buchapudi, X. Yang, X. Xu, and M. K. Schulte.** 2008. Microcantilever biosensors based on conformational change of proteins. *Analyst (Cambridge)* **133**:434-443.
- Joshi, P. R., A. Suryanarayanan, E. Hazai, M. K. Schulte, G. Maksay, and Z. Bikadi.** 2006. Interactions of granisetron with an agonist-free 5-HT_{3A} receptor model. *Biochemistry* **45**:1099-105.
- Kim, J. S., A. Padnya, M. Weltzin, B. W. Edmonds, M. K. Schulte, and R. A. Glennon.** 2007. Synthesis of desformylflustrabromine and its evaluation as an α 4 β 2 and α 7 nACh receptor modulator. *Bioorg Med Chem Lett* **17**:4855-60.
- Orr, A. L., L. A. Lohse, K. L. Drew, and M. Hermes-Lima.** 2009. Physiological oxidative stress after arousal from hibernation in Arctic ground squirrel. *Comparative Biochemistry and Physiology, Part A: Molecular & Integrative Physiology* **153A**:213-221.
- Pickett, Z. N., W. A. Howard, and C. R. Graves.** 2008. 4-Chloro-2,6-bis(hydroxymethyl)pyridinium Chloride and 4-Dimethylamino-2,6-bis(hydroxymethyl)pyridinium Chloride Hemihydrate. *Journal of Chemical Crystallography* **38**:717-721.
- Shi, B., T. B. Kuhn, H. Liang, and L. K. Duffy.** 2007. Tribochemical performance of cell-treated nickel matrix. *American Journal of Biochemistry and Biotechnology* **3**:141-144.
- Su, B., X. Wang, K. L. Drew, G. Perry, M. A. Smith, and X. Zhu.** 2008. Physiological regulation of tau phosphorylation during hibernation. *Journal of Neurochemistry* **105**:2098-2108.
- Tanwar, K. S., S. C. Petitto, S. K. Ghose, P. J. Eng, and T. P. Trainor.** 2009. Fe(II) adsorption on hematite (0001). *Geochimica et Cosmochimica Acta* **73**:4346-4365.
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Alumni Out & About

Kathleen Gannon (B.S. 1999, M.S. 2002) is the manager of the Northern Regional Project for Environmental Compliance Consultants in Alaska. They are responsible for all commercial and military RCRA services north of Wasilla, Alaska. She and her husband have adopted two Native Alaska girls ages two and seven. In 2005 they enjoyed traveling Europe.

Garrison Collette (B.S. 2004) is an independent energy consultant with Happy Energy Services, Fairbanks, Alaska garrison@happyenergyservices.com.

Lonita Lohse (B.S. 2004) works for the Chitina Native Corporation, Chitina, Alaska.

Tara Layne Sarvela (B.S. 2004) graduated from Texas A&M University in 2007 with an M.S. in Chemistry and in January 2008 started a teaching associate position for Texas A&M University at Qatar.

Abraham Tsigonis (B.S. 2004) is currently enrolled in the WAMI Program – Washington-Alaska-Montana-Idaho Medical Program.

Greg Cushing (B.S. 2004, M.S. 2005) is currently a graduate student in chemistry at University of Virginia working in the Ian Harrison group gwc4e@virginia.edu.

Jeff Gimbel (B.S. 2005) is currently working as an Environmental Professional at Rockwell Engineering and Construction Services, Inc. in Fairbanks Alaska.

Zachary Hill (B.S. 2005) is a Ph.D. candidate at the University of Washington working on bivalent inhibitors of protein kinases that utilize protein-protein interactions as well as protein-small molecule interactions.

Danielle Lavictoire (B.S. 2005) is a graduate student in forensic chemistry at Southeast Missouri State University.

Rodney Guritz (B.S. 2006) is currently working for Shannon and Wilson Engineering doing environmental testing.

Benjamin Warlick (B.S. 2006) currently a graduate student in the John Gerlt Lab at the Department of Biochemistry at the University of Illinois at Urbans-Champaign.



Michael Jaramillo (B.S. 2005) & **Ashley Jones** (B.S. 2006) were married in Fairbanks, Alaska May 23, 2009. Both Michael and Ashley are currently enrolled in Chemistry M.S. program here at UAF.

Raena (Fites) Rowland (B.S. 2004, M.S. 2008) and her husband Isaac are the proud parents of Abel West Rowland born June 2009.



Current Student Updates:

Jennifer Chambers (current undergraduate honors chemistry major) was appointed by Gov. Palin to the Alaska Commission on Postsecondary Education and will serve a two-year term representing full-time college students.

Anastaisa (Tranbenkova) Ilgen (current Ph.D. student in Environmental Chemistry) and her husband Brandon are the proud parents of little boy Ruslan, born December 2008.



Zachary Pickett (current M.S. student) and his wife Tara were blessed with a baby girl, Taliah Rae born August 1, 2008.



Other Recognition:

The UAF Nanook varsity student-athletes, near the end of their sport season, have the opportunity to recognize a faculty or staff member who have helped contribute to their academic success in the past year. In the fall 2008 semester **Sarah Petitto**, Visiting Professor of Chemistry instructing CHEM F106X, was recognized by volleyball player Brianne Wassmann and swimmer Courtney Miller. This spring semester **Mist D'June-Gussak** was recognized by Theresia Schnurr, a member of the ski team.

In Memoriam:

Micki Kobylk one of our M.S. graduate students was killed in an automobile accident on the Sterling Highway near Soldotna Alaska in November 2008. Micki was an enthusiastic participant in various neuroscience endeavors in recent years, and will be missed by those in the department who knew her.

The Department of Chemistry and Biochemistry volunteers at KUAC's annual fundraiser October 2008.



V. Ritchie, T. Trainor, J. Keller and T. Clausen



Tom Clausen



N. Monocci, W. Simpson and E. Reiter



*AlasChemist is a publication of the Department of Chemistry & Biochemistry
Editor John Keller
Managing Editor Mist D'June-Gussak*



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America's Arctic University

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