EXPLORING PERMAFROST TUNNEL VISION

ALSO INSIDE:
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- NORTH SLOPE CARBON FLUX
- STUDYING GEOLOGY ABROAD IN ITALY
- ESTES UPDATE
- ASRA '09
While many state-supported universities across the country are facing major budget cuts due to the economic downturn, here in Alaska, the university continues to receive strong support from the state and from our community.

Fall is the time when the University of Alaska budget is submitted to the governor and state legislature and we need your help! The top new construction priority for the University is the Life Sciences Classroom and Laboratory Facility in Fairbanks. This building is critical for teaching and research in the biological sciences, our largest undergraduate and graduate programs. Our current teaching facilities in biology date from the 1960s with classrooms scattered throughout campus from the Bunnell Building to West Ridge. Although there have been some renovations, they have not been adequate to accommodate growth in enrollment or to keep current with the changing subject matter or research tools in the field. The Life Sciences Classroom and Laboratory Facility will provide modern instructional laboratories and classrooms for studying biological sciences, wildlife management, and effects of climate change, providing students with sufficient learning space and close proximity to the faculty and their research. A complete description of the proposed building is at http://www.uaf.edu/lifescience/ and I urge you to show your support for the Board of Regents’ budget for the university and life sciences as the university budget makes its way through the process in Juneau. Please feel free to contact me if you want more information.

Right now, I am reading faculty tenure and promotion files and student theses. What strikes me is the quality of our faculty and their dedication to teaching, research, outreach and service and the diverse research areas pursued by our students. In this newsletter, we highlight the work of some of our younger faculty, Drs. Mary Beth Leigh and Andrea Bersamin. These faculty all have joint appointments and their research illustrates the close relationship that the college has with the Institute of Arctic Biology and the Center for Alaska Native Health Research. These research and outreach organizations (including also the Geophysical Institute, the International Arctic Research Center and the UA Museum of the North) provide important support for our faculty members’ research activities and for graduate student support.

Our office staff had the opportunity to tour the Permafrost Tunnel located in Fox. Permafrost is a fact of life here in Alaska, and it is interesting to get an up-close and personal look at it. Thanks to Geology and Geophysics associate professor Sarah Fowell for leading a tour of the facility!

I would like to thank the individuals and corporations that have donated time and money to the college. I would like to see that list grow, and encourage you to give back to the college. An area that I would like to see us be able to better support is in the area of student travel, providing opportunities for our graduate and undergraduate students to participate in and present at national and international conferences. In this era of flat or declining budgets, there are many other needs in the college. If you have questions about giving or want to discuss what you can do, please feel free to contact me.

On a more personal note, I continue to try to find time to conduct my research. I was able to attend and present at a conference on volcanism in Morelia, Mexico in September and I will present some of my research at the American Geophysical Union meeting in San Francisco in December. I will be working with another undergraduate on a research project (more on that in the spring newsletter), and currently have two Ph.D. students. In spring, I plan to co-teach introductory geology with Dr. Rainer Newberry, so I guess I am keeping busy.

John Craven, Associate Dean

As outlined in my comments for the spring newsletter, I have now read all the reports submitted by faculty members in the past five years after they taught a natural science course that is part of the UAF Core.

It was an interesting exercise from which I was readily able to detect how great has been the influence of the 2004 report offered by Rainer Newberry and Paul Layer and the diversity of ways this model has been used or ignored; mostly used. A few instructors also demonstrated serious interest in instructional pedagogy. My goal for this year is to improve that percentage and to somehow summarize for all of you what I learned in my readings.

It is far too soon to speculate on how a review of the UAF Core by the Faculty Senate might affect the content of natural science courses, but my early impression is that the natural sciences have not demonstrated exuberance in meeting expectations dating from when the UAF Core was created.
Honor Roll of Donors and Industry Partnerships

We’d like to take this opportunity and publicly thank donors and industry partners of the College of Natural Science and Mathematics. Through contributions or hands-on involvement, they have joined with the college to support our commitment to academic excellence, research and service.

We hold these relationships with donors and industry partners in high regard. They lend strength to the college and support our mission to produce outstanding graduates and a well-qualified workforce.

We wish to thank the following Individuals:

Anonymous
Lizabeth and Michael Allison
James D. Bailey
Robert and Shirley Cismowski
Jackie and Ed Debevec
Vince and Betty J. Elstun-Cochran
Anne Hay
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Cal and Barbara Klein
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Marian L. Ruth
Guy and Margot Urban
Eli Lilly and Company Foundation

We also wish to thank Alaska Summer Research Academy sponsors:

New York Life
Flint Hills

The College of Natural Science and Mathematics welcomes contributions and community support, monetary or in-kind.

Donors may specify how their gift be applied or allow for the dean’s discretion to use contributions where the need is the greatest. All monetary gifts marked for the college are deposited into a special account at the University of Alaska Foundation and allocated by the dean of the college.

Attractive educational tax benefits are available for contributions to the University of Alaska as detailed on the UA Foundation website:

www.alaska.edu/foundation/

Contributions by check can be routed directly to:

College of Natural Science and Mathematics
University of Alaska Fairbanks
Reichardt Building 358
PO Box 755940
Fairbanks, AK 99775-5940

The Office of University Advancement and Community Engagement website provides a secure contribution form for donations by credit card: www.uaf.edu/giving/

The form includes a drop-down list to specify your gift be designated for the College of Natural Science and Mathematics.

Mission Statement
Through instruction and mentoring, the College of Natural Science and Mathematics promotes students’ self-motivation to excel and guides them towards professional careers and public service in an environment of life-long learning. Through research, the College advances knowledge of natural, physical, technological and numerical systems from a northern perspective. Instruction, mentoring, research and outreach are brought together within undergraduate, graduate and continuing education programs to benefit Alaska, the nation and the world.

Vision Statement
The College of Natural Science and Mathematics is the education and research leader in science and technology for the public and private sectors of Alaska and the north. Research and instruction are strengthened by competitive grants at the national level, to the benefit of the University and its students. Research, teaching, and outreach contribute to achieve a superior learning experience. Vitality in scholarship is improved at all levels by recruiting and retaining the best and brightest faculty, staff, and undergraduate and graduate students. Instructional programs use the most current technologies and methods to focus on developing skills for both scholarship and vocation to allow students to develop to their full potential and become the scientific leaders of the future. Leaders throughout Alaska seek our input for solutions to problems facing Alaskans.
Excellence in Teaching

Student opinion surveys are one measure of teaching excellence. While high student opinions of a course do not assure that a course is an excellent one, engaging students is an important step in the process of learning.

At the end of each semester, an Instructional Assessment System survey (IAS), also known as the student opinion of instruction, is formally given to every class in the university system.

We would like to recognize members of the CNSM faculty who taught courses highly rated by students during the last semester.

The criteria for recognition is having received an overall IAS score of greater than or equal to 4.5 (median of terms 1-4) in courses with at least eight students responding. A score of 4.5 indicates that 75% of students rated the course as very good to excellent.

Congratulations on your efforts in teaching during Spring 2009.

Biology & Wildlife
- Abel Bult-Ito
- Mike Harris
- Steffi Ikert-Bond
- Mary Beth Leigh
- Christa Mulder
- Diane O’Brien

Chemistry & Biochemistry
- Tom Clausen
- Larry Duffy
- Marvin Schulte

Computer Science
- Orion Lawlor

Geology & Geophysics
- Sarah Fowell
- Mary Keskinen
- Rainer Newberry

Mathematics & Statistics
- Elizabeth Allman
- Ron Barry
- Jill Faudree
- Andre Ghenciu
- John Rhodes
- Tony Rickard

Engineering, Science and Technology Experiment Station
John Craven, CNSM Associate Dean/Director of ESTES

Sponsored research within the college, that is research supported through external sources, is organized through its research office, ESTES.

By way of summary for the recently completed 2009 fiscal year (ended 6/30/2009), ESTES processed 47 new proposals that requested $14,141,737 in financial support.

To date, 20 of these proposals have been awarded, for a current success rate of 43 percent. Also in FY09, ESTES provided administrative support for 60 existing and newly awarded grants with authorized budgets totaling $5,387,882. These numbers do not tell the full story about research funding and the CNSM faculty. First, faculty members who hold joint appointments and teach within the college carry out their research efforts mainly in research institutes such as the GI, IARC, and IAB.

It is the usual practice for these faculty members to submit their proposals for sponsored research within their respective institutes.

Second, both joint-appointment and full-time CNSM faculty members obtain unsponsored research funding (i.e., Fund 1) from CNSM as part of their tripartite faculty positions; e.g., about 30 percent of their CNSM appointment.

CNSM Welcomes

New Staff
- Jason Weed, IS Professional for Computer Science
- Debbie Blevins, ESTES Office Assistant
- Dawn Dearinger, Biology and Wildlife Office Manager

New Faculty
- Brian Edmonds, Assistant Professor of Biochemistry & Biophysics
- Kriya Dunlap, Term Research Assistant Professor, ESTES
- Leah Berman, Associate Professor of Mathematics
- Gordon Williams, Assistant Professor of Mathematics
- Zepu Zhang, Term Assistant Professor of Statistics

www.uaf.edu/estes
North Slope Carbon Flux
By Mary Beth Leigh, Assistant Professor of Microbiology
Department of Biology and Wildlife and Institute of Arctic Biology

A collaborative team of UAF faculty and scientists from the U.S. Geological Survey (USGS) in Woods Hole, MA, are working to understand methane emissions from lakes on the Alaska North Slope and how they respond to climate change. The team is led by Dr. Matthew Wooler (UAF Institute of Northern Engineering), along with Drs. Mary Beth Leigh (UAF Department of Biology & Wildlife, Institute of Arctic Biology), Katey Walter (UAF Department of Biology & Wildlife, Institute of Northern Engineering) and USGS scientists Dr. Carolyn Ruppel and Dr. John Pohlman, with research funding from the United States Department of Energy National Energy Technology Laboratory (DOE Award #: NT0005665).

Methane is a potent greenhouse gas, yet little is known about past or present methane emissions from the Arctic and potential future increases in methane flux under predicted climate warming scenarios.

Methane in the Arctic can come from various sources, including natural gas seeps, methane hydrates and microbial decomposition of dead plant material in lake sediments and potentially thawing permafrost (thermokarst). By conducting field and laboratory research that combines geochemistry, microbiology and geophysics, the team is working to identify the major source(s) of methane, determine how much methane is being released to the atmosphere versus consumed by lake microbes, and infer the impact of past and future climate change on methane sources and emissions.

This summer, the team conducted field work at the Lake Qalluuraq gas seep, approximately 50 miles south of Barrow near the village of Atqasuk. Lake Qalluuraq is an exciting study site because of its very actively bubbling methane seep. In May, the team traveled by snow machines six miles from the village to the lake each day to drill through the ice and collect water and sediment core samples, and spent a day at the Meade River School leading a hands-on workshop for local students and their parents on the research project.

In July, the team traveled by ATV and used boats to determine the depth of the thaw bulb using ground penetrating radar and to collect additional samples. The group lived in the Meade River School in Atqasuk where they cooked large meals in the home economics classroom, often hosting their local guides, bear guards and friends from the village, and enjoyed sharing their research with summer school students.

Lake Killarney in Fairbanks is also being studied for its methane emissions and compared to arctic lakes. Next summer, the team will travel to Milne Point in the Prudhoe Bay area to study lakes in that region.

Earth Friendly

University of Alaska Fairbanks Chancellor Brian Rogers recognized Biological Sciences major Gretchen Garcia with a tuition waiver for a Student Sustainability Efforts award. Gretchen is a senior and has been active in the Sustainable Campus Task Force since 2005. Since then, she has been involved in several sustainability activities on campus, including Earth Day, the Sustainable Living Conference and a campus bike workshop. She will serve as president of the Sustainable Campus Task Force during 2009-2010.

www.uaf.edu/sustainability

Contributing to Green

In an attempt to reduce cost and paper, an e-version of the newsletter will be available at www.uaf.edu/cnsm. If you prefer to receive it electronically, please call Hild Peters at 907-474-7941 or email hmpeters@alaska.edu.

Thank you!
EXPLORING PERMAFROST

TUNNEL VISION

TEXT BY DR. SARAH FOWELL, ASSOCIATE PROFESSOR, GEOLOGY
PHOTOS BY MATT HUTTER, CNSM OFFICE ASSISTANT

Visitors start out with a visual presentation about permafrost and the geological timeline of Alaska.

Hard hats and jackets required, the tunnel temperature stays below freezing year round. Hard hats protect explorers from falling geo-debris.

A worm’s-eye view of polygonal ground, seen through the cross-section of an ice wedge.

Remains of a horse including a jawbone.

Dr. Sarah Fowell sheds some light on the situation.
The front section of the tunnel entrance is braced with supports and cooled with fans and refrigeration to maintain structural soundness.

12,000- to 14,000-year-old bones of Pleistocene horses, mammoths and the extinct long horn bison can be seen inside.

A frozen log estimated at 11,000 years old embedded in the tunnel wall.

Interim Dean Paul Layer and Karen Layer taking in the sights.

Small swamps and bogs cultivate aquatic plants such as sedges and grasses. These areas also provide water during ice wedge development. Often these aquatic plants can be found in relation to massive ice features.
Atmospheric Sciences
The Department of Atmospheric Sciences (DAS) welcomes eight new graduate students and several new associated faculty (J. Zhang, X. Zhang, J. Fochesatto, G. Newby). Rebecca Leggett, a graduate student of DAS, participated on the NABOS research cruise and in two summer schools. Ted Fatuor also helped with measurements on another research vessel. DAS is proud to announce that we now have displays of actual weather maps and satellite pictures. These displays are located in the third floor break room of the Akosofu Building. The purchase of the screens was made possible by a TAB proposal written by David Atkinson. Barbara Day, David Atkinson and Richard Collins helped to get the screens in place in accordance with the fire code. Austin Cross and Matt Barkdoll helped with the computational and networking site of the installation. Nicole Mölders was invited to give an interview related to NCAR/UCAR’s 50th anniversary next year. Uma Bhatt joined the SEARCH board.

Submitted by Nicole Mölders, Department Chair

Biology & Wildlife
Fall 2009 began with changes to the Biology & Wildlife office staff, a new position for Dr. Denise Kind who received her Ph.D. from the University of California Irvine and holds a secondary certification in science. She has assumed a faculty position as Instructor and Laboratory Coordinator. Denise previously taught Fundamentals of Biology I and II (now BIOL 115X/116X) both in Summer Sessions and during the academic year and has been serving as the department’s Laboratory Coordinator since 2008. Denise brings exceptional skill to the position. Dawn Deairinger has joined the department as Office Manager, and Carol Piser has moved into the newly created position of Student Coordinator. Dawn, who recently moved to Fairbanks from North Carolina, brings a wealth of fiscal and office management experience to the department. Carol Piser, who for long years held the Office Manager position, has taken a position capitalizing on her expertise and experience helping students move through their degree programs. Carol has assumed responsibility for administering graduate student applications, working with the chair to assign graduate teaching assistants, monitoring and updating graduate student files, and serving as the first point of contact for students requiring departmental assistance. The department wishes Carol well in her new position and extends a warm welcome to Dawn and Denise. We also welcomed 29 graduate students in the fall which is one of our largest cohorts.

Submitted by Rich Boone, Department Chair

Chemistry & Biochemistry
This semester’s news focuses on research, which is central to the mission of the Department of Chemistry and Biochemistry. Research activities are offered to both undergraduate and graduate-level students, and articles published in the scientific literature often are co-authored by students.

This year, research articles by three graduating students deserve mention. Dan Kirschner (Ph.D. 2009) and Tom Green published a review in the Journal of Separation Science on the analysis of D-serine, a rare but important molecule recently discovered in brain tissue. Kunal Tanwar (Ph.D. 2009) and Tom Trainor reported in Geochimica et Cosmochemica Acta how Fe2+ ions, which are commonly found in aquatic systems, bind to ferric iron oxide particles and become oxidized. These results shed new light on the nature of the iron biogeochemical cycle. Brian Barth (Ph.D. 2009) and Tom Kuhn described in Molecular and Cellular Neuroscience how superoxide ions produced during inflammation can damage the internal structures of nerve cells. Processes like this are associated with aging and Alzheimer’s disease.

These articles are typical of the pursuit of scientific excellence by faculty and students in the department and they illustrate the national impact of our research programs. Substantial research support was provided by Provost Susan Henrichs in the form of new computer hardware and software for the department’s 300-MHz NMR spectrometer. Funding from the Technology Advisory Board allowed John Keller to install high performance computers running the Gaussian computation chemistry program. Tom Trainor and colleagues completed installation of a state-of-the-art materials x-ray diffractometer funded by NSF and UAF.

Submitted by Rich Boone, Department Chair

Mathematics & Statistics
The Department of Mathematics and Statistics (DMS) is very pleased to welcome three new faculty colleagues this academic year: Leah Berman, Associate Professor of Mathematics (tenure track); Gordon Williams, Assistant Professor of Mathematics (tenure track); and Zepu Zhang, Assistant Professor of Statistics (term appointment). Please join DMS in welcoming them to CNSM.

DMS faculty are involved in a variety of projects that offer exciting opportunities for research, collaboration, interdisciplinary
study, and research with students.
Examples include:

- Sergei Avdonin, for his 2008-09 sabbatical, was awarded the Miller Scholarship from the University of Missouri-Columbia and a scholarship from the Italian Academy of Sciences. As part of his sabbatical work, Sergei has established new research collaborations between UAF and the University of Nancy (France), Turin Polytechnical University (Italy), and University of Erlangen-Nurnberg (Germany), and delivered invited talks at Turin, University of Tennessee Knoxville, and Florida International University.
- Elizabeth Allman has been invited to speak in November at the Mathematical Biosciences Institute at Ohio State University as part of the Mathematical Developments Arising from Biology conference. Elizabeth is also vice chair and an organizer for the new Activity Group in Algebraic Geometry for the Society of Industrial and Applied Mathematics.
- John Gimbel spent the summer of as part of a research group at Charles University in Prague, Czech Republic, investigating topics in graph theory and combinatorics. John also worked with students from Rutgers University as part of a National Science Foundation funded Research Experience for Undergraduates project.
- John Rhodes is a visiting Erskine Fellow at the University of Canterbury, New Zealand, from July-October. John is working with colleagues in the Department of Mathematics and Statistics at Canterbury on theoretical aspects of phylogenetics.
- Alexei Rybkin worked with UAF undergraduate students Jason Baggett, Lyman Gillispie, and Sigourney Walker, and UAF graduate student Odile Bastille, on his NSF-funded REU project, A Hybrid Numerical Method for the Korteweg-de Vries Equation over the summer. He will direct another REU project during summer 2010.

Finally, MATH and STAT students should make use of the Math Lab in 305 Chapman, which provides tutoring and assistance for all core courses in mathematics and statistics.

Submitted by Tony Rickard, Department Chair

Physics
This year, the Physics Department continues to see a healthy enrollment in its programs. Currently, we have 40 undergraduate majors, 23 graduate students and 10 undergraduates in the general science program. Our new curriculum continues to evolve as more choices are offered through the one-credit minicourse series. Last spring, we graduated six B.S. degrees and two master’s degrees. Of special note was the recognition of our local honors program and the SPS chapter (Society of Physics Students) by the national SPS honor society. Dr. Channon Price mentors the local SPS program. We are currently seeking a new faculty member to fill the place left vacant by the retirement of Dr. John Craven and the untimely death of Dr. Heinz Wiechen. With Dr. Craven’s retirement, Dr. John Olson was elected as the new department chair.

Submitted by John Olson, Department Chair

Nutrition Research: Cultural Pathways to Prevention

By Dr. Andrea Bersamin, Assistant Professor of Biology, Department of Biology and Wildlife, Center for Alaska Native Health Research

The increasing prevalence of childhood obesity is one of the most significant public health challenges in the United States. Data collected by the Center for Alaska Native Health Research from Yup’ik Eskimos suggests that childhood obesity is also highly prevalent among Alaska Natives.

This is in stark contrast to reports from the 1950’s describing a virtual absence of overweight or obesity in this population. The increase in obesity among Alaska Native youth in rural communities has coincided with significant changes in the food environment, notably, the increased availability of market foods which have replaced traditional foods to varying extents. That Alaska Native youth derive the majority of their diet from market foods is of concern in light of evidence that traditional foods (fish, marine mammals, berries, game, and wild greens) are the underpinning of diet quality in these rural communities. Despite the troubling increase in obesity and changes in dietary habits, Alaska Native youth are underrepresented in obesity prevention and nutrition research. The overall focus of our research is to study the influence of a range of individual to environmental-level factors on food intake and weight among Alaska Native youth using a socio-ecological approach.

Three projects in our research group examine multiple levels of influence of diet and weight. First, we are collecting data from child/parent dyads in communities in the Yukon-Kuskokwim region to understand how family and household level factors, such as food availability, parenting practices, and perceptions of nutrition, shape food choice and weight among youth. Second, we are developing a survey that will be conducted among students at UAF to better understand predictors of diet and weight among college-age youth in an urban setting. Finally, we are conducting a state-wide survey to identify barriers to including traditional foods in school lunches in Alaska, since school food service plays an important role in providing access to nutrient-dense foods.

A socio-ecological approach provides a useful framework for understanding obesity, a complex health problem, and for developing community-based interventions that can bring about change at multiple levels—this in turn can lead to a demonstrable improvement in obesity-related health behaviors and a reduction in health disparities.
Lifting a brightly colored object from the earth, an ASRA archaeology student discovered that the article was actually the melted remains of a piece of bead work. The article had been scorched during a cabin fire along Coal Creek on the Yukon River and belonged to an Athabaskan family that lived there when gold was discovered. Meanwhile, on the Fairbanks campus, engineering module student Jesse worked on his first design project—a remotely operated vehicle or ROV.

In Katchemak Bay, Annie counted hundreds of sea cucumbers during the Marine Biology module, while miles away another student, Hannah, listened to walrus vocalize under water using a hydrophone on Round Island in the Marine Mammals and Seabird module. It’s all part of a normal day at the Alaska Summer Research Academy (ASRA).

ASRA celebrated its ninth year with a record 146 students from all over Alaska, the lower 48 and Germany. There was an increase in the number of students from rural communities due to a dual recruiting partnership with the Rural Alaska Honors Institute (RAHI).

Students chose one of the 16 different academic experiences including: Biomedicine, Creative Writing, Earth & Space Science, Earthquakes in Denali National Park, Engineering Design–ROV, Human Physiology & Exercise, Marine Biology, Programming, Radical Math and Robotics. Some new modules combined engineering, science, music and observation—as seen in the Sounds of Science, Extreme Photography and Sustainable Energy and Climate Change modules.

New partnerships formed this year. The Alaska Department of Fish and Game provided two professional marine biologists to lead the Marine Mammals and Seabirds module on Round Island. The UAF School of Fisheries and Ocean Sciences created the Fisheries module taught by two UAF faculty and the National Park Service worked with the UA Museum of the North to create an Archaeology module in the Yukon-Charley Rivers National Preserve.

In 2009, ASRA gained support from new donors including New York Life, with a three-year commitment and Flint Hills Resources, who recently renewed their support for the 2010 program. ASRA is a community effort and would not be possible without the help of the many partners who generously support the program.

Plans are underway for ASRA 2010. We will also sponsor Science Mondays, a family-oriented, hands-on evening program on Monday evenings during the summer months. Our new modules and information for 2010 will be available on our website in January. Applications will be accepted between February 15 and March 1.

www.uaf.edu/asra
Courses offered through study abroad programs are typically geared toward students of the liberal arts. In Italy, literature, architecture, art and history courses are popular because of the country’s rich cultural history. However, the record of Italy’s precultural evolution – its geologic history – is as evident, and as exciting, as the Roman architecture and the medieval walled cities. To take advantage of the events recorded in Italy’s mountains, caves, and cliffs, two geoscience courses will be offered through the AHA International study abroad program in Macerata, Italy during fall semester 2010. Both courses will be taught in English by Department of Geology and Geophysics faculty member Sarah J. Fowell. The courses, described below, provide a unique opportunity for CNSM students to earn science credit while studying abroad. They are also excellent options for budding scientists, outdoor enthusiasts, students of “big history” or artists who work with stone.

Nicolaus Steno and the Discovery of Earth’s Ancient History is a three-credit introductory geoscience course designed to teach non-majors how to “read” the record of Earth’s history recorded in the rocks in and around Macerata. In the 17th century, well-exposed sequences of rock visible in the hills of Tuscany captured the attention of Danish anatomist Nicolaus Steno. Ultimately, his insights regarding the origin of fossils and sedimentary rocks led to the conclusion that the Earth was much older than previously realized. Consider Steno’s contribution to the Scientific Revolution and apply his simple and elegant rules to reconstruct the evolution of the Italian landscape. This course is ideal for hikers and climbers, as it will open your eyes to the episodes of Earth’s history recorded in the mountains, caverns and cliffs of Italy. The class will also explore the intersection of geoscience and architecture as we examine the ways in which local bedrock was used by Roman and medieval builders.

Mass Extinctions, Neocatastrophism and the History of Life is a three-credit, upper-division course suitable for geoscience majors, biology majors, and non-scientists alike. A thin, dark clay horizon that punctuates layers of limestone in rocks outside Gubbio, Italy, less than an hour from Macerata, launched the theory that an asteroid may have caused the Cretaceous mass extinction, annihilating pterosaurs, non-avian dinosaurs, and large swimming reptiles. This course will examine the impact of the Gubbio discovery on 20th century paleontology, evaluate the evidence for a sixth mass extinction, and consider the environmental and biotic effects of asteroids, supervolcanoes, and other geological catastrophes. As an oral-intensive class, this will fulfill the core “O” requirement at UAF. It will also count towards upper-division elective credits in geoscience or biology.

For more information:
e-mail sjfowell@alaska.edu.
AHA International website www.ahastudyabroad.org/.
To apply, please visit the Office of International Programs in 215 Eielson Building, UAF campus or download the application form at www.uaf.edu/oip.
The application deadline is March 1, 2010.

Chemical Reactions
High school students, parents and teachers visited the Reichardt Building in October for the UAF Chemistry Department open house, an event hosted in celebration of National Chemistry Week.

Visitors were able to see first-hand new methods used by researchers to study Arctic sea ice, how to use HyperChem 3D Modeling software to study blueberry compounds and a table showing vials of elements.

One of the biggest draws was the human brain featured at the biochemistry table. Dr. Kelly Drew handed out rubber gloves for groping the gray matter while bystanders wanted to know if it was real.

Chemistry Department Chair Professor John Keller said the event is a great way to show the community the opportunities available to students interested in chemistry and to talk about the department’s curriculum. “We have a nationally funded program with support from the National Science Foundation. There are laboratory opportunities in freshman classes and with small class sizes, students can do hands-on research and get a more personalized education.”

Professor Tom Clausen said that things in the chemistry department have changed immensely since he was a UAF student and that the open house is a good way to let people in on the details of the expansion. “I would really like to see more parents visit so they can really see what UAF has to offer,” Clausen said.

Jennifer, a junior from North Pole High School, said that while she wasn’t initially interested in becoming a chemistry student, after seeing the HyperChem demonstration, she changed her mind. “Before, I didn’t think science was such an interesting subject, but now I am starting to like it more.”