

The College of

SCIENCE & MATH

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Students on the frontier
of Antarctic research

NDSU NORTH DAKOTA
STATE UNIVERSITY





Scott Wood is the college's new dean

Wood's vision starts with increasing the college's capacity to educate students and conduct cutting-edge research

To Scott Wood, more space, people and support for graduate students will be key aspects of the College of Science and Mathematics' continued success and its ability to help NDSU move forward as a major research university.

Increasing the college's capacity to educate students and conduct cutting-edge research are where the new dean's vision begins. Once he takes the reins in late July, he plans to work with the college's faculty, staff and administrators to refine the vision and set goals that are attainable yet stretch the imagination. "We're going to build a vision together," he said.

Wood, who was most recently dean of science at the University of Idaho, Moscow, replaces Kevin McCaul, who

is returning to the psychology department as an adviser. "I've always liked being an administrator, but I've also liked being a professor," McCaul said. "I look forward to working directly with students again, which is something I've missed since my last Ph.D. student graduated two years ago."

Wood's experience

Wood joined the University of Idaho in 1991 as a faculty member in geochemistry. He was promoted through the ranks to professor in 1997, associate dean of science in 2006, interim dean of science in 2007 and dean of science in 2008. The

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TIMELINE



1892

The North Dakota Agricultural College offers botany and zoology as well as chemistry and mathematics courses.

1898

Botany and zoology and chemistry and mathematics are departments.

College of Science at the University of Idaho includes biological sciences, chemistry, geography, geological sciences, mathematics, physics and statistics.

Wood was born and raised in Utica, N.Y. He earned a bachelor's degree in geology and chemistry from Hamilton College in Clinton, N.Y., in 1980 and master's degree and doctorate in geology from Princeton University in 1985.

He was a tenure-track faculty member at McGill University in Montreal from 1985 to 1991. Wood also has held visiting scientist positions at Los Alamos National Laboratory in New Mexico and Oak Ridge National Laboratory in Tennessee. He has published 83 refereed journal articles, 13 chapters in books or monographs, 23 refereed conference proceedings and has given more than 170 seminar or conference presentations. He has obtained several millions of dollars of research funding from a variety of sources including the National Science Foundation, the Department of Energy, the Department of Defense, the National Institutes of Health, the Department of Defense, the American Chemical Society and the minerals industry.

Wood's area of expertise is aqueous geochemistry, specifically how minerals interact with various types of aqueous solutions with applications toward mineral deposit exploration, geothermal energy exploration, nuclear waste disposal, health effects of asbestos and other minerals in the lungs and the environmental geochemistry of acid-mine drainage. He is particularly well known for his expertise in the geochemistry of rare earth elements and platinum group elements.

Highlights of McCaul's watch

During McCaul's six-year tenure as dean, he focused on quality, whether that quality was a part of instruction, scholarship or service. One of his goals was to increase the number of undergraduates who gain research experience. The college published a booklet called "Research Opportunities for Engaging Students," or ROPES, which lists the college's researchers, their research areas, requirements for working with a particular researcher and whether the student will earn credit or get paid. The goal of the booklet and other efforts was to increase undergraduate research experiences by 25 percent. McCaul also focused on providing resources to help faculty improve their teaching and increasing the number and effectiveness of online courses.

Some of his strategies for increasing the quality of research included fundraising efforts for graduate student scholarships, developing lists of campus equipment available for all researchers, offering summer one-day, interdisciplinary research forums and developing collaborative research connections within the community.

Another major goal was to upgrade the college's classroom and research space. During the past six years, physics, biology, geosciences and chemistry labs have been upgraded. Minard Hall, which houses the mathematics and psychology departments, is being remodeled, while the statistics department will move from Waldron Hall to Morrill Hall. Stevens Auditorium is being remodeled using funds from Gate City Bank. McCaul also worked to garner university support for a new science and engineering classroom building. Securing funding for the building will be a top priority for the 2013 Legislative session, he said.

Improving science literacy through community outreach was also a priority for McCaul. Monthly Science Café presentations, held off campus at the Hotel Donaldson during the evening, show science can be fun and accessible. Topics have included the chemistry of wine, children's language development and how DNA can be used to bring criminals to justice. The college also sponsors an annual community lecture. This year's lecture by paleontologist and evolutionary biologist Neil Shubin of the University of Chicago attracted more than 700 people, McCaul said.

As McCaul leaves his administrative role in the college, he looks forward to the new ideas Wood brings to advance the college and hopes initiatives implemented under his watch "will become part of the tradition of what the college does," he said.

Moving forward

Wood plans to continue McCaul's efforts to increase the amount and quality of space the college has for instruction and research. He also wants to increase the number of faculty and staff and increase financial support available for graduate students. "The key is to build capacity," Wood said. "If we address those issues, it will allow other things to happen."

Like most universities around the country, NDSU faces funding challenges. Wood said he will be an advocate to secure state appropriations but that he also will look for ways to be more entrepreneurial and find other sources of funding. He plans to be an active fundraiser and to build strong relationships with alumni, businesses in the community and state and private foundations.

Wood's major goals will be to increase research expenditures as well as the number and quality of faculty publications, to continue to offer high quality general education courses and increase the quality of undergraduate and graduate offerings.

Anne Robinson-Paul

1904

The college grows. The four departments are botany, zoology and bacteriology; chemistry and pharmacy; mathematics; and mechanics and physics.

1908

Divisions are formed under most departments. The Department of Biology includes the botany, zoology and bacteriology divisions. The Department of Chemistry and Pharmacy includes the chemistry and pharmacy divisions. The Department of Engineering includes the mechanical engineering, physics, steam and experimental engineering and civil engineering divisions. The Department of Mathematics stands alone.

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continued



1917

The departments are now called schools, and the schools include divisions. The School of Chemistry and Pharmacy includes the inorganic and qualitative chemistry; agricultural chemistry; quantitative, organic and physical chemistry; food and physiological chemistry; and industrial chemistry divisions. The School of Mechanic Arts includes the physics division. There is also a category called Group of Applied Science, which includes the Department of Biology, the Department of Geology and Mineralogy and the Department of Mathematics.



1918
zoology class

1919

The new School of Chemistry and Technology is listed in the 1919-20 Bulletin.



1920
botany class

1922

The new School of Science and Literature includes the bacteriology, botany, geology and mineralogy, mathematics, and zoology and physiology departments.



1923
biology lab

1935

Schools are replaced by divisions. The Division of Applied Arts and Science includes the botany and plant physiology; geology and mineralogy; mathematics; and zoology and physiology departments. The physics department is under the Division of Engineering.

1939

The school concept returns, and science and mathematics departments are part of three schools: School of Applied Arts and Sciences, School of Chemical Technology and School of Engineering.

1960

The North Dakota Agricultural College becomes North Dakota State University. The schools become colleges. Science and mathematics departments are part of the College of Arts and Sciences, the College of Chemical Technology and the College of Engineering and Architecture.

1965

The College of Chemical Technology is replaced by the College of Chemistry and Physics.

1973

The College of Science and Mathematics is formed when the State Board of Higher Education approves the reorganization of the College of Arts and Sciences and the College of Chemistry and Physics. The other new college that emerges from the reorganization is the College of Humanities and Social Sciences.

1974

The College of Science and Mathematics consists of the following departments: bacteriology, biochemistry, biology, botany, chemistry, computer science, entomology, environmental studies, geology, mathematics, medical technology, physics, polymers and coatings, and zoology and physiology.



1977
geology field trip

1980

The college has grown to the following departments: bacteriology, behavioral biology, biochemistry, botany/biology, chemistry, chemical physics, chemistry with engineering electives, composite science, computer science, engineering physics, entomology, environmental science, environmental studies, geochemistry, geology/earth science, management information science, mathematical sciences, medical technology, physics, polymers and coatings, psychology, range management training, wildlife and fisheries biology, and zoology.



1990
chemistry

1992

Geography is moved from the College of Humanities and Social Sciences into the College of Science and Mathematics.

1996

The college offers many areas of study, including biological science, biotechnology, botany, chemistry, clinical laboratory science, computer science, earth science, geography, geology, mathematics, microbiology, natural resource management, physics, psychology, respiratory therapy, statistics and zoology. It also offers pre-professional programs: chiropractic, dentistry, medicine, mortuary science, optometry and osteopathy.

1998 to the present

The college continues to offer many areas of study as well as pre-professional programs.



1998
zoology



2012
biological sciences

PRESIDENT'S MESSAGE



The College of Science and Mathematics is a key component of NDSU, an institution renowned as a student-focused, land-grant, research university and acknowledged as an economic engine for the state.

Some of the college's outstanding educational opportunities, leading research efforts and quality outreach are highlighted in the pages of this newsletter. Through these stories, you will get a glimpse of the power and vitality at NDSU, as we educate future leaders who will create solutions to state, national and global challenges.

NDSU is a growing national research power, and the work at the College of Science and Mathematics is critical to our progress. Information in this newsletter will demonstrate that undergraduate and graduate students are directly involved in world-class research and they study in a rigorous academic environment. Through other stories, you will see the personnel of the college provide students with a diverse, supportive community of learning and discovery. You'll understand that our faculty and staff are clearly dedicated to student success.

At NDSU, we educate students, conduct research, create new knowledge and advance technology. The College of Science and Mathematics is a vital contributor to those goals.

Dean L. Bresciani

DEAN'S MESSAGE



This is my sixth and last note to you as dean of the College of Science and Mathematics. Scott Wood became the new dean on July 27. People have asked if I feel relieved as I return to the Department of Psychology. My answer is "no." There is so much I will miss about this role, not the least of which is the loss of daily interactions with a

tremendous staff, including Nancy Suttle, Diane Goede, Keri Drinka and Jeff Boyer. Similarly, I will greatly miss the students, faculty and staff of the college, whom I have sometimes helped to recruit and mentor. I have had the opportunity to share in their accomplishments and often, I think, to become friends with many of them.

I suspect some readers see our continually escalating budgets and tuition charges and believe we have few fiscal pressures. That suspicion is far from the truth. The college motto of "Explore, Discover, Achieve" might better be expressed as "Doing more with less." The latter characterization definitely captures faculty performance. They are remarkably successful in an environment that is often severely shorn of resources but demands increasing accountability in myriad ways. I am very proud of the staff and faculty in the College of Science and Mathematics for what they do, and I am thankful for the privilege of serving with them.

Kevin D. McCaul
www.ndsu.edu/scimath



Alumni donations helped transform Dunbar Hall's room 152 into an innovative, student-focused learning space featuring interactive classes, active group learning and cutting-edge technology.

Classroom becomes 'cutting-edge learning environment'

A glance inside Dunbar Hall's room 152 tells you this classroom is something special.

There is no "front of the room," from where an instructor holds court. There are no rows of student desks, no wall-length blackboard dominating the view.

Dunbar 152 has been transformed into a "SCALE-UP" classroom, which stands for Student-Centered Active Learning Environment with Upside-down Pedagogies. Simply put, the classroom is a place where the focus shifts from instructor to student.

Patterned after a national model, there are five round tables located around the room. Each seats nine students, putting the room capacity at 45. Computer-friendly screens and dry-erase whiteboards fill the walls.

"The round tables support the idea of students turning to their neighbors or small groups to discuss ideas or work on something," explained Jennifer Momsen, assistant professor of biological sciences. "There is technology in place so students can plug in computers and project their work onto a screen. Each table actually has its own screen so that everyone can look and work on a project or problem together."

A team of STEM faculty was charged with making the scale-up classroom a reality. The team includes Momsen; Erika Offerdahl, assistant professor of chemistry and biochemistry; Warren Christensen, assistant professor of physics; Lioudmila Kryjevskaaia, assistant professor of physics; and Lisa Montplaisir, assistant professor of biological sciences.

"The classroom design is based on research about how people learn most effectively," said Offerdahl. "The research

clearly tells us the teacher should be doing less of the talking and the students should be doing more in the classroom."

This classroom does just that. Instructors usually start classes with a short talk on the subject matter, followed by ongoing, in-class dialogue with the students. As the students learn through participation, they often focus more than they would during a lecture taking notes.

"The scale-up classroom allows students a space where they can brainstorm or think out loud," Momsen said. "They can articulate what they are thinking through the whiteboards and computer screens. The classroom layout supports group learning and the active approach. And the instructors can easily see what all the students or teams of students are doing."

The classroom was funded largely through private donations, including a lead gift of \$35,000 from NDSU alumnus Jim Meier. The classroom remodeling totaled about \$50,000.

"The contributors are visionary for creating a learning environment like this. They are really forward thinking," Offerdahl said. "This classroom concept is clearly going to have a significant impact on our student population."

Momsen and Offerdahl see the classroom as the first of several such learning spaces that could be developed on campus. Momsen suggests a few large lecture halls may be converted eventually into the SCALE-UP format.

"This is a great example of our college being in the forefront of what we know about learning," Momsen said. "We are rising in the ranks of other outstanding institutions – we're already there with them in research and now we are doing it in cutting-edge teaching."

Steve Bergeson

Fulbright scholar carries out novel cancer drug research

Ihor Tarnavchyk's brief 2008 visit at NDSU helped lead to a new product used to treat burns. Now the Ukrainian researcher is hoping to use his second stay to develop innovative ways of delivering cancer-fighting drugs within the body.

Tarnavchyk is a researcher in the organic chemistry department at Lviv Polytechnic National University in Lviv, Ukraine. In October 2011, he began a nine-month stay at NDSU's coatings and polymeric materials department through the Fulbright Scholar Program.

Less than 20 Ukrainian scholars study in the United States each year as Fulbright scholars. The program, established in 1946, is funded by the U.S. Department of State and exchanges scholars and students between the United States and foreign countries.

Tarnavchyk is using the opportunity to design, synthesize and study polymeric materials that can be used to form self-organized nano- and microsized carriers for drug delivery. Essentially, Tarnavchyk said he hopes to create hydrogel polymer particles that can carry cancer-fighting drugs through the bloodstream.

While at NDSU, Tarnavchyk has synthesized and studied the hydrogel particles, which have a biodegradable core and biologically compatible shell. The next steps of his research include studying the hydrogel's ability for drug loading and release, stability and biological degradability. "The main idea is to change the method of drug delivery as it has a significant effect on drug efficacy," Tarnavchyk said. "Most drugs have an optimum concentration range with highest efficacy, but can be toxic or inefficient above or below this range."

Ideally, the hydrogel particles would be loaded with cancer-fighting drugs and injected into the body, where they would slowly degrade and release the drugs. This would maximize and extend the drug's effectiveness to combat cancer cells while potentially alleviating the sickness chemotherapy patients suffer as a side effect.

Tarnavchyk said he is appreciative of the chance to continue his research at NDSU. "During my project here I can easily and thoroughly study any processes," he said. "For me, as a researcher, it is a very important facility for my research project implementation. What I like is that it is a really user-friendly system. I can use lots of devices at NDSU and get some courses and training if necessary."



Ukrainian researcher Ihor Tarnavchyk researched new ways of delivering cancer-fighting drugs while at NDSU.

Tarnavchyk also is able to contribute to NDSU research projects. He and members of NDSU's mechanical engineering department are studying the impact of hydrogel lubricants in the artificial joints used in knee and hip replacements. The joints are built of metal and polymers, which wear and create debris over time. The debris causes inflammation and soft tissue damage currently alleviated through joint maintenance and eventual replacement. "We consider that a few injections of lubricant can

protect wearing and avoid debris formation," Tarnavchyk said.

Another possibility is that hydrogel can be injected into a human joint to provide lubrication, lessen pain and delay replacement. "The goal is to get as close as possible to naturally based lubricants," said Andriy Voronov, assistant professor of coatings and polymeric materials. "We know the principle of what nature uses in the human body to protect against friction. We are trying to mimic that with synthetic materials."

"The main idea is to change the method of drug delivery as it has a significant effect on drug efficacy."

– *Ihor Tarnavchyk*

Voronov, who has been at NDSU since 2007, met Tarnavchyk in Germany while the two were developing a hydrogel-based bandage. The bandage, which affixes medication-containing hydrogels to a polymeric net, is used to treat burn wounds. Tarnavchyk and Voronov obtained a joint Ukrainian patent for their design, which is being manufactured in the Ukraine.

Tarnavchyk developed the hydrogel bandage in part during a 2008 visit to NDSU before returning to the Ukraine to earn a doctorate in polymeric chemistry. "It was a great opportunity to carry out my research in one of the top U.S. research universities," he said.

Dave Nilles

Statistics consultant plays important role in NDSU research

In his office dominated by computer screens and keyboards, Curt Doetkott is, in many ways, the “answer man.” Doetkott leads NDSU’s Statistical Consulting Service, which helps researchers compile and analyze data of all sorts.

The consulting service, supported jointly by NDSU’s Information Technology Services and the Department of Statistics, is available to faculty, staff and students at North Dakota University System institutions, usually at no charge. It often provides a key element in the research process.

“We try to help people with their data analysis issues in relation to their research, at whichever level they want,” said Doetkott, noting his office offers advice ranging from straight forward issues such as surveys and charts to more complex things like inferential statistics to test hypotheses. “Some people come to us and don’t know that much about statistics, so they look for input on what to do from the very beginning. In other instances, people are quite comfortable with statistical ideas, and they only need help through rough spots.”

On this day, Doetkott had meetings with NDSU researchers from the School of Education and a graduate student studying exercise science. His schedule for the week included interactions with graduate students in natural resource management, pharmacy and industrial and manufacturing engineering. He also met with a faculty member from plant pathology.

“The interesting thing is working with people from different departments, disciplines and parts of the world. We see a lot of variety,” said Doetkott, who has been on campus for more



Curt Doetkott leads the NDSU Statistical Consulting Service, which provides data analysis for faculty, staff and students in the North Dakota University System.

than 25 years. “By getting exposure to all these disciplines, I personally am always learning new things. The variety of the research keeps my work interesting.”

Doetkott participates in 100 to 150 statistical analysis projects each year, aided by one to four graduate students from the statistics department. “It’s really nice to have the opportunity to work with the statistics students. When they start, the projects are usually the first or second one they’ve ever worked on, and their enthusiasm

makes it fun,” he said. “Many of them work for me for one to two years and eventually work on up to two dozen projects.”

Doetkott’s office also features a variety of hanging plants and African violets – a ready reminder of his first area of study. He earned bachelor’s and master’s degrees in zoology at NDSU in the 1980s. “I wanted to know more about analyzing my own data from my research. I turned to statistics, and one thing led to another,” he said. By 1992, Doetkott had added a master’s degree in statistics.

Now, with the experience of hundreds of projects and expertise in such statistical approaches as Generalized Linear Mixed Models and resampling techniques like bootstrapping, permutation tests and Monte Carlo methods, Doetkott is truly the person NDSU faculty and graduate students regularly look to for assistance with their research projects.

“The reason we are here is to help researchers analyze and get the most out of their data,” he said.

You can find the Statistical Consulting Service in IACC 210.
Steve Bergeson

Department’s shadowing program aims to grow

The chemistry and biochemistry department continues to promote their high school shadowing program to interest young students in pursuing science-related programs at NDSU.

The program encourages Fargo-Moorhead high school students who want to learn more about sciences at NDSU to contact Gregory Cook, chair of the chemistry and biochemistry department. Students can then schedule a day to follow chemistry and biochemistry faculty members as they prep for classes and labs and participate in research opportunities. Graduate students also are available to show students what it’s like to pursue an advanced degree.

“This is an outreach program,” Cook said. “It’s important to share with the community what we’re doing at NDSU.”

The department works hard to accommodate students’ needs. If a student is interested in a different subject or wants to see specific parts of the department, Cook will match the student with the right person to ensure his or her experience is one-of-a-kind.

Cook hopes the program will evolve into a more formal event in the future. His goal is to host a day where high school students can shadow faculty, tour NDSU laboratories and watch demonstrations.

For more information on the program, contact Cook at gregory.cook@ndsu.edu or 231-7413.

Amanda Huiras

Scholars journey to NDSU for international physics conference

NDSU became a worldwide hub for physics research this past August. Nearly 100 scholars from 18 countries gathered at Richard H. Barry Hall for the Discrete Simulation of Fluid Dynamics 20th International Conference.

The four-day conference, which attracted physicists, mathematicians, engineers and geologists, focused on the theory and applications of simulation methods for fluid mechanics.

Alexander Wagner, conference organizer and NDSU associate professor of physics, said unlike traditional computational fluid dynamics methods, simulation methods are derived from a microscopic model. He said the microscopic model methods continue to increase in popularity because of the simplicity of their algorithms and their suitability for high performance parallel computations. The methods can be used for a range of applications from oil recovery from rocks and sands to separation of milk components and from microfluidic device simulations to astrophysical phenomena.

Five NDSU research groups presented at the conference. They included, from physics – Daniel Kroll, Andrew Croll, Thomas Ihle, Alan Denton, Sylvio May and Wagner groups; and from mechanical engineering – Iskander Akhatov and Yechun Wang groups. Titles of their talks ranged from “Morphologies Formed by Phase-Separation Fronts,” to “Galilean Invariance in Fluctuating Lattice Boltzmann.”

Wagner said hosting the conference provided NDSU students a firsthand look at the quality and quantity of work done by graduate students all around the world. And conversely, it gave international researchers a taste of the exciting research that is taking place at NDSU.

About 60 of the attendees hadn't heard of NDSU before they decided to come to the conference, Wagner said. For many attendees it was their first time in Fargo, and for some it was their first time in the U.S.

The attendees said Fargo compared favorably to previous conference locations, such as Rome and Beijing. “The location of Barry Hall was wonderful and an Oxford don compared it to a new mathematics building at the University of Cambridge in the United Kingdom,” Wagner said.

The number of young researchers involved with the conference equally impressed the participants.

“It was great to see some of the younger (often local) participants joining these discussions on an equal footing to some of the most senior people in the field,” wrote Mike Cates, a research professor from the School of Physics and Astronomy at the University of Edinburgh, Scotland.

NDSU students were thrilled to be involved too. “Doing research in the field of fluid dynamics and having the conference in Fargo was a great opportunity to meet other



Eighteen countries were represented at the Discrete Simulation of Fluid Dynamics 20th International Conference hosted at Richard H. Barry Hall.

scientists, intensify contacts and discuss current research,” said Goetz Kaehler, a doctoral candidate in NDSU’s physics department. “As a very tangible result I managed to find a postdoctoral research position ... I would like to thank Dr. Wagner, Paul Omernik and everyone else involved for all the hard work that went into making the conference happen.”

Wagner said multiple entities made the event a success. NDSU’s physics department, the College of Science and Mathematics and Provost Bruce Rafert, along with North Dakota EPSCOR, the National Science Foundation, the N.D. Chamber of Commerce, the Fargo-Moorhead Convention and Visitor’s Bureau, and companies like Intel and NVidia played a large role.

As a side benefit of the conference, the Fargo-Moorhead Convention and Visitor’s Bureau recognized Wagner for promoting tourism. Wagner, who moved to Fargo nine years ago from Edinburgh, Scotland, was awarded the Heartland Pride Award at the bureau’s annual meeting in September.

“One often feels that our work here at the university does not closely relate to people here, but in this special instance the community benefited in a tangible way from our contacts overseas,” Wagner said. “I am very curious to see how many of the participants at the conference will be repeat visitors or encourage other people to visit North Dakota.”

For more information on the 2011 Discrete Simulation of Fluid Dynamics 20th International Conference, visit <http://dsfd.physics.ndsu.nodak.edu>.

The 2012 conference is scheduled in Bangalore, India. Two NDSU researchers, Ihle and Wagner, have been invited to give presentations.

Linsey Davis

Governor's School benefits students, alumni

Every year, Lonnie Hass sees leaders develop and emerge from the North Dakota Governor's School program. It's the product of putting young, like-minded students in a challenging, instructive environment.

Hass is the longtime director of Governor's School, a state-sponsored and funded program hosted at NDSU for six weeks each summer. Up to 100 of the brightest North Dakota high school sophomores and juniors live and work on NDSU's campus while learning from NDSU faculty. "Experiences with those around you mold you into who you're going to be," said Hass, a senior lecturer in NDSU's mathematics department who's been involved with Governor's School since its inception in 1990.

Students study laboratory science, mathematics, information technology, English studies and visual arts – theatre arts and visual arts alternate each year. They also attend life and leadership classes and travel to Minneapolis to tour 3M and visit the Science Museum, Valleyfair and Art Institute.

A Carrington, N.D., native, Mike Chambers attended the Governor's School laboratory science program in 1992 and got hands-on experience in the USDA Agricultural Research Center's sugar beet research lab. "I got to look under a microscope and see things that people hadn't seen before," he said. "I learned that I love laboratory research. There was no doubt in my mind that I wanted to go to NDSU after Governor's School."

Hass said a recent review found 70 Governor's School alumni attending NDSU.

Chambers pursued research on biotechnology, microbiology and chemistry at NDSU, where he began creating the technology he would eventually spin off into Aldevron, a customized plasmid, protein and antibody services company. Chambers



North Dakota high school students develop leadership while learning at Governor's School, which is hosted annually at NDSU.

founded Aldevron, which is headquartered in Fargo, N.D., with offices in Madison, Wis., and Germany, in 1998. "Everything we're doing now has its roots in Governor's School," he said. "It's very good for NDSU. It's important to bring in the top students in the state and try to retain them. They can go anywhere they want, but they can do just as well at NDSU."

Aldevron scientists serve as Governor's School mentors. Students go from campus to

Aldevron's south Fargo offices to work on laboratory projects ranging from gene therapy to DNA production.

"It's very important to have a mentor who directs your path," said Vicki Gelling, a 1991 Governor's School graduate from Forest River, N.D. Now an associate professor in NDSU's Department of Coatings and Polymeric Materials, she also hosts Governor's School students each year. She said Governor's School motivated her to begin taking undergraduate courses at the University of North Dakota while still in high school. She earned a chemistry degree from UND and a doctorate in chemistry from NDSU by age 26.

Governor's School's taste of college life – learning in classrooms, interacting with professors and living in residence halls – helped Gelling prepare for higher education. "It provides a really good example of what it would be like in college," Gelling said. "It was good at preparing you for the maturity level needed to prioritize your time."

For more information on Governor's School, visit www.ndsu.edu/govschool or contact Kelly Gorz at ndsu.govschool@ndsu.edu or 701-231-6727.

Dave Nilles

NDSU hosts nanomaterials forum

NDSU hosted its first Materials and Nanotechnology Forum this past June at the Reineke Fine Arts Center.

The forum provided NDSU materials and nanotechnology researchers with a venue to share information and initiate larger, higher impact collaborations, said Erik Hobbie, event organizer and director of NDSU's materials and nanotechnology graduate program.

Nearly 100 corporate and university researchers and students attended the forum, which featured more than 25 presentations and a poster session. Presentations varied from technical plenary lectures given by alumni who

are now Texas A&M University professors to overviews presented by local businesses that routinely use materials science and nanotechnology in their products. More than 30 NDSU faculty also presented their research.

Hobbie said the forum was a success. "It gave researchers and graduate students at NDSU a chance to interact and get a better sense of what other people are doing. It has already led to several collaborations and grant applications."

Linsey Davis

Intro biology classes shift from lectures to hands-on learning

Biology assistant professors Angela Hodgson and Jennifer Momsen knew a lot of facts when they completed their undergraduate science degrees. But they didn't feel ready to go to work as scientists. "I didn't feel qualified to do anything but take a test," Hodgson said.

Now, as National Academies Education Fellows in the Life Sciences, they are part of a national effort to change how undergraduate science classes are taught and better prepare future scientists for the workforce. This academic year, they implemented new teaching methods in their biology I and II classes that shift the focus from learning facts to developing critical thinking skills. "Facts are easy to learn," Hodgson said. "Students need more coaching in critical thinking and applying knowledge to real-world problems."

Last summer, Hodgson, Momsen and Wendy Reed, associate professor and head of biological sciences, were selected to participate in the 2011 National Academies Northstar Summer Institute on Undergraduate Education in Biology. The summer institute is the result of a recommendation in the 2003 National Research Council report that called for research universities to take greater responsibility for high-quality undergraduate biology education. "There is a national call for reform of the way we teach in the sciences in general and biology specifically," Reed said. "NDSU is poised to be a leader."

Part of the application process for the summer institute included a pledge of support from the College of Science and Mathematics and the Department of Biological Sciences for their efforts to improve biology classes at NDSU.

"I've always enjoyed teaching, but I'm enjoying it to a whole new level."

– *Angela Hodgson*

During the summer institute, Hodgson, Momsen and Reed learned about innovations and research in undergraduate education that focused on active learning, student assessment and teaching methods that engage a diverse group of students.

The lecture has been banished from Hodgson's and Momsen's lower-level biology classes. Instead of students passively taking notes, Hodgson and Momsen engage them



New teaching strategies help engage students, encouraging them to think like scientists.

in activities and discussions to encourage them to problem-solve and think like scientists. "Now we're pushing it to the other end where students do most of the work," Momsen said.

Students are embracing the change. During registration for spring semester classes, students asked Hodgson what other professors use teaching methods similar to hers.

One of those students was Chris Tonsager, a junior pre-med major from Fergus Falls, Minn. Because he recently changed his major, he took several science classes during fall semester. He said the hands-on learning makes it easier to retain the material compared to a lecture with 50 PowerPoint slides in 50 minutes. "I can't digest the material before moving on to the next thing," he said of lectures.

The change has been rewarding for Hodgson, too, who has a semester and a half of the new teaching strategy under her belt. "I've always loved teaching, but I'm enjoying it to a whole new level," she said.

Hodgson and Momsen are using pre-testing, post-testing and conceptual inventories to evaluate the effectiveness of the new model. They plan to analyze the results and track students through their academic careers. So far, they have found students are performing better on tests that require critical thinking than tests of the past that required them to remember facts.

"There is a lot of positive energy," Hodgson said. "They are engaged and talking about science. I hear freshmen talking about science with their neighbors. That is so exciting."

Anne Robinson-Paul

Program aims to spark young students' interest in science

For the second year, NDSU's Department of Physics hosted Science Fun Night at elementary and middle schools in the Fargo-Moorhead area. The program takes place during the academic school year and aims to spark an interest in science with young students, while providing public outreach opportunities for NDSU students.

Science Fun Night was developed by Alan Denton, associate professor of physics, who was inspired by a math fair at Longfellow Elementary School. With the support of the school and its Parent Teacher Association, Denton assembled a variety of interactive activities, recruited a team of volunteers and organized the first Science Fun Night in October 2010. The following year, the event was repeated at Longfellow and then spread to Horizon Middle School in January 2012, each time drawing about 100 students plus parents.

During the course of the evening, each student engages in science activities at several stations. Some of the stations are hands-on activities, using magnets to make waves, building a circuit or testing friction with a ruler. Other stations allow students to observe large-scale demonstrations using liquid nitrogen, magnetic levitation, electrostatics and giant soap bubbles.

"The most important part of the program is that students at a young age get to experience science at their fingertips," said Alisa Fairweather, a volunteer for the fun nights and a senior majoring in chemistry and biochemistry. "It is a great way for students to explore their world and to understand how it works."

Some of the activities involve equipment from the department, but many of them are homemade or use simple, household items. For example, a vinegar and baking soda solution was used with a water bottle and a balloon to show different states of matter.

"The main goal of this program is to expose kids to science and get them thinking about it, and to also have a fun night," Denton said.

The program relies on the support of teachers, staff and parents at the schools, but also many volunteers who facilitate the activities. NDSU actively volunteers for the fun night and includes faculty and students from physics, computer science, chemistry and biochemistry, mathematics and engineering.

"It takes a lot of volunteers to make this program happen, but it not only helps children learn new things, but it helps our students too. The best way to learn something is to teach someone else," Denton said.

While students may volunteer for the opportunity, there are NDSU students involved in the fun night who are enrolled



Alan Denton, associate professor of physics, inspires young students to embrace science in after-school program.

in an introductory physics recitation, led by Mila Kryjevskaja, assistant professor of physics.

"Teaching students helps us understand simple concepts about physics, and seeing students excited about science makes the night fun for us too," said Cody Gette, senior in physics and a physics recitation teaching assistant.

Other student volunteers were recruited from science organizations on campus, such as the Chemistry Club and the Society of Physics Students.

As Fairweather points out, "This is a great way for NDSU to get involved in our community. It allows us to mentor younger students to be inspired by science. It is a way to give back to those who have inspired us college students who are pursuing science as a career here at NDSU."

A grant from the NDSU Development Foundation will support the expansion of the program next year. To get involved with Science Fun Night, contact Denton at alan.denton@ndsu.edu or 231-7036.

Amanda Huiras

Alumna receives prestigious award for wildlife research

Marsha Sovada's personal goal is to help make, in some small way, the world a better place. Considering her important work to save endangered species, she's doing just that.

Sovada, who earned her doctorate in zoology at NDSU in 1993, is a research wildlife biologist at the USGS Northern Prairie Wildlife Research Center in Jamestown, N.D. During her 30-year career, she has helped conserve two fox species: the endangered island fox, which is found on the Channel Islands off the coast of California, and the swift fox, a species that lives in the short grass prairies of central North America. She is considered a leading expert on foxes.

For her efforts, the U.S. Department of Interior recently presented Sovada with the Meritorious Service Award, the second highest honor it gives to its employees. "I was extremely surprised and very humbled because not many people receive the award," Sovada said. "I'm pleased to be acknowledged for a body of work that I had a great time doing. I feel lucky to have had the opportunity to do research that I love."

Sovada focused much of her early research on the predators of nesting waterfowl, including red foxes. She also helped discover West Nile virus was causing the death of significant numbers of American White Pelican chicks at Chase Lake National Wildlife Refuge and other Northern Plains nesting colonies. And her research publications have discussed such far-reaching topics as waterfowl biology, mammalogy, climate change and natural resource management.

"My early research was with many predators – I worked with skunks, raccoons, badgers, mink, weasels, foxes and coyotes," Sovada explained. "For my dissertation, I looked at the interactions between foxes and coyotes, and how those species influenced the success of nesting waterfowl. That marked my start in fox research, and I went on from there."

Sovada serves on the North American Swift Fox Conservation Team and chairs its Research Technical Committee. After years of research and management guided by Sovada and other team members, the swift fox is out of peril. Sovada also was invited to join the recovery team for the island fox. "Three subspecies of the island fox were in dire straits," she said. "The island fox is still on the endangered list, but it is well on its way to recovery. Yes, I am pleased to have played a part in a couple of success stories."

The native of St. Cloud, Minn., began working at the Northern Prairie Wildlife Research Center in 1983. Prior to that, she worked for the Colorado Division of Wildlife and the Minnesota Department of Natural Resources. She earned her bachelor's degree at St. Cloud State University and master's degree in biology at the University of Idaho.

"My career is rewarding and exciting in many ways, partly because the biologists I work with are incredibly dedicated to what they do. The center in Jamestown is a wonderful place, and I truly enjoy the atmosphere my colleagues bring to my work," Sovada said. "I also have had the opportunity to work with many students and young people just getting started. Mentoring has been a treat for me."

"I was exposed to new ideas and different ways of thinking. That helped me develop as a research scientist in terms of how I approach problems and look for solutions." – *Marsha Sovada*

Looking back to her time at NDSU, Sovada has kind words for the faculty and her overall experience. "People at NDSU were very supportive. They gave me a lot of freedom to shape my academic career, and they challenged me," she said. "I was exposed to new ideas and different ways of thinking. That helped me develop as a research scientist in terms of how I approach problems and look for solutions."

Sovada is a member of the Canid Specialist Group for the International Union for the Conservation of Nature, the American Society of Mammalogists and The Wildlife Society, among other groups. She also served on graduate committees for students at Iowa State University, St. Cloud State University, South Dakota State University and NDSU.

"I've been lucky," Sovada said, noting her next big task is to continue publishing research articles on the huge amount of data she has collected. "I'm proud of what I've done, but I feel like I'm just getting started. It's rewarding, because I feel maybe I have done a few things to help make the world a little better."

Sovada and her husband, Raymond Greenwood, live in Jamestown.

Steve Bergeson

Alumnus heads major corporation



“NDSU provided me with a breadth of opportunities that I probably would not have had if I went elsewhere. At NDSU, I could dabble in many things.” – *Brad Johnson*

Collegiate opportunities sometime lead us down unanticipated, but highly successful, career paths. A shining example is Brad Johnson, BS '84, a former NDSU student body president who studied biological sciences.

He got his start, if you will, leading NDSU's Student Government, and now he is president and CEO of United Sporting Companies, the largest wholesale distributor of shooting sports products in North America. He regularly commutes to the company's 13 locations across the country.

Prior to joining United Sporting Companies, Johnson was president of Reynolds Consumer Products, the people who make Reynolds Wrap aluminum foil, Cut-Rite wax paper and a variety of plastic bags, cooking papers and containers. That worldwide company conducts business in more than 80 countries.

“NDSU provided me with a breadth of opportunities that I probably would not have had if I went elsewhere. At NDSU, I could dabble in many things,” Johnson said, noting he was active in Gold Star Marching Band, Gold Star Concert Band, Jazz Ensemble and Blue Key Honor Society and served as a student member of the State Board of Higher Education.

But, it was being elected student body president for both the 1982-83 and 1983-84 academic years that shaped what lay ahead.

“I was good in math and science, so I always thought I was going to be a doctor. But, what I enjoyed tremendously was the management nature of being student body president,” Johnson said. “I like to think we continue to evolve through our lives, but certainly the office gave me a taste of leadership. Frankly, it put me in the line of work I'm in now. That's when I decided what I wanted to do.”

After graduating from NDSU, Johnson earned a Master of Business Administration at Northwestern University with the goal to rise as quickly as he could in the corporate world. That's essentially what happened.

His previous jobs have included general manager of infant feeding at H.J. Heinz, president and CEO of Hunt Corp., president of Elmer's Products Inc. and president of the Garden Group at Central Garden and Pet Co.

During his time at Reynolds Consumer Products, Johnson had a global enterprise to oversee. He could often

be found journeying to places like France, China, Latin America or the Middle East.

“Maybe 25 to 30 percent of my time was spent on an airplane. When I traveled, it was not uncommon for me to visit several countries in about a week,” Johnson explained. “But, my priority is my family, so I always try to get home as quickly as I can.”

What makes Johnson so successful as a business leader? Perhaps a key to his management style comes from his Midwest upbringing in Bismarck, N.D.

“I believe in Golden Rule management. If a person is a competitor, a co-worker or somebody you are hiring or firing, you treat everybody the way you'd want to be treated,” Johnson said. “Secondly, I try to boil things down to simple, but not simplistic, concepts for people to understand. A good example is a set of questions I often ask co-workers. Is what you're working on going to increase sales, profits or cash generation? If it doesn't do at least one of those things, then why are you doing it?”

Johnson's connections with NDSU and North Dakota run deep. His parents, Barbara and Vern, are both NDSU graduates. So is his brother, David, and sister-in-law, Julie.

And each autumn, Johnson puts business aside for a few days to hunt in western North Dakota, along with a few friends. “I bring a group of CEOs from around the world for pheasant hunting near Bismarck. I've brought people from Greece, Japan, Great Britain and Sweden. Richard Petty of NASCAR fame has joined the group the past seven years or so,” he said. “Now that I'm with United Sporting Companies, I have a legitimate excuse to bring groups home to hunt with me in North Dakota.”

After a pause, Johnson said, “I really have very fond memories of NDSU. I loved the atmosphere at sporting events and being in the Gold Star Marching Band. I enjoyed every minute of it.”

Johnson and his wife, Gayle, live in Richmond, Va., with three of their children, Alexandra, Parker and Hayden. Daughter Katie attends Concordia College, while son Paul is a student at NDSU majoring in natural resources management.

Steve Bergeson

Science Olympiad propels alumna to science career

A seventh grade life science teacher's persistence paid off for NDSU alumna Jennifer Docktor. The Jamestown, N.D., native followed her teacher's advice and is now enjoying the rewards of a career in science.

Despite her initial reluctance, Docktor took part in Science Olympiad, a national science competition providing rigorous, standards-based challenges to nearly 6,200 teams in all 50 states. The program's ever-changing event lineup introduces students from elementary through high school to a variety of career choices, practicing scientists and mentors.

This exposure helped spark Docktor's interest in science, which led to her role as an assistant professor in the physics department at the University of Wisconsin-La Crosse where she began teaching and conducting research in physics education in August 2011. "I think Science Olympiad provides students with enrichment activities that go beyond what they are learning in their science classes in school, which keeps them engaged and interested in science," Docktor said. "This advanced level of learning can give students an edge when they get to college."



Jennifer Docktor

than 700 students, in addition to coaches, parents and mentors, have competed on campus every year since NDSU began hosting the state competition in 1985, according to Otto Borchert, co-director of the North Dakota Science Olympiad. "Participating in state Science Olympiad competitions over the years showed me NDSU's level of commitment to science and math education, which certainly influenced my decision to attend NDSU," Docktor said.

Docktor graduated from NDSU in 2004 with a bachelor's degree in physics. She went on to earn a master's degree in physics at the University

of Minnesota-Twin Cities, where she conducted research in experimental high-energy physics. She then focused on physics education research while earning a doctorate in physics from the University of Minnesota. From there, Docktor spent two years as a postdoctoral research fellow in cognitive science at the Beckman Institute for Advanced Science and Technology at the University of Illinois at Urbana-Champaign. There she studied physics learning and cognition, including differences in the ways physicists and students think about physics problems.

"A key reason I chose to pursue an academic career is to improve the quality of STEM education, and my time at NDSU provided a strong foundation upon which to begin my career," Docktor said. STEM stands for science, technology, engineering and mathematics.

Docktor said her favorite NDSU memory was a pumpkin-launching competition between the Society of Physics Students at NDSU and Minnesota State University Moorhead. The MSUM students constructed a large trebuchet while NDSU's team built a remote-controlled device that accompanied a weather balloon. "We met in a field outside of town and tested out our launch devices, and NDSU was declared the winner when our pumpkin went the farthest," Docktor said.

Docktor also was a member of the NDSU Math Club. Her sister, Heidi, also attended Science Olympiad at NDSU and is now a laboratory manager in the NDSU Department of Coatings and Polymeric Materials.

"As you study and really immerse yourself in a topic, you encounter more questions and pieces you don't understand, which prompts you to dig into additional resources," Docktor said. "Being a scientist is a very intellectually stimulating career."

NDSU hosted the 2012 North Dakota state Science Olympiad April 21. For more information about the event, visit www.ndsu.edu/olympiad.

Dave Nilles

"Participating in state Science Olympiad competitions over the years showed me NDSU's level of commitment to science and math education, which certainly influenced my decision to attend NDSU."

– *Jennifer Docktor*

Docktor participated in Science Olympiad from grades seven through 12. Her teams won the state competition five times, sending her to the national competition where she participated in several events. Her highest individual achievement was a third-place finish in Write It-Do It, an event in which a writer – usually Docktor – has 25 minutes to examine a structure and write instructions for how to build it. Another team member then uses the instructions and a set of unassembled parts to try to recreate the original structure as accurately as possible within 20 minutes.

Science Olympiad's experience helped bring Docktor to NDSU. The state organization is administratively housed at the NDSU Center for Science and Mathematics Education. More

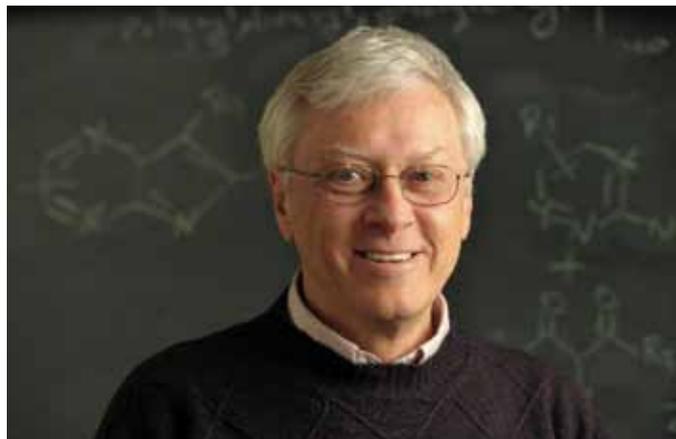
Chemistry alumnus receives Academic Achievement Award

The NDSU Alumni Association has presented alumnus Marvin J. Miller, George and Winifred Clark Chair of Chemistry at the University of Notre Dame, with its prestigious Henry L. Bolley Academic Achievement Award. The award, which honors NDSU graduates who have attained noted achievements in the area of education, was presented at an awards luncheon April 26.

Miller, BS '71, chemistry, earned his doctorate at Cornell University, moved to the University of California at Berkeley as a National Institutes of Health postdoctoral fellow and then joined the Notre Dame faculty in 1977. His vita lists numerous acknowledgements and honors, including visiting fellow at Hans-Knoell Institute for Natural Products in Jena, Germany; visiting fellow at the Department of Biochemistry, University of Otago in Dunedin, New Zealand; fellow of the America Association for the Advancement of Science; Ladd Legacy Symposium lecturer at NDSU; and the 2011 James S. Burns CSC Award for Graduate Education.

John Wold, BS '66 and member of the NDSU Development Foundation Board of Trustees, wrote in a letter of nomination, "Dr. Miller's career has represented a nearly perfect blend of research and teaching. The numbers chronicling his academic achievements speak for themselves: more than 269 publications, 22 patents, 142 papers presented at scientific meetings, 201 invited lectures given at nearly all pharmaceutical companies, biotech companies and many major universities around the world."

"Professor Miller has a desire to directly translate his independent research to help address unmet medical needs.



Marvin J. Miller

During the past decade, he has initiated several research programs directed at identifying potential new treatments for rare and neglected diseases such as malaria and tuberculosis. He is widely recognized as a key leader in striving to convert academic science into biomedical innovation," wrote Alan Palkowitz, vice president for discovery chemistry research and technology at Ely Lilly and Company.

A native of Dickinson, N.D., Miller has been a consultant for Ely Lilly and Company since 1979. He and his wife, Patty, have four children and six grandsons. They live in South Bend, Ind.

Steve Bergeson

STUDENT NEWS

Student receives fraternity's highest undergraduate honor

Cory Loveless, BS '12, mathematics, received Theta Chi Fraternity's highest undergraduate honor in 2011, the Reginald E.F. Colley Award. 2010 recipient Eddie Higginbotham IV presented Loveless with the award in an on-campus ceremony in September. Loveless will formally accept the award at Theta Chi's biennial national convention in July in Palm Springs, Calif.

"Obviously this is a huge honor," said Loveless, a Grand Forks, N.D., native. "To have been considered worthy of this award was a huge deal to me because the organization means so much to me."

First presented in 1929, the award is named for Reginald E.F. Colley, a World War I veteran and past member of Theta Chi's board of directors. Colley, who earned a bachelor's degree from NDSU in 1915, fought in the U.S. Army's chemical weapons division and died at age 39 in 1927. His namesake award is presented annually to one Theta Chi undergraduate member who best demonstrates distinguished service to alma mater, fraternity and chapter.



2010 recipient Eddie Higginbotham IV, left, presents Cory Loveless with the Reginald E.F. Colley Award.

A committee composed of top Theta Chi alumni from around the country, including past award recipients, reviewed Colley Award applications. "It was an agonizing process evaluating so many top applications from around the country," said William Palmer, committee chair. "Every one of those young men was outstanding. A handful stood out and Cory's was the best of the best."

Loveless has an impressive list of accomplishments at NDSU as a student leader, scholar and mentor. He was a member of the Blue Key National Honor Society and a charter member of the NDSU Campus Club of Lions Club International. In 2010, he was

named Student Leader of the Year by the Congress of Student Organizations, Greek Man of the Year by the NDSU Interfraternity Council and was voted Homecoming King.

At his Theta Chi chapter, Loveless was elected treasurer in 2009 and president in 2010. He now plans to work for Theta Chi's international headquarters as a consultant assisting chapters throughout the country.

Dave Nilles

Undergraduate student publishes and presents research on mammoth tooth

Ashley Breiland's fascination with rocks and minerals began in elementary school during an earth science summer course. She was just in fifth grade, but already her career path was set in stone.

Now entering her senior year as a geology student, Breiland's collegiate experiences are moving her toward her professional goals even faster than she expected. She conducted research as a sophomore, presented her results at a national convention her junior year and now has published a paper in a scientific journal.

"I'm very thankful to be given these kinds of opportunities," she said. "Not many students my age get to publish and present research, so it was really exciting for me."

Kenneth Lepper, associate professor of geosciences, recognized Breiland's enthusiasm for geology immediately. After instructing her in a freshman glacial geology class, he asked Breiland to assist him with a project dating a mammoth tooth found in Walhalla, N.D.

Breiland accepted the six-week internship the beginning of her sophomore year.

Deconstructing a mammoth mystery

The woolly mammoth's upper molar was originally discovered circa 1980. It has been identified in two published scientific reports and is cataloged in the University of North Dakota Paleontology Collection. Lepper became interested in the project when he realized the mammoth was associated with Herman level beach-ridge deposits of Lake Agassiz, which Lepper has been studying for several years. However, he also noticed discrepancies among the reports; they disagreed on the specific location where the specimen was collected. And, no one had tried to date it.

Lepper and Breiland traveled to Walhalla the summer of 2010 to collect sediment samples from the ancient shoreline of Lake Agassiz. The goal was to conclusively determine the geologic age for the mammoth remains using optically stimulated luminescence to date the deposits in which they were found. This type of dating allows geoscientists to make age measurements directly on sand grains and, therefore, can be applied to many more geological problems than the more commonly known radiocarbon dating.

There have been several different mammoth specimens collected along the ancient shorelines of Lake Agassiz, but only in one specific beach called the Herman, which is in the oldest of the beaches. And so if the mammoth specimen were to be collected and found in a younger beach, that would change our understanding of when these creatures went extinct in the Northern Plains. "That's the big question – when did this happen and trying to fit a timeline," Breiland said.

Researching the tooth proved to be a challenge for several reasons. Reports say the tooth was heavily worn, so it is



Ashley Breiland

unclear if it was transported from a different location. Also, the specimen card was difficult to read as text had been typed over. And, most unfortunately, the tooth itself is missing.

Even so, Lepper and Breiland believe the specimen was most likely recovered from the Herman beach ridge and were able to determine an optically stimulated luminescence age of 14,300 plus or minus 300 calendar years before present. However, they concluded that the lack of stratigraphic information and the heavily worn condition make it impossible to definitively rule out other sites. The tooth couldn't conclusively be assigned to the group of "Lake Agassiz beach mammoths," which revises information in the previous reports.

Pursuing her passion

After Breiland's internship concluded, she continued working on the project as an independent study. During that time she prepared a poster presentation for the Geological Society of America convention held in Denver in October 2010 and wrote a research paper, which was published in *Current Research in the Pleistocene* in April 2012.

"It is extremely rare for undergraduate students to earn first authorship on peer-reviewed papers, but Ashley's commitment to her education and her writing skills are outstanding for an undergraduate, so she got an opportunity to glimpse a wide spectrum of academic research including a vignette into the peer-review process," Lepper said.

Participating in a research project so early in her college career helped Breiland feel more prepared for what's to come.

"It was my first time out in the field and doing something related to class outside the classroom," she said. "It was a nice jump start to prepare myself for future classes and help me excel in my classes a little bit faster because I had that experience."

The project also reinforced Breiland's love of geology. "It's just something that's always changing. There are always new discoveries, new places to go and it's just really exciting that it's so massive and a never-ending experience to be out there," Breiland said. "We live on the planet and it's really important to understand its history, and maybe through that, we may be able to understand the direction we're going."

Breiland plans to graduate next May and apply to the University of Colorado Boulder's master's program in planetary sciences. Her ultimate goal is to earn her doctorate and become a professor.

"I need to thank Dr. Lepper for believing in me and giving me this opportunity. It was just so wonderful and not something that comes around very often. I'm really thankful that he thought I could do work like that."

Linsey Davis

NDSU students discover Antarctica is a ‘cool’ place

Some students will literally go the end of the earth for their studies. Such is the case for NDSU graduate student Felix Zamora and senior Ashley Steffen, who recently journeyed to Antarctica for an unforgettable academic experience.

The students accompanied Adam Lewis, assistant professor of geosciences, to the Dry Valleys region of the frigid continent to try to establish a new climate record for that part of the world.

“It was great to learn and work in such a unique, extreme environment,” said Zamora, who is studying for his master’s degree in environmental and conservation sciences.

The Dry Valleys are set within the Transantarctic Mountains located in southern Victoria Land on the western edge of McMurdo Sound. The Dry Valleys, listed among the world’s most arid deserts, are the largest ice-free region in Antarctica.

“Where we were, it almost never gets warm enough to produce melt-water. It snows, but it sublimates before it melts,” Lewis explained, noting the research group took rock and soil samples at elevations about 4,000 feet above the valley floor. “But, there are little channels running down the mountainsides, so once in a while water trickles down and makes a little mud flow. It seems there hasn’t been water in the channels for centuries and they actually have frost cracks going across them. We wanted to more accurately date the channels to know the last time it was warm enough to produce melt water.”

Preliminary dating from previous trips indicates one high-elevation channel most recently carried water about 10,000 years ago. This research effort, with laboratory analysis by Ken Lepper, associate professor of geosciences, hopes to accurately pinpoint the date about a dozen channels were last active, which could indicate a regional warming event.

The expedition was a collaborative effort with Jane Willenbring, an NDSU alumna who is an assistant professor at the University of Pennsylvania’s Department of Earth and Environmental Science. Funded through a grant from the National Science Foundation, the group was in the field from Nov. 18 to Dec. 22.

The students learned firsthand that field research can be difficult. Living in a helicopter-supported tent encampment, using baby wipes to keep clean and having daytime high temperatures near 15 degrees are not usually seen as an enjoyable time.

“It was a terrific experience, and it really wasn’t that bad,” said Steffen, who is a native of Bismarck, N.D. “I got to learn how to take samples and conduct research. We tried to stay relaxed and have fun, but at the same time, we had a mission.”

That mission was to collect about 650 pounds of sample material that is being shipped back to campus and will be dated using Lepper’s expertise. The group hopes to have results this summer.



Top: Left to right - Marcie Occhi, University of Pennsylvania graduate student; and Ashley Steffen and Felix Zamora shuttle to Antarctica via helicopter.



Left: Zamora, left, and Adam Lewis conduct ice core drilling.

“I get to prepare students for adventure,” said Lewis, who journeyed to Antarctica for the 11th time. “When the helicopter drops us off, I tell them to take a look around. It’s really fun for me to see their mouths drop open and feel their sense of awe.”

The students said it was difficult to put into words how they felt looking across the barren landscape. They knew no other human being had ever set foot in some of the spots they took samples.

“Standing at the top the Olympus Range, you get a great view of everything. Off in the distance you see glaciers and icecaps, and at the same time, you see igneous spikes and beautiful sandstone buttes,” said Zamora, who grew up in Brighton, Colo. “There was an overwhelming sense of rugged beauty. I felt so enthusiastic for my course of study.”

Zamora and Steffen both say they would love to go back.

“It’s terrific to have the opportunity to go to a place like the Dry Valleys, where very few people get to go,” Steffen said. “It’s nice to participate in geology research firsthand, and it makes our studies hit home harder. It was pretty cool.”

Steve Bergeson

Science and Mathematics Ambassadors help student connect to college, community

Samantha Gardner had two goals her sophomore year – get involved with her college and build connections. For her, becoming a College of Science and Mathematics Ambassador was the perfect way to do that. By her senior year, she accomplished those goals and much more.

“It’s been a really great experience,” said Gardner, who graduated in May with majors in chemistry and molecular biology, and zoology. “I didn’t think I would get as much out of it as I have. It’s been cool to get to know the dean of the college very well. I’ve also made a lot of friends and met new people.”

Each year, about 15 undergraduate students represent the face of the college as student ambassadors. They talk with prospective students and their families, volunteer in the community and help host alumni functions.

“Our ambassadors are outstanding representatives for our high school recruiting and wonderful ambassadors to the community,” said Kevin McCaul, dean of the College of Science and Mathematics.



Samantha Gardner used her time as an ambassador to develop connections and assist prospective students.

and negative experiences as undergraduates. I have made important changes in response to their answers,” McCaul said.

Some of the ambassadors’ recent activities include visiting with prospective students and their families during the Office of Admission Discover NDSU days, assisting with Science Olympiad activities and giving NDSU building tours to alumni. They also played board games with residents at the Heritage House, a retirement complex in Fargo, and gathered toys for the Toys for Tots Christmas Drive.

“The ambassadors have really helped me become more involved in the community,” Gardner said. “It’s a very rewarding feeling to volunteer and see the looks on people’s faces when you help them. Without the ambassadors, I would not have had that opportunity.”

To apply for the group, students must submit a paragraph outlining how they would be a valuable addition to the ambassadors and supply a faculty recommendation. Grade-point average, year in school and major also are considered.

The primary personal characteristics the group looks for in future members are good communication skills and dedication. Gardner said she has enhanced both traits while being an ambassador.

“It’s definitely different to be the one giving the advice,” she said. “It’s fun to talk to students and tell them what you wish you would have known.”

One piece of advice she is certain to pass on to future students – consider being a College of Science and Mathematics Ambassador. “It was really a great experience for me and I encourage others to try it as well.”

Gardner, who is from Monticello, Minn., hopes to attend veterinary school at the University of Minnesota in the fall.

Linsey Davis

“It’s fun to talk to students and tell them what you wish you would have known.”

– *Samantha Gardner*

The students also select faculty and staff awards and impact the direction of the college. “At the end of the year, I ask the graduating seniors to tell me about their most positive

NEW FACULTY



Jeff Boyer



Maxx Kureczko



Jessie Rock



Josef G. Dorfmeister



Laura Thomas

NDSU
NEW FACULTY

Jeff Boyer

Assistant professor of practice

Doctorate from the University of Florida

Research interest: Learning design, online learning and technology-infused learning

Maxx Kureczko

Lecturer of mathematics

Master's degree from New Mexico Tech

Jessie Rock

Lecturer of geosciences

Master's degree from North Dakota State University

Josef G. Dorfmeister

Assistant professor of mathematics

Doctorate from the University of Minnesota

Research interest: Symplectic geometry and low-dimensional topology

Laura Thomas

Assistant professor of psychology

Doctorate from University of Illinois at Urbana-Champaign

Research interest: Embodied cognition

FACULTY/STAFF AWARDS



Wenfang Sun

Sun selected for NDSU's Waldron Award

Wenfang Sun, Walter F. and Verna Gehrts Professor of Chemistry and Biochemistry, was awarded NDSU's Waldron Award, which recognizes outstanding faculty research.

"She has been an extremely proficient researcher, an excellent educator and outstanding colleague and leader in service," wrote faculty members Gregory Cook, Mukund Sibi and Sivaguru Jayaraman in a nomination letter.

Sun's nomination stated she has established a world-renowned research program in the area of new materials for optical sensing, photo limiting devices, photodynamic therapy for cancer and medical imaging. It noted Sun has brought more than \$4 million in extramural funding to campus, and has had more than 15 papers published in the past year.

Sun joined NDSU's faculty in 2001. She earned her bachelor's degree at Wuhan University in China and her doctorate in chemistry from the Institute of Photographic Chemistry, Chinese Academy of Sciences in Beijing. She also was a postdoctoral research associate at the University of Alabama at Birmingham.

The award was presented during the 15th annual Celebration of Faculty Excellence and is sponsored by the NDSU Development Foundation.



Sivaguru Jayaraman

Jayaraman acknowledged with NDSU's Peltier Award

Sivaguru Jayaraman, associate professor of chemistry and biochemistry, was selected for NDSU's Peltier Award for Teaching Innovation.

Jayaraman was nominated by faculty colleagues Greg Cook and Wenfang Sun and graduate student Anoklase Ayitou. They noted Jayaraman teaches with "flair and enthusiasm and brings his extensive computer expertise to help students in the classroom." The nomination stated he teaches courses in physical organic chemistry and spectroscopy and a special topics course in photochemistry was carried by the Internet to students at Columbia University and the University of Miami. He also has initiated the Parents Involvement with Children Nurturing Intellectual Curiosity in Science, a collaborative program involving students, parents, high school teachers and NDSU chemistry faculty.

"Dr. Jayaraman has continued to push the boundaries of Internet connectivity by expanding his experience from the class to a new 'literature literacy' project connecting students and research labs at four universities to hold super group meetings," the nomination letter said. The participating institutions include Columbia University, University of Miami, UCLA and Brown University.

Jayaraman, who came to NDSU in 2006, earned his bachelor's degree at Bharathidasan University, St. Joseph's College in Trichy, India; his master's degree in chemistry from the Indian Institute of Technology, Madras; and his doctorate in chemistry from Tulane University, New Orleans. He also was a postdoctoral fellow at Columbia University, New York.

The award was presented during the 15th annual Celebration of Faculty Excellence and is sponsored by the NDSU Development Foundation.



Verlin Hinsz

Hinsz receives college mentoring award

Verlin Hinsz, professor of psychology, was awarded the college's 2012 Paul Juell Mentoring Award for his exceptional support to students and recent graduates.

Nominators said Hinsz excels in the role of mentor. "Mentoring students is one of Professor Hinsz's passions.

He engages students in the research process from inception to publication," wrote faculty colleagues James Council, Mark McCourt, Michael Robinson and Paul Rokke. "He has over 180 presentations at national and international professional conferences, and the vast majority of them involve student authors, often as first author."

Hinsz earned his bachelor's degree at NDSU and his master's degree and doctorate in social psychology at the University of Illinois, Urbana-Champaign. His teaching interests include such topics as group processes and productivity, cognitive psychology of groups and teams, groups at work and motivation and morale.



Maria Alfonseca

Alfonseca selected for teaching award

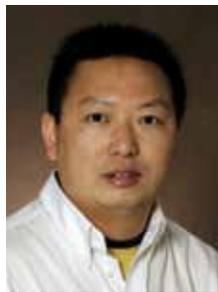
Maria Alfonseca, assistant professor of mathematics, was awarded the College of Science and Mathematics 2012 Teaching Award.

Alfonseca was nominated by Jim Coykendall, James A. Meier Professor of Mathematics. He wrote that Alfonseca is "a tough teacher, with high, but not

unattainable standards" and is "approachable, personable, friendly and willing to go the extra mile to help her students."

Coykendall included six testimonials from former students of Alfonseca. Coykendall wrote, "One student described her as a role model and another pointed to her as a reason that he is still a mathematics and computer science double major."

Alfonseca earned her bachelor's degree, master's degree and doctorate in mathematics at Universidad Autonoma de Madrid in Spain. She was a postdoctoral fellow at the University of Missouri, Columbia.



Guodong Liu

Liu and Routledge recognized for research

Guodong Liu, assistant professor of chemistry and biochemistry, and Clay Routledge, assistant professor of psychology, share this year's College of Science and Mathematics Research Award.

In a nomination letter, Liu was praised for his research efforts since joining NDSU in 2007. Faculty members D.K. Srivastava, Gregory Cook, Wenfang Sun and Sivaguru Jayaraman said Liu has "established a vibrant and innovative research program" that uses "a combination of gold nanoparticles/quantum dots, electrochemistry microfluidics approach to detect DNA, RNA and proteins during a single experimental setup."

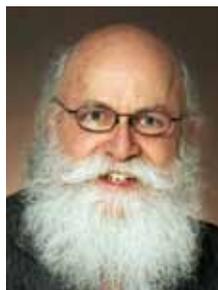


Clay Routledge

Liu earned his bachelor's degree, master's degree and doctorate in chemistry from Hunan University in China. He also held postdoctoral research scientist positions at New Mexico State University, Las Cruces, and the Pacific Northwest National Laboratory in Richland, Wash.

Routledge was nominated by fellow psychology department faculty Mark McCourt, Michael Robinson and Paul Rokke. They wrote he "studies the psychological and physical health consequences of defenses against self-related threats and the social consequences of human efforts to perceive the world as full of meaning and purpose." The nominators noted Routledge has accumulated 47 publications and one edited book, and has eight papers under review and another 16 in preparation.

Routledge earned his bachelor's degree at Missouri Southern State University and his master's degree and doctorate at the University of Missouri, Columbia.



Will Bleier

Bleier honored for service award

Will Bleier, professor of biological sciences, was chosen to receive the college's 2012 Service Award.

"The impact of Will's service has extended well beyond our department to the entire NDSU campus," wrote biological sciences faculty in a nomination letter.

Bleier recently stepped down as department chair/head after serving for more than 17 years. The nomination said he annually hosts 50 to 100 high school-age students from the National FFA Organization Region III semi-final competition in wildlife biology. He also frequently serves as a judge for the State Science Fair.

Bleier earned his bachelor's degree at the University of Texas at Austin, and his master's degree and doctorate at Texas Tech University.

New brochure connects students with research opportunities

NDSU's student-focused mission drives faculty to involve students in world-class research and immersive learning environments. To help students in the College of Science and Mathematics identify research opportunities, the college has developed the "Research Opportunities for Engaging Students" brochure.

The brochure highlights the wealth of topics faculty members are investigating. It also provides the name of the professor associated with the project; the number of students needed, their preferred year in school and study area; and if the work qualifies for pay or credit.

The first brochure, published in September 2011, includes nearly 60 research areas – from aquatic ecology to social networking. It will be updated and published annually to include new studies.

The brochure's impact has been noticed already. "There has been an overwhelming amount of students wanting to participate in research this year," said Keri Drinka, director of college advancement.



Having more students involved in research benefits everyone, Drinka said. Researchers gain needed lab assistants and students gain a valuable experience and front-row seat for the latest discoveries in their fields.

The brochure is provided to each department in the college. It also is available for prospective students during NDSU Discover Days and other tour groups. Drinka said it is an excellent tool to let people know about the impactful research conducted at NDSU.

Amanda Huiras

Schroer named outstanding adviser

Julie Schroer, lecturer and adviser for biological sciences, received the Outstanding Adviser Award at the 2012 Bison Leader Awards ceremony held April 30. The annual event, hosted by Student Government, honors and recognizes outstanding initiatives by student leaders, advisers and organizations.

"I was unaware that I was nominated, so it was quite a pleasant surprise to find that I won the award," Schroer said. "I'm just thrilled that Erik Heitkamp, the president of the American Medical Student Association, thought enough of me as their adviser to nominate me."

Schroer works with several student groups, including the American Medical Student Association, Pre-Med Student Association, Pre-Dentistry Club and Pre-Physician Assistant Club. She attends most of their meetings so students can ask her questions. "That is frequently the only place I see upperclassmen," she said. "It's fun to reconnect with them."

The Congress of Student Organizations selected Schroer for the award out of five nominees. "She provides tools



Julie Schroer

necessary for students to excel and succeed in college and into their career paths," said Alice Arentson, Congress of Student Organizations executive commissioner. "She instills inspiration into every organization she works with and for every case she wishes to change."

Schroer enjoys working with students and watching how they change throughout their time at NDSU. "As one of the pre-health professions advisers, I work with some of the best and brightest NDSU has to offer, and it's a thrill when they achieve their goal of entering the professional school of their choice. I know that many of them will go on to be wonderful professionals."

Other awards presented during the ceremony included Community Service Program of the Year, Cultural/Diversity Program of the Year, Overall Program of the Year, Student Organization of the Year and Student Leader of the Year.

"This is our way to show we appreciate all of their hard work and contributions to campus," Arentson said.

Linsey Davis

Biological Sciences

Wendy Reed, associate professor, was named head of the biological sciences department in January. She succeeds William Bleier, who stepped down from the post after more than 17 years of service and returned to the position of full-time professor.

The department's longtime herpetarium has moved into new display cages in the first floor student lounge in Stevens Hall. Through the years, more than 200 students have learned how to handle and care for the animals. It remains a central part of the department's outreach activities.

In collaboration with scientists from three other universities, graduate student Andrew Ross and assistant professor Steve Travers found populations of genetically modified canola plants thriving in the wild in North Dakota. In contrast to expectations that specially bred crop species will not survive outside cultivated fields, the study identified extensive populations of wild-growing canola with two different pesticide-resistance genes. Implications include potential problems for North Dakota farmers fighting weeds with glyphosate (Roundup) because of the evolution of pesticide-resistant weeds from fertilization and hybridization between wild-growing canola and closely related weed species throughout the state. The research was published in a top biology journal.

Chemistry and Biochemistry

Chemistry graduate Adlina Paramarta was selected as the student speaker for NDSU's December 2011 commencement ceremony. Paramarta, a native of the island of Java in Indonesia, carried a 3.99 grade-point average. She is considered an outstanding example of student success, and the department thanks Paramarta for being an excellent representative for her fellow 115 chemistry and biochemistry majors.

Graduate student enrollment in the department reached a record level for the second year in a row. This year's recruiting efforts resulted in an increase in applications and acceptances. The department looks forward to another large class in fall 2012.

The department hosted several alumni and friends in the past year. Alumnus Merl Lindstrom of ConocoPhillips was awarded the 2011 College of Science and Mathematics Distinguished Alumnus Award. The Ladd Legacy Seminar, a celebration of the 100-year anniversary of Ladd Hall, was held in May 2011 and Culver Ladd, the grandson of Edwin (Ned) F. Ladd, spoke at the symposium. Later, in the fall, Edwin Ladd, a physics and astronomy faculty member at Bucknell University, also presented.

Two distinguished alumni, Philip Anfinrud from the National Institutes of Health and Marvin Miller from the University of Notre Dame, also spoke on their research accomplishments. Miller returned to campus to receive the Alumni Association's Henry L. Bolley Academic Achievement Award in April 2012.

Computer Science

The department continues to maintain high enrollment, emphasize research and add international components.

Assistant professor Jun Kong received a \$300,000 National Science Foundation grant for infrastructure research. The project aims to provide mobile-friendly user interfaces under different interaction scenarios. Assistant professor Juan Li and Samee U. Khan, assistant professor of electrical and computer engineering, developed a cloud computing based disaster management system, enabling all residents to become first responders.

Professor Kendall Nygard hosted 15 visitors from Zhejiang Economic and Trade Polytechnic, China, for 18 days in summer 2011.

Dean Knudson, associate professor, added two international projects to the capstone experience – one in Germany and the other in Sweden. Both projects are managed through interactive video conferencing.

Simone Ludwig, associate professor, continues to coordinate the popular monthly Computer Seminar Series, which feature timely and industry-related topics.

Coatings and Polymeric Materials

The department announced new leadership. Professor Dean Webster was appointed as the new chair. Stuart Croll stepped down from the position in January after five years of service.

The department continues to be highly active in teaching and research activities, publishing papers and presenting at conferences. Croll was selected to deliver the prestigious Mattiello Memorial Lecture at the American Coatings Conference held during May 2012 in Indianapolis. The American Chemical Society Division of Polymeric Materials: Science and Engineering awarded Webster the Roy W. Tess Award in Coatings Science at the society's national meeting in Denver during August. Graduate student Ivan Hevus, a member of assistant professor Andriy Voronov's group, received a first place award in the Graduate Student Section at the recent American Chemical Society Red River Valley Section's Young Investigator Awards competition held at Mayville State University.

Several graduate students completed their advanced degrees. Stacy Sommer, Xiao Pan, Rajan Bodkhe, Samim Alam, Erin Saville Pavlacky, Vinod Upadhyay, Bobbi Jo Merten, and Rajesh Puthenkovilakom earned their doctorates and Drew Pavlacky and Kasi Subramanyam earned master's degrees.

Geosciences

Professor Don Schwert was named chair of the department. He replaces Bernhardt Saini-Eidukat who stepped down from the position after eight years of service.

Assistant professor Adam Lewis completed another successful Antarctic expedition with students. Lewis and associate professor Ken Lepper are co-principal investigators on a National Science Foundation grant investigating rates of change in Antarctica. Jane Willenbring, a 1999 geosciences graduate, who is now a faculty member at the University of Pennsylvania, joined the expedition in the field.

Associate professor Peter Oduor and Lewis moved into the newly renovated labs in Geosciences Hall.

Kirk Stueve joined the department as a visiting assistant professor and will teach geography and geographic information systems. Jessie Rock also is a new lecturer in geology. She replaces Elaine Hatzenbuehler, who retired after many years of service.

Allan Ashworth, University Distinguished Professor of Geology, continues research and teaching during phased retirement.

Mathematics

Assistant professor Maria Alfonseca was awarded a National Science Foundation grant from 2012 to 2015 for her research.

Dogan Comez, principal investigator, professor and department chair; Angie Hodge, assistant professor; and Bill Martin, professor, received the North Dakota Department of Public Instruction's N.D. Problem Solving, Reasoning and Inquiry for Mathematics Educators grant.

Sean Sather-Wagstaff, assistant professor, was awarded the 2011 College of Science and Mathematics Excellence in Research Award.

Josef G. Dorfmeister joined the faculty in a tenure track position. He earned his doctorate from the University of Minnesota in 2009.

Several students completed their doctorates and found positions. Graduates include Lindsay Erickson, who has a visiting position at NDSU; Bethany Kubik, who has a visiting position at the U.S. Military Academy, West Point; Stacy Trentham, who has a visiting position at Armstrong Atlantic State University; and Travis Trentham, who has a tenure-track position at Armstrong Atlantic State University.

Saeed Nasseh and Ben Anderson received NDSU graduate school dissertation fellowships. Lindsay Erickson, visiting professor, received the College of Science and Mathematics graduate research award. Maxx Kureczko, lecturer, was honored with the College of Science and Mathematics graduate teaching award.

Several mathematics faculty and two graduate students, Elizabeth Sattler and Aaron Feickert, helped make the 2011 Sonia Kovalevsky High School Day an impressive success. Elizabeth Mossberg, a senior mathematician at the National Security Agency, gave the keynote address. In other outreach news, several lecturers and faculty organized workshops during the annual Governor's School.

Physics

Alexander Wagner, associate professor of physics, received the Heartland Pride Award from the Fargo-Moorhead Convention and Visitors Bureau for organizing the Discrete Simulation of Fluid Dynamics 20th International Conference held in Fargo Aug. 8-12, 2011. Participants from more than a dozen countries attended the meeting.

Physics major Cody Gette received the prestigious Astronaut Scholarship Foundation scholarship for the second year in a row. The \$10,000 award is one of only 20 presented by the foundation.

Physics majors Marne Johnson and Brandon Johnson, and mathematics student Ahis Shrestha were bronze medal winners in the University Physics Competition, an international contest in which a team of undergraduate students have 48 hours to analyze a real-world scenario and write a formal paper describing their work.

Governor's School participant Anna Bernhardt spent last summer studying the properties of films composed of single-wall carbon nanotubes in the lab of Erik Hobbie, professor of physics and director of NDSU's materials and nanotechnology program. The research resulted in her being named a co-author of an article published in ACS Nano, a major scientific journal of the American Chemical Society.

Psychology

Jim Council, professor, was named the new department chair. The department relocated to the third floor of Minard Hall and will eventually move to new office and lab space on the building's first and second floors. The department also added a new doctoral program, clinical psychological science.

The department welcomed several new faculty and staff members. Laura Thomas joined the department as an assistant professor of psychology. She graduated from the University of Illinois at Urbana-Champaign and completed her postdoctoral studies at Vanderbilt. In fall 2012, Rob Dvorak and Jeff Johnson will join the department as new faculty members. Dvorak graduated from the University of South Dakota, Vermillion, and Johnson graduated from the University of Iowa, Iowa City. Deb McDonough also joined the department as an administrative assistant.

For more department news, visit www.psych.ndsu.nodak.edu.

Statistics

Rhonda Magel, professor and chair, and Michael Price, a senior majoring in statistics, presented "Does Football Momentum Translate into Points?" for The College of Science and Mathematics Science Café in January.

Ronald Degges earned his doctorate in May 2011 and has been promoted to the rank of assistant professor of practice.

The Red River Valley Conference in Statistics was held at NDSU in May 2011. Gang Shen, assistant professor, presented the keynote address and served as a session chair. Volodymyr Melnykov, assistant professor, served as an editor. Won Hyun, assistant professor, also was a session chair. Dawn Halle, academic assistant, coordinated the room and food.

Tatjana Miljkovic, lecturer, is adviser of the actuarial club. Recent guest speakers included Joe Paul, fellow of the Society of Actuaries and vice president of Midland National Life Insurance Co., and Jim Wynstra, fellow of the Society of Actuaries and vice president of Blue Cross Blue Shield of North Dakota.

IN MEMORY

Arnold D. “Dave” Alstad, 75, MS '75, bacteriology

Floyd Bertsch, 77, BS '55, chemistry

Gene Hillesland, 84, BS '50, chemistry

Donald Knott, 85, BS '52, mathematics

Stephen Olson, 91, BS '42, chemistry

James J. Rudesill, 86, former chemistry faculty member

Donald Schiele, 65, BA '67, mathematics

John R. Shuman, 101, former mathematics faculty member

Richard Smith, 73, MS '67, chemistry

Rodney Stubinski, 63, BS '70, mathematics

Steve Taylor, 59, BS '77, psychology

CLASS NOTES

Howard Huntley, BS '39, mathematics, and his wife, Marie, celebrated their 80th wedding anniversary Feb. 20, 2012. During Huntley's career, he was chief of finance in the facilities section of the Veterans Administration in Fargo and, later, chief of finance and data processing for the VA in Milwaukee. After retirement in 1973, the couple took up golf, bowling and traveled extensively. The Huntleys reside at the Desert Winds Retirement Community in Peoria, Ariz.

Gary Krapu, BS '66, zoology, was elected Fellow of the American Ornithologists' Union for his contributions through research, conservation efforts and education. Krapu, a wildlife research biologist at the U.S. Geological Survey Northern Prairie Wildlife Research Center in Jamestown, N.D., was recognized at the 129th AOU Stated Meeting in Jacksonville, Fla. He has published more than 100 peer-reviewed scientific papers on habitat needs, nutritional requirements and population ecology of waterfowl, sandhill cranes and arctic-nesting shorebirds. He also is an adjunct professor at the University of Nebraska at Lincoln.

Patricia Lenz, BA '67, psychology, retired after a nearly 40-year career with the North American Baptist mission department. She lives in Fessenden, N.D.

Shripat Kamble, PhD '74, entomology, received the 2011 Recognition Award in Urban Entomology from the Entomological Foundation. The award acknowledges outstanding Extension, research and teaching contributions in urban entomology. A 33-year member of the faculty at the University of Nebraska – Lincoln, his research on distribution of termiticides in soils contributed

to label changes that now recommend drilling holes one foot apart to create a continuous chemical barrier. He also participated in national termiticide research to develop data for reduction in exterior treatment and targeted interior treatment. As a professor, he has supervised eight master's degree and 11 doctoral students.

Don Symington, BA '76, zoology, retired as professor and chair of dental technology at Indian River State College, Fort Pierce, Fla. During his 30-year tenure, he was active in faculty groups, sponsored student activities and worked with state and national dental organizations. He was a trustee on the National Board for Certification, task force member for the American Dental Education Association, consultant to the Commission on Dental Accreditation and active in the National Dental Technology Foundation. He lives in Fort Pierce.

Dr. Richard Martin, BS '79, chemistry, was named medical director of the emergency department at St. Mary's Hospital in Detroit Lakes, Minn.

Mark Koponen, MS '80, bacteriology, is co-director of the University of North Dakota School of Medicine and Health Sciences' new forensic science clinical practice facility for the Department of Pathology. He previously worked for the Georgia Bureau of Investigation.

Olivia Altenburg, BS '84, psychology, is a family support coordinator for Southeastern North Dakota Community Action Agency's Head Start program in Fargo.

David O'Connell, BS '89, biotechnology, MS '98, biochemistry, is a product transfer coordinator for Phoenix International, a John Deere company, in Fargo.

Dr. Christina (Renner) Rostad, BS '91, microbiology, joined the family medicine department of Essentia Health in Fargo.

Patrick Cleveland, BS '92, earth science, published a novel titled, “In the Lies of the Beholder,” a crime mystery available through Amazon.com and major bookstores. He previously was a defense attorney for the Virginia Public Defender Commission in Lynchburg, Va. He now teaches undergraduate law classes at Penn State University, while writing novels in his spare time. He and his wife, Joan, and children Brittany, Garrett and Weston, live in Ringoes, N.J.

Robert Ployhart, BS '94, psychology, was elected fellow in the Association for Psychological Science. He is the Bank of America Professor of Business Administration at the Darla Moore School of Business at the University of South Carolina.

Kevin Ploof, BS '97, earth science, joined Wenck Associates as an onsite wastewater design and inspection specialist in the firm's Minot, N.D., office.

Mandria (Bottrell) Montplaisir, BS '99, psychology, was named director of annual giving at George Fox University in Newberg, Ore.

CLASS NOTES

Stacey (Gackle) Hunt, BS '01, psychology, earned her doctorate in psychology from the American School of Professional Psychology in Seattle. She is employed at South Central Human Service Center in Jamestown, N.D.

Shawn Kamrath, BS '01, psychology, was named industrial market manager for Border States Electric, Fargo.

Joseph Markwardt, BS '01, computer science, joined Edgpath Technology, a division of Applied Engineering Inc. He is a consultant in the Bismarck, N.D., area.

Drew Magstadt, BS '05, zoology, earned his doctor of veterinary medicine degree from Iowa State University. He joined Richland Veterinary Clinic in Richland, Iowa.

Dr. Christopher Larson, BS '06, psychology, owns Alexandria Natural Health Center and Hoffman Chiropractic in Minnesota. He is a recent graduate of Northwestern Health Sciences University's College of Chiropractic.

Zachary Thurn, BS '06, computer science, was promoted to senior software engineer at Pedigree Technologies in Fargo.

Jill (Cuchna) Wilkens, BA '06, psychology, joined the Wadena, Minn., Medical Center and Tri-County Health Care. She is a physician assistant.

Justin Kalvoda, BS '07, computer science, joined Applied Engineering, Fargo, as an information technology consultant.

Jay Phillippi, MS '07, psychology, joined the clinical staff at Benson Psychological services of Fargo.

Apryl Schroeder, BS '09, psychology and criminal justice, works in the proof and accounting department of the Mayville, N.D., branch of Goose River State Bank.

Tyler Quinlan, BS '10, mathematics, joined the teaching staff of Cannon Falls, Minn., schools. He teaches high school mathematics.

Roger Serfling, BS '11, computer science, was promoted to information technology analyst at Phoenix International in Fargo.

Alex Stockton, BS '11, computer science, joined the RDO Equipment Co. field support office in Fargo as an information support specialist.

DEVELOPMENT

Thank you to the following alumni and friends for their gifts from January 1, 2011, to December 31, 2011.

\$50,000 or more

Individuals

Donn and Kirsten Diederich

Organizations

Gate City Bank

\$10,000 to \$49,999

Individuals

Carolyn Hrach
Merl and Cheryl Lindstrom
Jim Meier
Harry and Joan Snyder
James and May Sugihara

Organizations

3M Co.
Coatings Industry Education Foundation

\$5,000 to \$9,999

Individuals

Randy Gегelman and Wendy Skjerven

\$1,000 to \$4,999

Individuals

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Anonymous
Anonymous
Paulette Armstrong
Denise and Michael Barrera
Sharon Berry
Philip and Gertrude Boudjouk
Larry and Jane Brandenburger
Janet and James Gilsdorf
Sonja and Thomas Hanrahan

Ping and Brenda He
Gary Helgeson and Nancy Bologna

Loren and Norma Hill
Verlin Hinsz
Mark and Carol Kiemele
Steven and Robin Kunkel
Culver Ladd
Anne Lambert
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Carl and Jerri Pfiffner
Stephane Rainville
John and Susan Roseberg
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Marvin and Nancy Sehn
Eunice Toussaint
Dallas D. and Eileen Zimmerman

Organizations

Albert C. Bean Sr. Foundation

\$500 to \$999

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Rob and Lori Anderson
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Kenneth Hoefs
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Greg Wentz and Christie Iverson

Gregory Jacobs and Margaret Hanegraaf
David and Patricia Kearney
Oreste and Beulah Lantero
Jon and Julie Larson
James and Phyllis Lofgren
William and Ruth Maki
Charles and Mary Metzger
James and Kelly Rask
Bernhardt Saini-Eidukat
Stephen and Sharon Seneker
Mukund and Seung Sibi
Lewis J. Thompson
Frederick and Helen Turner
Craig and Tari Webster
Brian Wolff

\$100 to \$499

Individuals

Anonymous
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Richard and Patricia Adams
Helen Adducci
Phyllis Andersland
David B. Anderson
James and Deanna Anderson
Philip and Annette Anfinrud
Steve and Sheila Anonsen
Jill Armbrust and Jonathan Holtzman
Michael Avery
Jill and Corey Backlund
William and Sharon Barker
James and Catherine Beatty
Troy and Patricia Bergstrand
Steven and Darlene Berndt
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Daniel and Darlene DeChaine
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Roger and Polly Dorsey
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Terry and Krista Erickson
Earl Evenstad
Wayne and Vera Fallgatter
Janet K. Feist
Wayne and Sandra Fercho
Hugh Veit and Margaret Fitzgerald
Martin and Monica Folk

Tofayel and Rockshana Forhad
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Richard and Connie Gebhart
Gary and Kathryn Gemar
John Gilmore
Harold Goetz
Elisabeth and John Goff
Dixie and Richard Grossman
Kirk Groth
Curtis and Carol Guilbert
Harold Haag
Jean and Scott Hagen
Jeffrey and Melissa Hall
Larry and Teri Hall
Tim and Karen Halliday
George and Julie Hamer
Edward and Karen Handel
Jeffrey Hanggi
Patricia and Rodney Hanggi
Richard and Edith Hansen
Karen and Philip Hansen
Wayne and Wynona Harris
Lonnie and Mary Hass
Stacy and Ron Haugen
Nicholas and Stephanie Hauschild
Catherine and Louis Hendrickx
Keith Hepola
Rollin and Michelle Herman
Patrick Hoffert
Darold and Virginia Holten
Janet and Mark Huss
Earl and Jane Hutchins
Bradley and Gayle Johnson
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James W. Johnston

Jens and Anne Jorgensen
 Monte and Debra Kaelberer
 Craig and Debra Kapfer
 Justin and Stephanie Kappel
 Angshu Kar
 Michael and Elizabeth Kaytor
 Warren and Deborah
 Keammerer
 Lyn Keller
 Leonard M. Kirk
 Paul H. Klatt
 Bruce and Marian Klein
 Michael and Anne
 Klinkhammer
 Steven and Suzanne Kloos
 Lawrence and Sandra
 Klosterman
 James and Susan Koering
 Harold and Anne Korb
 Steven and Nancy Kraehler
 Kyle and Luanne Krein
 Venkatram Krishnan
 Kirby and JoAnn Kruger
 Scott and Heather Kulla
 Paul and Amy Lakin
 P. R. and Ooma Lakshmanan
 John LaLonde
 Kelvin and Patricia Landeis
 Roxanne M. Landon
 David A. Larson
 John and Sarah Larson
 Gerald and Mary Pat Lass
 Leland and Laura Learned
 James and Doris Leary
 Tucker and Margaret LeBien
 William and Sharon Lipp
 Lance Loken
 Kathryn J. Loseth
 Wayne and Barbara Lunsetter
 Kenneth and Rhonda Magel
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 Glenn and Judy Martin
 Greg and Denise McCarthy
 Patrick McDonough and
 Samantha McDonough
 Ardis and Philip McFarlane
 Lynn McHarness
 Jill and Gary McKenney
 Allan and Maureen Meath
 Lonnie and Cindy Mettler
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 Fredric and Jackie Modrow
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