

Winter 2012


## Communiqué: College of Humanities, Arts & Sciences Alumni Magazine, Volume 1, Winter 2012, Science Edition

University of Northern Iowa. College of Humanities, Arts, and Sciences.

*Let us know how access to this document benefits you*

Copyright ©2012 University of Northern Iowa, College of Humanities, Arts, & Sciences

Follow this and additional works at: <https://scholarworks.uni.edu/chascommuniquer>

 Part of the [Arts and Humanities Commons](#), [Higher Education Commons](#), [Life Sciences Commons](#), and the [Physical Sciences and Mathematics Commons](#)

---

### Recommended Citation

University of Northern Iowa. College of Humanities, Arts, and Sciences., "Communiqué: College of Humanities, Arts & Sciences Alumni Magazine, Volume 1, Winter 2012, Science Edition" (2012).

*Communiqué: College of Humanities, Arts & Sciences Alumni Magazine*. 1.

<https://scholarworks.uni.edu/chascommuniquer/1>

This Newsletter is brought to you for free and open access by the CHAS Newsletters/Magazines at UNI ScholarWorks. It has been accepted for inclusion in Communiqué: College of Humanities, Arts & Sciences Alumni Magazine by an authorized administrator of UNI ScholarWorks. For more information, please contact [scholarworks@uni.edu](mailto:scholarworks@uni.edu).

**Offensive Materials Statement:** Materials located in UNI ScholarWorks come from a broad range of sources and time periods. Some of these materials may contain offensive stereotypes, ideas, visuals, or language.

---

## Communiqué: College of Humanities, Arts & Sciences Alumni Magazine, Volume 1, Winter 2012, Science Edition

### Description

Inside this issue:

- Dean's Message
- Solar Splash: UNI Hosts Solar Boat Competition
- Classroom Italaino: Southern Italy Becomes UNI Classroom
- CHAS Applause
- Transitions
- Elevate & Inspire: The Youds Challenge
- A Special Budget Message From the Dean
- News in Short
- Students in the News
- To Turn Around Now or Later?
- Getting to the Root of the Matter
- Faculty Research
- Conversation with a UNI Grad
- UNI Reaccredited by Higher Learning Commission
- State Farm Foundation Grant keeps Computer Science Students in the Know
- Alumni News
- Commitment Comes in All Shapes and Sizes

### Keywords

University of Northern Iowa. College of Humanities, Arts, and Sciences--Periodicals;

### Disciplines

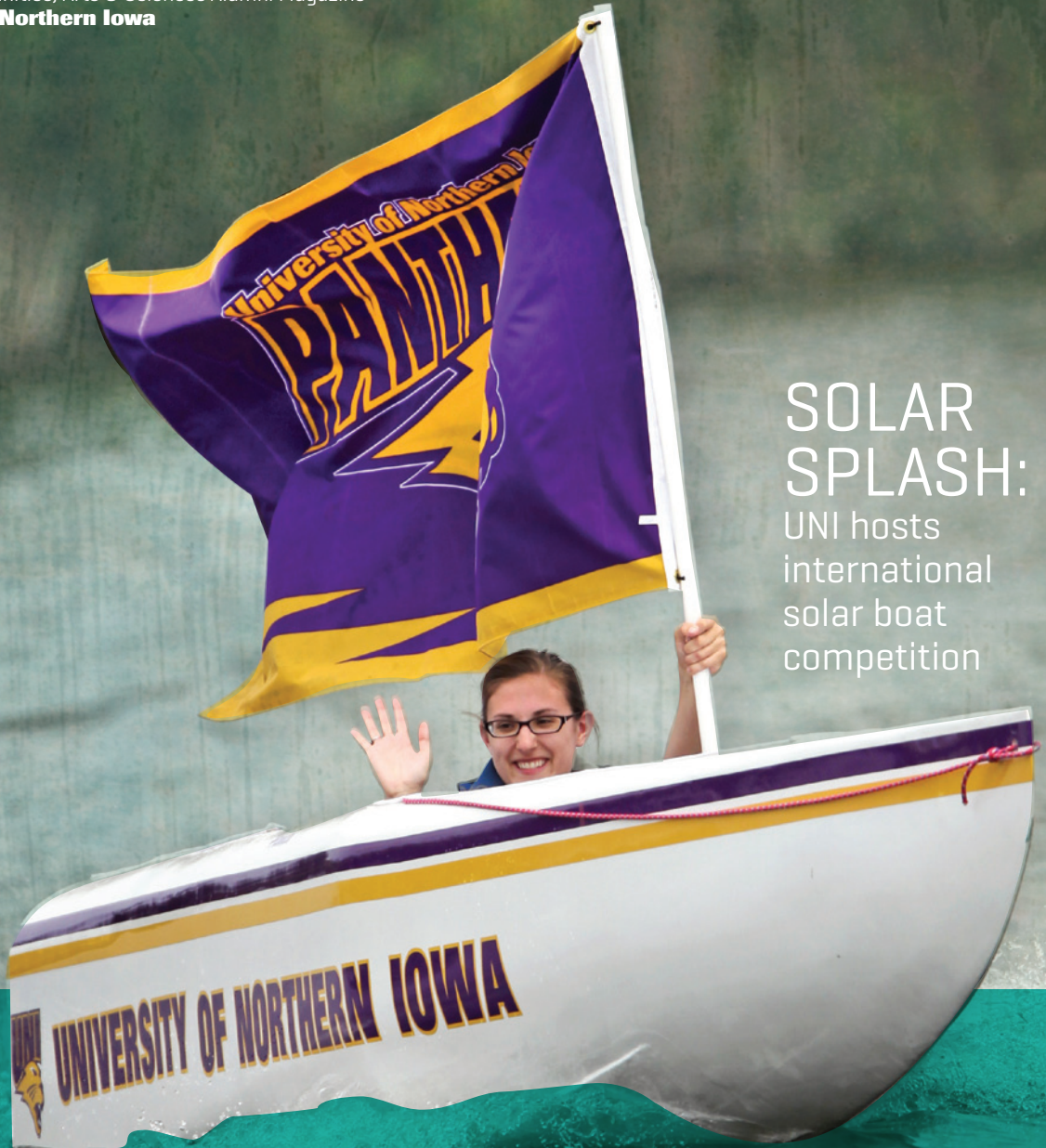
Arts and Humanities | Higher Education | Life Sciences | Physical Sciences and Mathematics

### Publisher

College of Humanities, Arts & Sciences; University of Northern Iowa

# communiqué

College of Humanities, Arts & Sciences Alumni Magazine  
University of Northern Iowa



## SOLAR SPLASH:

UNI hosts  
international  
solar boat  
competition

*plus:*

Getting to the  
Root of the Matter

Southern Italy  
Becomes UNI  
Classroom

SCIENCE EDITION  
Volume 1, Winter 2012



# TABLE of CONTENTS

## features

- 2 Solar Splash: UNI Hosts Solar Boat Competition
- 4 Classroom Italiano: Southern Italy Becomes UNI Classroom
- 9 A Special Budget Message From the Dean
- 14 To Turn Around Now or Later?
- 16 Getting to the Root of the Matter
- 20 Conversation with a UNI Grad
- 24 Commitment Comes in All Shapes and Sizes

## departments

- 1 Dean's Message
- 6 CHAS Applause
- 7 Transitions
- 10 News in Short
- 12 Students in the News
- 18 Faculty Research
- 22 Alumni News

## other news

- 8 Elevate & Inspire: The Youds Challenge
- 21 UNI Reaccredited by Higher Learning Commission
- 21 State Farm Foundation Grant Keeps Computer Science Students in the Know

*Communiqué* Science Edition is published annually by the College of Humanities, Arts and Sciences at the University of Northern Iowa.

Joel Haack, Dean | Cheryl Smith, Editor | Sarah Pauls, Designer

**On the Cover:**  
Team leader Hannah Loon captains UNI's entry at the international solar boat competition, which UNI hosted for the first time.

# DEAN'S MESSAGE

*greetings!*



I write to you for the first time as Dean of the newly formed College of Humanities, Arts and Sciences, the result of the merger of the College of Humanities and Fine Arts and the College of Natural Sciences on July 1, 2011. While some issues of the merger still need to be resolved, we are excited about the new relationships resulting from the

process. We are also benefiting from fiscal economies of scale. The education of our students, the creative and scholarly activities of our faculty and the outreach to the state of Iowa and beyond remain our focus.

Enrollment at UNI this fall was 13,168, down 33 students from the year before. The number of students studying in CHAS has remained strong, however, with 4,560 majors. [The timing and method of counting majors has changed this year, making comparisons between the two years problematic.] Thus, over one third of the students at UNI major in a program in our college.

We believe firmly in the value of communication with our alumni and friends, and we'd like to do this as sustainably as possible. This first issue of the *Communiqué* for CHAS actually has two editions, one focusing on the arts and humanities and one on the sciences. The edition you receive depends on which of the former colleges, CHFA or CNS, was yours. But we invite you to read the edition for the other half of our college online at [www.uni.edu/chas/communique](http://www.uni.edu/chas/communique). We are also exploring ways to deliver *Communiqué* to you online next year. At present, we expect to send you a postcard to let you know when it is available. [You will still have

the option of receiving a hard copy if you prefer.]

Likewise, you are invited to visit the CHAS homepage [www.uni.edu/chas](http://www.uni.edu/chas) and our calendar of events at [www.uni.edu/chas/events](http://www.uni.edu/chas/events) to keep abreast of our activities. If you are a Facebook user, I invite you to like our College page at [www.facebook.com/unichas](http://www.facebook.com/unichas).

Faculty and students continue to work together to benefit students' learning and the cultural, social and economic development of the state, as is demonstrated throughout this issue of *Communiqué*. CHAS disciplines are the heart of the liberal arts core; educating our students for their future in the context of a strong liberal arts education is a point of pride among our faculty.

The University of Northern Iowa has always sought to teach, nourish and foster the growth of its students. As part of this evolving and ongoing effort, we have embarked on a new beginning, one that focuses our strengths and sharpens our goals. We are excited about the opportunities that this merger has created for our students and staff and we look forward to a vibrant future.

*Joel Haack*  
Joel K. Haack





All in all, it was a grand year for the Solar Panthers, UNI's team in Solar Splash, the annual World Championship Intercollegiate Solar/Electric Boating competition. UNI hosted the event for the first time at George Wyth State Park in June 2011, and the Panthers came in fourth place, missing third place by a whisker (.66 of a percentage point). Winners of the four-day event were Cedarville University in Ohio (first place), the University of New Orleans (second) and Istanbul Technical University of Turkey (third). This year's event was one of the largest, with 21 teams competing. The Solar Panthers also won third place in the solar endurance category and best visual display.

"Solar Splash officials, as well as other teams, were extremely satisfied with the facilities and with UNI's planning and organization of the event," said Reg Pecan, professor of industrial technology and adviser to the Solar Panthers. UNI, which has participated in Solar Splash since 2000, will also host the event in 2012 and '13.

During the event, Solar Splash teams earn points in seven categories, including technical inspections and reports, engineering design, visual displays, workmanship and on-the-water sprint, endurance and slalom competitions.

Beginning in August, individual solar boat teams focus on design objectives and improvements as they prepare the boat's hull, solar-electric power system, mechanical or electronics controls, power storage and wireless/wired telemetry system for optimum data acquisition and telecommunications. Students must also prepare professionally written technical reports and technical display materials.

The Solar Panthers' boat, named *Hannah* after their team leader Hannah Loan, is a foam and fiberglass craft outfitted with six large solar panels strapped to the exterior, which produce 480 watts of energy. The boat was

built four years ago by earlier team members and has been modified each year since then.

Loan, an electrical engineering technology major who graduated in May 2011, was a member of the UNI solar boat team for three years and was the team leader for two years in a row. "Being involved in the solar boat team opened up so many opportunities for me—from networking and meeting people to experience with hands-on applications to finding out what I'm most interested in." Loan now works at Rockwell Collins, Inc., in Cedar Rapids, as does Damon Knowing, another solar boat team member, who was hired for an engineering technology position.

This year's Solar Splash was sponsored by the Institute of Electrical and Electronics Engineers' Power Electronics Society (IEEE-PELS) with assistance from the Iowa Mathematics and Science Education Partnership, Waterloo Tent, Cedar Falls Utilities, Cedar Falls Tourism and Visitors Bureau, Cedar Valley Sports Commission, the Iowa Department of Natural Resources, Solar Creations by Waterloo, Rockwell Collins, Inc., and the Greater Cedar Valley Alliance and Chamber. The UNI solar electric boat project was sponsored by the Iowa



Senior David Buseman installing the UNI solar boat's high-current motor pack.

Energy Center, with additional support provided by the UNI Office of the Executive Vice President and Provost and the College of Humanities, Arts and Sciences. ♦♦♦

**SAVE** *the* **DATE**  
Solar Splash 2012 is fast approaching!  
Bring everyone out to this fun and family friendly event.  
**June 13-17, 2012**

## WHAT *is* Solar Splash

Begun in Milwaukee in 1994, Solar Splash promotes clean, zero-emission transportation technologies in U.S. waters and encourages interest on the part of young people in STEM [science, technology, engineering, mathematics]-related careers, according to Reg Pecan, UNI solar boat adviser. "Designing, building, testing and troubleshooting solar-powered boats have been excellent ways to involve students in these areas," he said. "This competition allows undergraduates to be involved in applied engineering and technology research and to develop confidence in their abilities,"



The UNI Solar Panthers.



# CLASSROOM ITALIANO



Sometimes to gain an understanding of the big picture, it helps to place yourself in a totally different environment, one that makes it impossible not to take a fresh look at a question. That's what students in Chad Heinzl's Capstone course (Environment, Society and Technology) in southern Italy did last summer. The two-credit Capstone course is the culminating requirement of the Liberal Arts Core at UNI.

During the two-week-plus trips, students (18 in the first session and 16 in the second) investigated the environmental and sociopolitical implications of climate change on Mediterranean cultures. "Students often have a superficial view of the environment," said Heinzl. "They may think of the environment in terms of

These exercises help students become aware of big questions.

larger issues, such as how the presence or lack of natural resources can impact a society, or the devastating effects of natural hazards such as earthquakes or volcanoes."

The cultural center of the course is the Mediterranean—the Greeks, Phoenicians and Romans. Sicily and southern Italy are at the crossroads of

the beginning of Western civilization, according to Heinzl, a stopping point on the route to Asia, Africa and Western Europe. This was the major reason, as well as Heinzl's familiarity with Sicily, for selecting the area as the site of the course. [Some capstone courses are offered on the UIN campus; others at different overseas locations.] Heinzl taught two sections of the course last summer and hopes to teach it again in summer 2012.

During their stay in southern Italy, students visit archaeological sites, geologic outcrops, beaches, museums and more, while experiencing contemporary Mediterranean culture, from the landscapes of rural Sicily to the modern metropolis of Rome. Heinzl frames stops at different points of interest with what he calls scavenger hunts. For example, at Monte Polizzo, students are asked to find, document and return pieces of archaeological material; to determine and discuss the advantages and disadvantages of living in Monte Polizzo in 550 B.C.; and to write an essay entitled "Time" that addresses their own view of time.

"These exercises help students become aware of big questions, such as the role of the environment in the quality of life, how environments change

through time, sometimes quickly and sometimes over millions of years," said Heinzl. "The students' active experiences help them internalize their understanding of these larger issues."

Students prepare for the trip by meeting approximately eight times during the spring semester for discussions of material they have read on Mediterranean archaeology, the land ethic, the relationship of environment, technology and society, as well as the fragility and evolution of humanity. During their stay in southern Italy, they document their experiences in a journal, including answers to questions, summaries from class discussions, thoughts about the course readings and summaries of what they have seen and done.

"In the end, this course is not about what I think," said Heinzl. "It's about giving students an opportunity to examine what they have learned and develop their own human/environmental philosophy." ♦♦♦

*Background: Students visit a volcano on Vulcano Island, one of the seven Aeolian Islands off the coast of Sicily.*

*Inset left: Capstone student Melinda Blakeman studies the tomb of St. Helen, the mother of Constantine I, in the Vatican Museum.*

*Inset right: Students hiking up the summit of Stromboli, a volcano that erupts about every 20 minutes.*





# CHAS APPLAUSE

♦ **Carl Bollwinkel** (CEEE) received the 2010 Lifetime Achievement in Environmental Education Award from the Iowa Association of Naturalists and the Iowa Conservation Education Coalition.

♦ **Karen Breitbart** (Physics/Science Education; Lab School) was elected to the executive board of the Iowa Academy of Science.

♦ **John Bumpus** (Chemistry and Biochemistry) served on the National Science Foundation Graduate Research Fellowship Panel in February 2011.

♦ **Shoshanna Coon** (Chemistry and Biochemistry) is the first recipient of the MWOne Unique Academic Advising Award, sponsored by Midwest One Bank.

♦ **Kavita Dhanwada** (Biology, CHAS Associate Dean) was elected to the executive board of the Iowa Academy of Science.

♦ **J. Philip East** (Computer Science) is a member of the committee to revise NCATE standards for secondary computer science teacher preparation programs and a member of the planning committee for the Computer Science & Information Technology Symposium 2011.

♦ **Kamyar Enshayan** (CEEE) was an invited panelist at a National Academy of Sciences workshop in March 2011 on increasing national resilience to hazards and disasters in Cedar Rapids.

♦ **Larry Escalada** (Physics/Science Education) received the 2010-11 Ross A. Nielsen Professional Service Award. He was also appointed chair of the

Committee on Physics in High Schools (2011-12) of the American Association of Physics Teachers.

♦ **Scott Giese** (Industrial Technology) was elected to the professor committee and the board of directors of the Foundry Education Foundation.

♦ **John Groves** (Earth Science) was awarded a \$65,000 grant from the American Chemical Society Petroleum Research Fund for his project "Tests for the Possibility of Photosymbiosis in Late Paleozoic Fusuline Foraminifera." He was appointed to a four-year term as a voting member of the International Union of Geological Sciences, Subcommittee on Carboniferous Stratigraphy.

♦ **Joel Haack** (CHAS Dean) was the guest lecturer for the UNI Department of Mathematics' Hari Shankar Memorial Lecture in March. In "These Are a Few of My Favorite Things," Haack discussed examples of connections between mathematics and the arts and humanities.

♦ **Bill Harwood** (Chemistry and Biochemistry) served as chair of a review panel for the National Science Foundation DRK-12 proposals to develop research on improving science learning in the K-12 classroom.

♦ **Chad Heinzel** (Earth Science) was awarded the 2010-11 University Book and Supply Outstanding Teaching Award for CNS nontenured faculty. He was elected regional director of the National Association of Earth Science Teachers.

♦ **Patricia Higby** (CEEE) was selected to serve on the Green Schools Committee Cabinet, which works with the Center for Green Schools team to provide guidance on the direction and development of the Green Schools Committee programs and initiatives.

♦ **T.J. Hitchman** (Mathematics) was elected chair of the Iowa section of the Mathematical Association of America and was appointed to the MAA's Iowa NExT steering committee.

♦ **Tom Hockey** (Earth Science) is the author of *How We See the Sky*, a general audience book, published by the University of Chicago Press, that takes a cultural and historical approach to astronomy.

♦ **Elizabeth Hughes** (Mathematics) was elected to the board of directors of the Iowa Association of Mathematics Teacher Educators.

♦ **Mohammad Iqbal** (Earth Science) was presented the 2010 Dean's Award for Research. He received the Milestone Award in 2010 for outstanding mentoring of graduate students; the award is given to members of the Graduate Faculty who have served as the major adviser of at least 10 graduate students at UNI.

♦ **James Jurgenson** (Biology) was re-elected chair of the UNI Faculty.

♦ **Ali Kashef** (Industrial Technology) was appointed a member of the *Journal of Industrial Technology* editorial panel. He received a Milestone Award for outstanding mentoring of graduate students at UNI.

♦ **Syed Kirmani** (Mathematics) gave 20 lectures on quality control at the École Nationale de la Statistique et de l'Analyse de l'Information (ENSAI) in Bruz, France, in November 2010 at ENSAI's invitation.

♦ **Min Ho Lee** (Mathematics) was invited, based on his published research results, to deliver a three-hour lecture at a workshop on quasimodular forms, held in June 2010 at Blaise Pascal University in France.

♦ **Kirk Manfredi** (Chemistry and Biochemistry) was appointed to the awards committee of the American Society of Pharmacognosy.

♦ **John McCormick** (Computer Science) received the 2011 Dean's Award for Excellence in Teaching Departmental Programs.

♦ **Jeff Morgan** (Physics) received the 2011 CNS Dean's Award for Excellence in Teaching in the Liberal Arts Core. He was awarded the 2011-12 University Book and Supply Outstanding Teaching Award for UNI nontenured faculty.

♦ **Siobahn Morgan** (Earth Science) is a member of a review committee evaluating research proposals for the Hubble Space Telescope.

♦ **Jihwa Noh** (Mathematics) received a 2011 Veridian Credit Union® Community Engagement Award for her work in building relationships with schools and mathematics teachers in the Cedar Falls and Waterloo school districts.

♦ **Stephen O'Kane** (Biology) received the 2011 Dean's Award for Excellence in Research and Beta Beta Beta's Excellence in Teaching Award.

♦ **John Ophus** (Biology) received the 2010 CNS Dean's Award for Excellence in Teaching in the Liberal Arts Core.

♦ **Linda Paar** (Chemistry and Biochemistry) received the 2011 Regents Staff Excellence Award.

♦ **Reg Pecen** (Industrial Technology) is a board member for the Iowa Alliance for Wind Innovation and Novel Development. He received the UNI CARE Sustainability Award and the Milestone Award for outstanding mentoring of graduate students at UNI.

♦ **Kurt Pontasch** (Biology) is a member of the nutrient technical advisory committee of the Iowa Department of Natural Resources.

♦ **Nageswara Rao Posinasetti** (Industrial Technology) is editor of the *International Journal of Mechanical Engineering*.

♦ **Mike Roth** (Physics) received the 2011 Regents Award for Faculty Excellence.

♦ **Karen Sabey** (Mathematics) was appointed treasurer of the Iowa Association of Mathematics Teacher Educators.

♦ **Ben Schafer** (Computer Science) was invited to attend the NSF-sponsored Computing Education for the 21st Century in New Orleans in winter 2011.

♦ **Aaron Spurr** (Earth Science/Science Education; Lab School) was one of four Iowa teachers to receive the Yager Exemplary Science and Mathematics Teaching Award. Yager, who received a B.A. in biology from UNI, is professor emeritus of science education at the University of Iowa, where he taught for 50 years.

♦ **Bill Stigliani** (CEEE) was an invited speaker at the Erice International Seminars on Planetary Emergencies, held in Erice, Sicily, in August 2011. The title of his talk at the session on climate was "The Chemical Time Bomb Concept Revisited in the Context of Climate Change and Other Recent Developments."

♦ **Jody Stone** (Chemistry and Biochemistry/Science Education; Lab School) received the 2011 state Presidential Award for Excellence in Mathematics and Science Teaching. The awards are the nation's highest honor for teachers of science and mathematics.

♦ **Gerard Thiel** (Industrial Technology) received the American Foundry Society Scientific Merit Award at the 2011 Casting Congress in April. The technical paper he wrote on high-temperature properties of chemically bonded sand received the 2011 Howard Taylor Award for research that significantly influences the future of the metal casting industry. Thiel is serving a four-year term as a national director of the Cast Metals Institute.

♦ **Brian Townsend** (Mathematics) was appointed Affiliate Connections Committee chair of the Association of Mathematics Teacher Educators.

## transitions

### New faculty

#### Biology

**Mark Sherrard**, assistant professor (Ph.D., University of Guelph, Guelph, Ontario)

#### Chemistry and Biochemistry

**Melisa Cherney**, assistant professor (Ph.D., University of Wisconsin-Madison)

#### Industrial Technology

**James Maxwell**, professor and department head (Ph.D., Webster University; Ph.D., Indiana State University)

**Scott Greenhalgh**, assistant professor (Ph.D., Utah State University)

**Antonio Scontrino**, assistant professor (Ph.D., University of Palermo, Italy)

#### Mathematics

**Olena Ostapyuk**, assistant professor. (Ph.D., Kansas State University)

**Karen Sabey**, assistant professor (Ed.D., University of Northern Iowa)

**Olof Bjorg Steinhorsdottir**, assistant professor (Ph.D., University of Wisconsin-Madison)

**William Wood**, assistant professor (Ph.D., Florida State University)

#### Physics

**Rui He**, assistant professor (Ph.D., Columbia University)

### Retirements

**Fred Behroozi**, 19 years as professor in and nine years as head of the Department of Physics

**Virginia Berg**, 27 years as professor in the Department of Biology

**Dorothy Brecheisen**, 16 years as instructor in the Department of Biology

**Diane Thiessen**, 33 years as professor in the Department of Mathematics

**Jack Wilkinson**, 49 years as professor in the Department of Mathematics and 11 years as director of the UNI DoDEA mathematics project

### Position change

**Shoshanna Coon**, associate professor of chemistry and biochemistry, is associate dean for graduate academic affairs.

# ELEVATE & INSPIRE

## the Youds Challenge

Eileen ('80 Mathematics and Chemistry) and Bob ('80 Industrial Technology) Youds are issuing a challenge—Elevate and Inspire—to UNI alumni and friends: If you upgrade the gift you made last year to the CHAS Dean's Fund for Excellence, they will match your upgrade dollar for dollar up to \$15,000. The Challenge also applies to first-time donors.

Eileen and Bob believe that their UNI experience helped form the solid base from which they launched successful and fulfilling

Elevate  
your gift.  
Inspire  
a student.

careers. Eileen is chief operating officer for shared services at Walser Automotive Group in Minneapolis. She has held significant global leadership positions with Honeywell, Kelly Services, Ceridian and Pearson. Bob is an engineering manager of design automation with Medtronic in Minneapolis. His

career has spanned commercial, industrial and defense industries. Eileen and Bob both serve on the UNI Foundation's Imagine the Impact national steering committee, and Eileen was a member of the College of Natural Sciences Advisory Board.

"The Dean's Fund helps students gain professional, social and cultural experiences that are vital for success in the business world, but those are things that can often go unfunded in today's challenging economic times," Eileen noted. The Dean's Fund gives students opportunities for research experience, assists with living expenses when students take unpaid internships and helps fund professional presentations or study abroad.

You can answer the Youds Challenge and elevate your gift by going to [www.adv.uni.edu/foundation/pledgeform.aspx](http://www.adv.uni.edu/foundation/pledgeform.aspx). Scroll down the page to the section marked "Dean's Fund" to make your contribution. ♦♦♦

## A SPECIAL BUDGET *message* from the Dean

The budget situation for the Regents institutions continues to be challenging, especially for UNI. Because just under half of the UNI budget comes from state appropriations, state budget cuts in the past 10 years have disproportionately impacted UNI, compared with its peer Regents institutions. Recognizing this disparity, the Board of Regents has recommended to the legislature a special appropriation for UNI. If you agree that it is important that this recommendation be funded, I hope that you will let your legislators know. [More detail can be found in President Allen's budget message at [www.uni.edu/president/budget](http://www.uni.edu/president/budget).]

One expected impact of the budget strictures is that we will be forced to close some programs at UNI, not because of any concerns about their quality or because they do not produce well-prepared graduates, but solely because we cannot afford to continue all the programs we have. Of course, we will make sure that the students presently in the programs are accommodated, but I expect that you will hear of significant

changes in UNI. It has been difficult for me to come to grips with this—I love the institution we have all created. But I firmly believe that UNI must be reformed to remain strong. My goal will be to make the process as transparent and fair as possible, while ensuring that, in the reallocation, we can strengthen the CHAS programs that remain.

I am very grateful for the financial support from our UNI alumni and friends; you make it possible for us to offer scholarships to students, support their research projects, purchase equipment for their classrooms and provide opportunities for faculty members to remain at the frontiers of their disciplines. In the proceeding column, there is information about a challenge grant from Eileen and Robert Youds. I encourage you to consider multiplying the value of your gift by taking advantage of their generous offer. ♦♦♦



# NEWS *in* SHORT

*The CEEE worked with the Iowa Office of Energy Independence to provide energy-related materials and outreach presentations to Iowa K-12 teachers during the 2010-11 school year. Called **Fabulous Resources for Energy Education (FREE)**, the program also offered professional development graduate credit courses to immerse teachers in energy conservation, efficiency and renewable energy.*

***Sustainability efforts in the college** this year included offering a 3-credit-hour course on the subject, a public forum in April during Earth Week, when a group of freshman Presidential Scholars described their blueprint for a sustainable society in 2050, and the UNI Faculty Leadership in Sustainability Education program, a year-long effort by a group of 26 faculty members representing 19 different departments, to expand their vision of sustainability and how to teach it to their students.*

***The LEGO Llamas, a team of seven** Cedar Falls middle school students, sponsored by the College of Natural Sciences and John Deere, Inc., went from the regional qualifier in Cedar Falls of the FIRST LEGO League to the state competition in Ames, where they won first place in programming. Students in FIRST LEGO League design, build and program robots, apply real-world math and science concepts, and learn critical-thinking and team-building skills.*



*The Andersons with 2010 student awardees: Christina Spielbauer, Kasey Westley and Matt Even.*

*A thousand high school students from the Cedar Valley gathered on the UNI campus in late May for **Green: What Does It Mean? Exploring Our Sustainable Community**. The all-day event, aimed at providing hands-on learning experiences on environmental literacy that would not otherwise be available, featured rock wall climbing, kayaking, archery and activities related to solar energy, organic farming and water testing. The event was presented by Cedar Valley Sustainability Educators, a group of eight organizations, one of which is UNI's Recycling and Reuse Technology Transfer Center.*

***The Wayne and Jan Anderson Summer Geology Field Camp Fund** was created by the former head of the Department of Earth Science and his wife to award \$1,000 stipends to students to help defray the costs of their summer camp. At a luncheon in their honor in December 2010, the Andersons posed with the students who received awards this past summer: seniors Christina Spielbauer, Kasey Westley and Matt Even.*

***The RRTTC's Team ReCycle** looked at the recycling practices used at RAGBRAI XXXIX this past summer. The team,*

*consisting of Jenny Bruss, RRTTC program and community outreach coordinator, and students Katie Art and Britney Tanning, investigated what happens to the large quantities of disposable cups, plates, beverage bottles and other materials that are a by-product of 20,000 riders crossing the state and thousands more participating along the route. The team posted daily reports of their adventures on the RRTTC's Facebook page.*

*For the second summer, the Department of Computer Science offered **two Google-supported workshops** for middle and high school teachers. One workshop helped prepare teachers to have their students use graphical programming software in their classrooms, and the other workshop focused on teaching students about various simulation tools.*

*Several dozen seventh and eighth graders from area schools participated in the second annual **UNI Energy Olympics** at the CEEE in May. The event included a solar car race, an art project and a solar water heater, all powered by sustainable energy sources. This year, students also had the option to build a wind turbine.*

*The Department of Physics hosted the **State Physics Olympics** competition in April, at which more than 100 high school students who qualified in their AEA regional competition tested their skills.*

*Biology professors **Laura Jackson** and Peter Berendzen were part of a group of Regents university faculty who evaluated the effects of climate change on the state and submitted a **report to the Governor and the Iowa General Assembly** in January 2011. Jackson and Berendzen's chapter focused on climate change consequences for Iowa's flora and fauna.*

*The graphic communications major in the Department of Industrial Technology graphic communications has been renamed **graphic technologies** to reflect broader course offerings and current trends in the industry.*

*The CEEE's **Farm to School** program helps six northeast Iowa schools find*

*locally grown foods. The first part of the program is getting locally grown food into the cafeterias so schools serve fresher, healthier food. The second part is educating students on where the food comes from. The CEEE helps schools find local growers through the Northern Iowa Food and Farm Partnership.*

*The Physics Department hosted for the first time the annual meeting of the **Iowa American Association of Physics Teachers** in November 2010. Some 60 Iowa physics teachers from high schools, community colleges, liberal arts colleges and universities, as well as UNI students, attended the meeting, one of the highlights of which was the 2009 Iowa High School Physics Teacher Survey, conducted by Jeff Morgan, assistant professor of physics and science education. Cliff Chancey, head of the Department of Physics, was president of the IAAPT at the time. In November 2011, the department hosted the **prairie states regional meeting of the American Physical Society**, a research conference that draws graduates and undergraduates.*

*This fall for the first time the **Biology** Department offered an eight-week **orientation session** for freshman biology majors. More than 100 students took the zero-credit course, which aims to help biology majors feel at home in the department, meet Biology faculty and learn about opportunities in the department.*



*At the STEM Education Laboratory's open house, April 2011.*

*The Department of Industrial Technology's new **STEM** [Science, Technology, Engineering and Mathematics] **Education Laboratory** features 12 computer-aided design workstations, a*

*digitally controlled laser engraving machine, a computer numerically controlled three-dimensional router, a computerized materials stress analyzer and various scaled-down versions of traditional materials processing equipment. The STEM Ed lab provides a hands-on experience for students to study in an engineering and technological environment. The lab space was refurbished with a \$43,000 American Recovery and Reinvestment Act grant. Equipment and supplies were provided through two Iowa Mathematics and Science Education Partnership grants totaling approximately \$61,000.*

*The partnership of the **Physics Department with Ankeny High School** to offer college physics courses to AHS students [see Connections 2010-11] will continue this year and expand to Xavier High School in Cedar Rapids. Lectures can be broadcast, via real-time Accordant Capture station, to any PC with a Web connection. Labs are managed through software-based exercises and Web-based simulations, and UNI provides online tutoring as well as on-site visits.*

*The Department of Physics received a \$365,000 grant from the National Science Foundation to acquire a **helium cryocooler** for its existing Physical Property Measurement System [PPMS]. The cryocooler system captures evaporated helium from the PPMS and reliquifies it. Low-temperature capabilities*

*are mandatory for cutting-edge physics and materials research. The new system allows UNI to conduct research without costly fillings of liquid helium.*

***Conrad and Jeanette Baumler** [BA '71, MA '73, and BA '73,*

*respectively] recently created the **Conrad and Jeannette Baumler Mathematics Education***

*News in Short continued on page 15.*



# STUDENTS *in the* NEWS

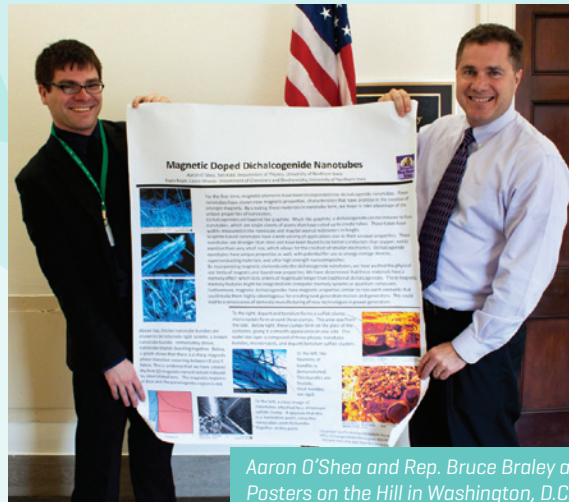
## student recognition

**Kris Boss**, a senior in industrial technology, was awarded a special scholarship of \$2,000 for writing a paper demonstrating his interest in ductile iron from the Foundry Education Foundation at its annual College Industry Conference in Chicago in fall 2010.

**Jack Kosmicki**, a bioinformatics major in the Department of Computer Science, was awarded a second two-month internship at the prestigious Harvard-MIT Bioinformatics and Integrative Genomics summer institute. The institute offers hands-on research experience in biomedical engineering and medical science to outstanding undergraduate students.

**Chelsea Meier**, president of the American Chemical Society student affiliate at UNI, was recently awarded a \$400 International Year of Chemistry grant from the ACS committee on education for her proposal, "Halloween Haunted House." UNI's ACS student affiliate has presented a Halloween haunted house on the holiday for the last several years.

**Josh Hanna**, a science education graduate student and education technology teacher at Price Lab School/NU High, was one of three U.S. teachers selected to involve his school and community on a Darwin Day road show tour by the National Evolutionary Synthesis Center.



Aaron O'Shea and Rep. Bruce Braley at Posters on the Hill in Washington, D.C.

Physics major **Aaron O'Shea** traveled to Washington, D.C., in the spring with Tim Kidd, assistant professor of physics, to participate in this year's Posters on the Hill, sponsored by the Council of Undergraduate Research. The event gives students across the country the opportunity to present their research to Congress. Only about 10 percent of applicants are accepted to present.

**Pieter Ver Steeg**, a professional science master's student majoring in ecology management, was selected as a diversity intern by The Nature Conservancy in Minnesota for the summer of 2011. After an orientation at the world headquarters in Arlington, Va., Ver Steeg focused on the area of conservation planning.

Biology major **Susan Meerdink** received a NASA Iowa Space Grant Consortium research scholarship for the 2010-11 academic year. She researched climate, human activities and predators' effect on spatial fidelity of Taimyr reindeers' calving grounds in Eurasia.

A team of construction management students from the Department of Industrial Technology finished with high marks at the National Student

Construction Management Competition in San Antonio, Tex., in spring 2011. Students **Matt Burch, Nate Graves, Ryan Koopmann, Gavin Wicks, Kory McCracken** and **Brendan Miller** finished in fourth place for total score in the categories of project management, estimating and safety. In the individual category of safety, the team finished second.



UNI's Construction Management Team



The Student Nature Society's 5K Run for the Preserves

The Student Nature Society in the Biology Department received the Student Club of the Year Award for its work promoting the UNI Biological Preserves and the existing trail system through its design and support of the 5K Run for the Preserves, promotion of the UNI Greenhouses, assistance with the Wetland Project, interaction with other campus clubs and organizations and creation of two scholarships.

Physics major **Byron Tasseff** received an honorable mention for the national Goldwater Scholarship competition for science and mathematics students with the potential to excel in research careers.

Purple and Old Gold Awards recognizing meritorious scholarship were given to **Anna Wieman** in biology, **Victoria Moran** in biology and chemistry, **Kayla Boyle** in chemistry and biochemistry, **Katelyn Haw** in computer science, **Sean Newlin** in earth science, **Kyle Ross** in electrical engineering technology, **Danielle Stipe** in graphic communications, **Nicole Hancock** in mathematics and **Michael McGarvey** in physics.

Biology graduate student **Jim Mason** was one of three UNI graduate students selected to attend the annual Legislative Luncheon highlighting the accomplishments of UNI graduate students to state legislators.

Biology undergraduate researcher **Ben Hoksch** was selected to participate in Research at the Capitol, a collaborative effort of the honors programs of the Regents universities at the Iowa statehouse in March.

At the sixth annual Mini-Sumo Robotics Competition, in April, **Kevin O'Connor**, a chemistry major, was the first UNI student to win the competition in three years. This year's competition had the largest number of competitors ever—18—from around the U.S., including robots built by UNI students from Physics, Biology, Chemistry and Biochemistry, Computer Science, Industrial Technology and the School of Music.

**Cassandra Hayne**, a double major in biochemistry and biology, was awarded a Merchant Scholarship to the University of North Carolina-Chapel Hill, where she will pursue a Ph.D. in biological and biomedical sciences.

Mathematics majors **Genevieve Becicka**, **Wes Keene** and **Joe Winder** represented UNI at the 71st annual William Lowell Putnam Exam, a prestigious and difficult team competition for colleges and universities in the U.S. and Canada.

## student research/projects

Students **Alexandra Popinga** (bioinformatics, biology, biochemistry), **Hannah Wilson** (biology, biochemistry, philosophy), **Melani Taylor** (biology) and **Samantha Cawiezell** (biology) participated in the Department of Chemistry and Biochemistry's exchange program at Ecole Nationale Supérieure de Chimie de Rennes (ENSCR) in Rennes, France, during the summer of 2011. Facilitated by John Bumpus, UNI professor of chemistry, the students worked on research projects with ENSCR faculty. At the same time, two ENSCR students, **Laure L'Haridon** and **Terry Tomakinian**, were involved in research at UNI with chemistry faculty Kirk Manfredi and Jeff Elbert.

Three earth science students presented the results of their research at the annual meeting of the Geological Society of America in Denver, Colo., in fall 2010: **Jake Davidson**, **Matt Even** and **Jennifer Shepeck**.

Mathematics education students in a class taught by Jihwa Noh, associate professor of mathematics, started a weekly **after-school math club for students at Waterloo's West High School** in fall 2010. The UNI students taught lessons introducing or reviewing specific math concepts and connected the concepts to real-life applications and careers. They also provided homework help and ACT/SAT college entrance exam preparation. Noh received an outreach grant from the Iowa Mathematics and Science Education Partnership.

**Corey Eichelberger**, an electrical engineering technology major in the Department of Industrial Technology, completed a project in summer 2011 that involved monitoring the quality of the electric circuit when each of three different types of light bulb—LED, compact fluorescent and incandescent—is used. Of the three types of light bulbs, he found that the LED bulb used the least amount of electricity—5 watts—but was comparable to a 100-watt incandescent bulb in terms of

Students in the News continued on page 15.



# TURN AROUND now or later?

Doug Shaw and student Whitney Waechter confer on the best time to turn around.



Doug Shaw, professor of mathematics, reflects on solving the Turn-Around Problem (which would not of course be necessary if he stopped and asked for directions).

You are driving to a restaurant, you come to an intersection and you don't know which way to turn. You turn left, drive a while and think, "I should turn around." Not so fast. Turning around too soon is a catastrophe! Think: Backtracking to the intersection, then driving in the wrong direction for a long time until you turn around AGAIN, then all the way back to where you are now. Maybe you should proceed another quarter mile . . .

Assume there is some nice bell-shaped curve describing the restaurant's potential location. When do you turn around? In theory, this is simple calculus: "Set up an expected value integral in terms of the turn-around point, take a derivative, set it equal to zero . . ." Here's the answer you

When do you turn back when you are going the other way?

get:  $\infty$  Never turn around. But that's blatantly wrong! Half the time you would NEVER get to your destination!

The problem isn't with mathematics, but with the model. If I turned out to be wrong and turned around too soon, I would NEVER get to my destination, because I

hadn't put a SECOND turn-around point into my model—when do you turn back when you are going the other way? Then I'd need a third, and a fourth, etc.

Undergraduate Whitney Waechter and I worked on the problem this summer. We started by looking at an easier problem—assume that the road ends 10 miles in either direction and that the restaurant has equal probability of being anywhere on the road. Where do you turn around? Simple problem, simple answer. It turns out you go right 10 miles, to the end of the road, then turn around.

We then started playing with distributions on that finite road, until we found one with a nontrivial turn-around point. And then we started playing with distributions that looked like bell curves, only were finite (because the road ends). We found that if the "spreadiness" of the curve was very narrow, then there would be an interesting turn-around point.

We added a second turn-around point, on the other side, then a third, each time looking for patterns, trying to work our way toward infinitely many turn-around points.

And toward roads that do not end. Whether or not the road ends, the summer certainly did. My student made a wonderful poster and presentation at the undergraduate research fair, and we said goodbye . . . until next summer. ♦♦♦

## NEWS in SHORT

continued from page 11

**Scholarship**, to be given annually to a junior or senior majoring in mathematics education. The first recipient was Andrew Skinner. Conrad, former chief financial officer of Shive Hattery of Cedar Rapids, is a former member of the CNS Advisory Board.

CEEE director, Kamyar Enshayan, receives a check from Grainger employees.



The Grainger Foundation of Lake Forest, Ill., donated \$5,000 to create the **Grainger Graduate Assistantship** for the CEEE.

The grant will support a UNI graduate student who will coordinate the Iowa Green Schools Initiative, which will enfold several CEEE programs into one cohesive set of educational services. School administrators and teachers will learn how to make their school a green facility, and they will learn to teach students how to reduce their energy footprints.

With an additional \$1 million in funding from the Department of Energy, the **Center for Advanced Bio-Based Binders** in the Department of Industrial Technology is continuing to investigate emission prediction and thermal degradation analysis of resin sand binders. Further data collection should enhance the predictive capabilities of the developed first-generation emission model.

The Department of Biology began an **exchange program** this past summer with **National Chengchi University** (NCCU) in Taipei, Taiwan. In July, students from UNI traveled to NCCU, where they worked in research labs in the Institute of Neuroscience and took Chinese language and culture classes. NCCU students also came to UNI in July and participated in the Summer Undergraduate Research Program and took English language and culture courses from UNI's Culture and Intensive English Program.



Taiwanese exchange students receive a tour of the UNI Botanical Center.

## STUDENTS in the NEWS

continued from page 13

light produced; it also produced the least amount of feedback, which can cause distortion and wasted energy.

Mathematics major **Genevieve Becicka** presented her independent research project, "Equivalent Representations of Standard Young Tableaux," with a poster at the University of Nebraska's Undergraduate Women in Mathematics Conference, Research in the Capitol in Des Moines and the Midwest Undergraduate Mathematics Symposium at Simpson College.

**Kyle Pitzen**, a mathematics major, presented his research project, "Products of NPC Metric Spaces," with a poster at the Midwest Undergraduate Mathematics Symposium at Simpson College.

**Student employees and staff of the Metal Casting Center** recently replicated a Picasso sculpture, known simply

as "The Picasso," located in Daley Plaza in Chicago. The replica, donated by the university and the center, was added to a new exhibit at the Waterloo Center for the Arts Phelps Youth Center.

Three CHAS students were selected to present their original work at the National Conference on Undergraduate Research at Weber State University in Ogden, Utah, at the end of March 2012. **Kelsey Hampton** will present her work on "Intra- and Interspecific Variations of Carapace Shape in Brazilian Fiddler Crabs [genus *Uta*]." **Anne Shepherd's** paper is on "Understanding Emission Characteristics of a Foundry Sand Binder," and **Erik Wolter** will present on "Electrical Transporting Anomalies in Nanometer Scale Manganese Films." Their papers were selected from more than 3,500 submissions.



Contributing student Cole Housman, admires the finished Picasso sculpture.



# GETTING to the ROOT of the MATTER

Floods and soil erosion, conditions that have been worsening in the Midwest over the last few years, can rob Iowa of its fertile soil. Although many solutions have been proposed, such as levees, terraces and wetlands, they are often short term. "To address the problem at its source, we have to look at the function of plants on the landscape," said Laura Jackson, professor of biology.

Instead of looking at conventional solutions, Jackson is looking underground—at the roots of growing plants. Perennial prairie plants, with their massive root systems, help slow runoff, trap sediments and pollutants and rebuild the structure of damaged soil while storing atmospheric carbon, she explained. "Perhaps because these roots are invisible, many people lack a clear understanding of what native plants can do,"

Following this logic, Jackson decided that what was needed was to make prairie roots visible. With funds she received from the Living Roadway Trust Fund (LRTF) in 2009, she began a project to do just that—to grow the plants in such a way as to reveal the intricate network of roots and then create a public display of the native prairie underground, with supporting interpretive materials for a wide audience.

Using an idea pioneered at the Land Institute in Kansas, Jackson and her students constructed a "big pots" facility at UNI in 2009-10. The 34 pots, made of PVC pipe 10 inches in diameter and 10 feet long, were "planted" vertically in a plot behind UNI's Biology Research Complex. Turface was used as a rooting medium for a variety of perennial species, and the plants were fed with an automated fertilizer-water system during the summer time.

The first growing season, in summer 2010, demonstrated that grasses were easier to establish than forbs, but there

was also some winter kill. The first attempt at pulling pots and washing out roots was in fall 2010. Three pots were pulled out with a backhoe lift; roots were washed out and soaked in a glycerin solution for preservation. In one year the roots had grown between three and four feet. When pots were pulled in 2011, the roots of the plants were six feet maximum in length, with a fuller, thicker root ball than in 2010.

With continued LRTF funding approved in July 2011, the project's goals for 2011-13 are focusing on developing and testing ways to transport, display and protect specimens; researching the interpretive material by collaborating with UNI faculty and end-users such as nature center directors and high school science teachers; and loaning out the 10 to 12 specimens as prototype exhibits.

In May 2012, Jackson and her students will begin to pull out and process one third of the 34 potted plants, while at the same time refining methods of preservation and storage. The following fall they will begin developing the exhibit, first by assessing the needs of their intended audience, such as county nature centers and science classrooms. They will also consult with a variety of UNI faculty and staff with expertise in biology, chemistry, science education, communication and design arts. The group will investigate collaborations with various campus organizations to construct root exhibits.

"Our goal is to increase Iowa's resilience to heavy rainfall, soil erosion, water contamination and flooding," said Jackson. "Admittedly, this is a long-term and ambitious goal, but we hope that increased public understanding of how native perennial plants can contribute to a solution will be the first step to increasing the amount of perennial vegetation in the landscape." ♦♦♦

**"PERHAPS BECAUSE THESE ROOTS ARE  
INVISIBLE,  
MANY PEOPLE LACK A CLEAR  
understanding of  
WHAT NATIVE PLANTS CAN DO."**



Students and a volunteer use hoses to spray down the roots.



Laura Jackson and students open a pot to reveal the roots and turface, which was used as a rooting medium.



# FACULTY RESEARCH



Undergraduate students use a Robel pole to measure vegetation-height density.

**Mark Myers**, assistant professor of biology, and colleagues at the Tallgrass Prairie Center are determining optimal methods for managing prairie vegetation for biofuel production while maintaining high-quality habitat for native wildlife. Research plots in Black Hawk County were seeded in May 2009 with one of four treatments of native vegetation, ranging from a single-species monoculture

to a diverse 32-species mix. Native plant establishment at the site was excellent, according to Myers. During the 2009-11 growing seasons, Myers and his students, Benjamin Hokschi, James Mason, Jarrett Pfrimmer and Drew Miller, monitored wildlife response to the newly established grassland habitat, finding significantly greater butterfly abundance and species richness in the more

diverse treatments and documenting successful nesting in the biomass production plots by three grassland birds classified as "species of greatest conservation need." Their results were published in the *Journal of Insect Conservation*. Ultimately, Myers hopes the results of the study can be applied to developing methods for using marginal farmlands in biofuel production in a manner that also provides improved habitat for Iowa's grassland wildlife.

**Jeff Elbert**, associate professor of chemistry and biochemistry, is working to synthesize a model compound composed of an anchor moiety, a linker section and a drug or reporter moiety. This model compound will be used to demonstrate local drug delivery and controlled drug release in a model biological system. Target drugs and/or drug mimics will be attached to a biological substrate via the anchor group photochemistry. The physiological benefits of a drug are expected to be enhanced by attaching it in a desired location using light activation of the anchor moiety. Last summer, Elbert and his students Hannah Steele and

Lexi Friauf developed a convergent synthetic approach to successfully synthesize the first target molecule.

**Ben Schafer**, associate professor of computer science, has been working with a colleague on an infrastructure for a customizable student response system. With funding from the Grow Iowa Values fund, a summer research grant from UNI and the assistance of two undergraduates, he studied the use of Android apps as an input device in a collaborative classroom setting. Their framework expands on the idea of traditional "clickers," with which students respond to basic multiple-choice questions, so that a diverse set of inputs will enable students to collaborate with each other and with professors in a classroom.

**James Walters**, professor of geology, is searching northeast Iowa for sites with relict ice-wedge casts and/or other relict periglacial phenomena and describing the features at such sites in an attempt to interpret the late glacial/periglacial environment of northeast Iowa. He and one of his students discovered a site

northwest of Cedar Falls that contains an excellent exposure of eolian sand over pre-Illinoian till. The eight samples they collected for optically stimulated luminescence dating have been dated, and they are now working with a doctoral student at the University of Wisconsin-Madison on additional dating of eolian deposits in northeast Iowa.

**Hong (Jeffrey) Nie**, assistant professor of industrial technology, is focusing on establishing a generic intra-vehicle, vehicle-to-vehicle and vehicle-to-infrastructure communication platform that can provide drivers real-time vehicle, road, traffic and accident information so as to reduce accidents and improve traffic flow. With a colleague at the University of Michigan-Dearborn who

is a leading researcher on WAVE (wireless access in vehicle environments) technology, he is working on National Science Foundation-funded research developing new wireless communication and signal-processing technologies to achieve a reliable data communication link even when vehicles are running at freeway speed.

**Marius Somodi**, associate professor of mathematics, is investigating zeta functions of finite graphs and graph coverings, specifically 1) families of graphs for which the zeta function and the spectrum of the adjacency matrix determine each other and 2) graph coverings in which prime cycles from the base graph have similar decomposition laws. He and his gradu-

ate students have had success in understanding the zeta functions of cones and cylinders, and they are currently looking to extend their results to joins of regular graphs and permutation graphs.

**Andrew Stollenwerk**, assistant professor of physics, is investigating electron transport through manganese thin films on silicon substrates using ballistic electron emission microscopy. Examining the differences after introducing a hydrogen atmosphere will be the first step toward the realization of a manganese/silicon hydrogen sensor. Secondary is the investigation of single electron charging in thin films, with possible high-density memory storage applications.



Geology student Jake Davidson excavates wind-sculpted boulders (ventifacts) from eolian sand on top of glacial till northwest of Cedar Falls.

## UPDATE COMEBACK

Science update conferences for teachers were once annual events at UNI, but until recently they had declined in frequency. In 2011 three update conferences for science teachers were held at UNI: the Earth Science Update, the Physics Update and the Science Update, which combined biology and chemistry. The Physics Update was held in conjunction with a grant, and the Earth Science Update resumed a tradition begun in 1986 after a one-year hiatus.

The Science Update Conference was made possible by a former biology teacher who attended many update conferences held in the 1990s and found them very helpful. Warren Bromann, B.A. Biology/General Science '72, made a gift to the UNI Foundation to create the annual Science Educators' Content Symposium. The first symposium, held March 25 on the UNI campus, targeted science educators interested in enhancing their classroom knowledge and skills. The topics were biological evolution and laboratory safety.

Bromann, who taught a variety of sciences in the Iowa Falls school district for 33 years and retired in 2004, hopes that the symposium provides a professional development opportunity similar to the update conferences he attended at UNI. "I think it's important to give our science teachers some additional support, especially those who have to do multiple class preparations or are creating new preparations," he said. "The science updates at UNI were a valuable resource for me when I was teaching, and I really appreciated the opportunity to make a connection with the science faculty at UNI."

Cherin Lee, Science Education chair, concurs. "No Child Left Behind, with its heavy emphasis on literacy and mathematics performance, has tended to have the effect of minimizing science-oriented professional development for science teachers. Offering update conferences for biology and chemistry is an important part of UNI reaching out to Iowa science teachers." ♦♦♦





## CONVERSATION

with a

## UNI GRAD

Jennifer Erich on an ExxonMobil field trip to Arches National Park, Utah.

Jennifer Erich graduated from UNI in 1996 with a B.S. in geology. A geoscientist with ExxonMobil since 2000, she recently established the Jennifer and Andrew Erich Undergraduate Research Assistantship in Earth Science at UNI. The first recipient of the award is Elizabeth Madsen, who is working with Earth Science faculty members Chad Heinzl and Ken De Nault on a project on Iowa's environmental sustainability, specifically heavy metal contaminate transport.

### How would you describe your career path since you graduated from UNI?

After graduation in 1996, I completed a master's degree in geology at the University of Iowa. I was offered an internship with ExxonMobil in 1999 and joined the company in 2000 as a full-time geoscientist. The types of projects I have worked on have been quite varied and exciting. I have spent a lot of time as a petrophysicist, which involves interpreting well log data in drill wells. I have also worked as a prospecting geologist, looking at seismic data and creating maps to determine new locations to drill. I became a supervisor in the Formation Evaluation core group in 2009 and recently switched jobs to become the exploration supervisor for Argentina. When I decided to become

a geologist in my freshman year at UNI, I had no idea where the path would take me or the career I would have. It is a more rewarding and exciting job than I could have imagined.

### What were your undergraduate research experiences at UNI like?

The Iowa Space Grant Consortium funded a couple of my summer research projects. Since I was also really interested in astronomy, my projects were focused on planetary geology. One summer I assisted on a project that compared Martian permafrost patterns with those on Earth. A later project focused on Alaskan permafrost variation over the past few decades. I also spent a summer working with mapping software to determine the source and potential viscosity and composition of lava flows on Venus compared with lunar flows. Learning how to define a problem and then using the scientific method to solve it was a great way to spend the summer. I didn't realize it at the time, but the experience really helped me with my master's thesis and later, my career.

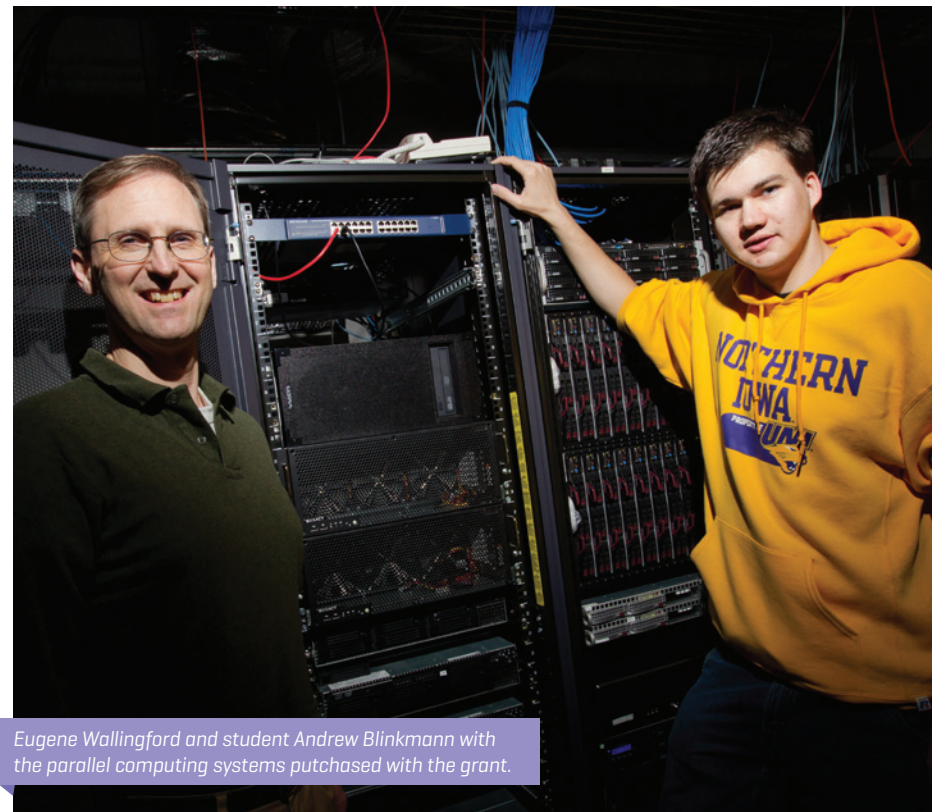
### What was the benefit of having a research opportunity?

The research grants and resulting publications really made my resumé attractive to

graduate schools and potential employers. It's not very common for undergraduates to have two to three publications or presentations at professional meetings to their credit, so it made me a strong candidate. The public speaking experience at conferences and poster presentations was valuable in job interviews and business meetings. I am able to speak confidently about my projects and defend my ideas and results.

### Why did you decide to fund the Erich Undergraduate Research Assistantship in Earth Science?

My years at UNI were some of the best experiences I had. The professors went out of their way to mentor me and to provide opportunities and scholarships to help my education. I was a teaching assistant for geology and astronomy classes and president of Sigma Gamma Epsilon. When I graduated, I was honored to receive the Lux Service Medallion. I have been supporting the Earth Science Department for years but decided to step up my donation with this research assistantship to give back to the department and the university that set me on a path of success. I hope that future recipients will have a head start when they graduate and find good jobs in the industry. ♦♦♦



Eugene Wallingford and student Andrew Blinkmann with the parallel computing systems purchased with the grant.

## State Farm Foundation grant keeps computer science students in the know

Parallel computing, in which many calculations are carried out simultaneously, is the latest seismic shift in the computer world. It operates on the principle that large problems can often be divided into smaller ones, which are then solved concurrently.

The shift to parallel computing, on the computer hardware side, is bringing corresponding changes to software. Whereas programming for nonparallel computing is sequential, parallel computing requires that problems be decom-

“This really changes the way we need to think about problems and solutions.”

posed into independent units. Multiple processing elements can then solve these independent parts simultaneously. “This really changes the way we need to think about problems and solutions,” said Eugene Wallingford, head of the Department of Computer Science.

Learning how to write the software, however, means that students have to have access to parallel computing hardware. And thanks to a recent grant of

\$40,000 from the State Farm Foundation, this is now the case. Parallel computing hardware, located in the Innovative Teaching and Technology Center, is now available for the use of students enrolled in Operating Systems, Computer Architecture or Computer Systems, two upper division courses and a graduate course.

Students in these courses will be introduced to the concept of many-threaded parallel processing, where hundreds of threads work together to compute the task at hand. The equipment consists of two high-end servers, each equipped with three Fermi-class Nvidia C2070 graphics processing units (GPUs). These GPU devices possess 448 cores [processors] each, for a total of 1,344 processing cores in each system and 2,688 GPU cores combined.

“Eventually most programming will be done in this way, and languages will be developed that help programmers think in terms of parallel operations. Right now, the hardware is ahead of the software, but this is only temporary,” Wallingford said. “Having this equipment gives our students the opportunity to stay apace with developments in the digital world.” ♦♦♦

## SIDENOTES

### UNI Reaccredited by Higher Learning Commission

The University of Northern Iowa's accreditation has been continued by the Higher Learning Commission for a 10-year period running through 2020. The commission's action follows a comprehensive self-study by the university and a three-day site visit by a 10-member review team in November 2010.


Colleges and universities use the accreditation process to evaluate their educational programs for continuous quality. Once accreditation is granted or reaffirmed, it assures current and prospective students that an institution's academic programs meet nationally recognized standards.


UNI conducts a self-study every 10 years in preparation for reaccreditation. The university first received accreditation in 1913 as a teacher training institution and has been continuously accredited as a four-year institution since 1930. ♦♦♦


## CONNECT with CHAS

Check out what's going on with CHAS by following these media sources:

 [www.uni.edu/chas](http://www.uni.edu/chas)

 [www.facebook.com/unichas](http://www.facebook.com/unichas)

 @uni\_CHAS

 Questions: [chas-info@uni.edu](mailto:chas-info@uni.edu)  
Updates: [chas-alumni@uni.edu](mailto:chas-alumni@uni.edu)



# ALUMNI NEWS

You can keep us informed of what's happening in your life by either returning the card in this issue or by emailing [chas-alumi@uni.edu](mailto:chas-alumi@uni.edu).



Gary Scholten receives his Alumni Achievement Award from President Allen and Dean Haack.

♦ **Billy D. Page**, BA '51, published two new books in 2010: *Horse Thief Cave* and *Boy Scouts, Bullies and Indian Creek*, the first two entries in the series *It Happened in Marion*.

♦ **Richard and Pat (Martens) Shepard**, both BA '51, of Freeland, WA, spend the summers in the Sun Valley, ID, area, where their son lives. Their two daughters live in the Seattle area.

patent milestone. Only five other 3M employees have been awarded 100 or more U.S. patents. Heilmann, who worked at 3M from 1973 to 2007, was an inaugural member of the College of Natural Sciences Advisory Board, on which he served until '04. His major research interests are electro-organic chemistry, synthetic organic chemistry, organosilicon chemistry, photopolymerization reactions, PSAs, reactive polymers, azlactone chemistry and enzymatic syntheses. After his retirement from 3M in '08, he began working part-time as a research associate at the University of Minnesota Biotechnology Institute, where he conducts research on biomass conversion into fuel, mostly involving algae.

## 1950s

♦ **Patricia (DeKoster) Echelberger**, BA '50, is active in Girl Scouts, her church and with her teenage granddaughters. She has traveled extensively in North America and Western Europe.

♦ **Jim and L. Jeanette Winegarden**, both BA '50, recently moved from Cedar Falls to North Liberty to be near family. They celebrated their 63rd wedding anniversary in August of '11.

♦ **Robert and Charlene (Doty) George**, both BA '51, celebrated their 60th anniversary in July of '11. Bob is a retired industrial arts instructor. He and Charlene, who taught briefly at the start of their marriage, live in Anamosa and have two children and four grandchildren. They are very active in the community with service on the city council, library board and area Republican committee.

## 1960s

♦ **Donavon L. Roberts**, MA '60, is a retired teacher and coach living in Inver Grove Heights, MN.

♦ **George C. Coffin**, BA '64, of Kahoka MO, retired after 44 years as a middle school/high school science teacher. He and his wife recently visited Gilbert, AZ, where they met their new granddaughter, Kaitlyn Elizabeth, eight months old. She joins brothers Peyton, 11, and Andrew, 4.

♦ **Lyle W. Bingaman**, BA '69, retired after 30 years of teaching industrial arts and other vocational courses in Wyoming schools. During those years, he earned an MA degree from the University of Wyoming, was voted favorite teacher several times and was the senior head of the school district's no. 1 vocational department.

♦ **Steven Heilmann**, BA '69, was recently honored by 3M for reaching the 100-

## 1970s

♦ **Edward K. Hoepner**, BA '70, retired from the 721st Civil Engineering Squadron of the Cheyenne Mountain Air Force Station, an Air Force military squadron with civilian engineering personnel, in '06, where he was an engineering tech/construction contract inspector. He became a member of the board of directors of Northern Churches Care, a family crisis center, and is now BoD chairman. The group provides rent assistance, utilities, food, medical assistance, legal advice and free tax preparation. In addition to Hoepner, his mother and her aunt, her three sisters, and his daughter are UNI graduates.

♦ **Rick Hofmeyer**, BA '78, MA '04, retired in spring '11 after 33 years of teaching high school chemistry and physics, most recently at North Fayette High School in West Union. He was selected as Assistant Girls Basketball Coach of the Year by the Iowa Girls Basketball Coaches Association.

♦ **James Klipping**, BA '79, retired from John Deere Waterloo in September '09 after 36 years. He served in management positions in manufacturing engineering and time-and-motion study. His current leisure activities include restoring automobiles and maintaining an acreage.

## 1980s

♦ **Gary Scholten**, BA '80, received the Alumni Achievement Heritage Honours Award, which recognizes outstanding professional achievement as well as involvement with and service to UNI, from the UNI Alumni Association in November '11. Now senior vice president and chief information officer at Principal Financial Group in Des Moines, Scholten has held various positions within the organization since he joined it in 1980 and now leads a global staff of approximately 2,200 people. He has taken an active role in developing programs aimed at generating interest among Iowa middle and high school students in information technology careers. Scholten has been instrumental in the growth and success of the Technology Association of Iowa, a nonprofit aimed at enhancing Iowa's high-tech industry. His long history of support to UNI includes fostering connections between Principal and the university, serving as a charter member of the Computer Science Department advisory board, and facilitating connections between universities and industry as a member of the Iowa Department of Economic Development's Information Technology Council. Scholten and his wife, Melinda, have two grown children.

♦ **John Quinn**, BA '84, and **Kristine Brunkhorst**, BA '89, MA '95, are working to create legislation in Iowa and Texas related to the treatment of tick-borne illnesses. Quinn, who is project manager of Dallas Area Rapid Transit, contracted Lyme disease 14 years ago and is an advocate for longer term antibiotic treatment to keep the growth cycles of the bacteria at bay. Brunkhorst is the founder and coordinator of the Bremer County Area Lyme Disease/Hormone Education and Support Group, which focuses on education and advocacy. She was diagnosed with Lyme disease in '09 but today feels no ill effects.

♦ **Steve Mitchell**, BA '86, is in his 10th year as a school superintendent in Iowa and is now at Melcher-Dallas Schools. He and his wife, Angie Steffen, have three children, Evan, 19, Morgan, 16, and

Alex, 13. He earned a master's degree in '91 and a private pilot's license in '08.

## 1990s

♦ **Rodney Zehr**, BA '91, MA '02, began a new position as a mathematics instructor at North Iowa Area Community College in Mason City in fall '10. He also teaches developmental mathematics courses through the Mastery Math program.

♦ **De Anna Tibben**, BA '92, MA '94, received the Excellence in Earth Science Teaching Award for both the state of Iowa and the central region, a 10-state area, from the National Association of Geoscience Teachers. The annual award, administered by the Geological Society of America, recognizes excellence in earth science teaching at the precollege level. An earth and space educator at Ames High School, Tibben is a member of the UNI Earth Science Department advisory board and will chair the Iowa Science Teaching Section of the Iowa Academy of Science in 2012-13. "I feel very confident in my teaching due to the education and experiences I received while attending UNI," she said.

♦ Three UNI graduates were recognized for excellence in science teaching during the 2011 Iowa Academy of Science, Iowa Science Teaching Section, conference in October in Ames: **Aileen Mahood Sullivan**, BA '96, Ames High School; **Justin R. Johnson**, BA '02, Central Middle School in Muscatine; and **Kathy D. Hobson**, BA '82, Atlantic High School.

## 2000s

♦ **Hannah Haarhues-Casey**, BA '03, MA '11, a high school life science teacher in Oakland, IA, moved with her husband, Adam, to Brisbane, Australia, where she began teaching biology and chemistry when the Australian school year began in February.

♦ **Nathan Sandstrom**, BA '04, was married in '07 and had a daughter in '09, the same year he started his own construction company in Fort Dodge.

♦ **Derek Thomas**, BS '08, is a research assistant in biophysics at Integrated DNA Technologies in Coralville. He recently completed an MS degree in chemistry from the University of Iowa. Thomas and his wife, Jessica, have one child, Peyton, born 3/09.

## 2010s

♦ **Jennifer Larsen**, BA '10, began dental school at Southern Illinois University in August '11.

♦ **Libby Reindl**, BA '10, is pursuing a master's degree in occupational therapy at the University of Wisconsin-Madison.

♦ **Jane Dell**, PSM '11, began the position of manager of Capitol Reef Field Station, a biological field station operated by Utah Valley University within Capitol Reef National Park, in summer '11. Her position involves educating field visitors to the ecology of the Colorado Plateau, managing an "off the grid" solar facility, including maintenance and budgetary aspects, supervising interns and grant writing. She is a graduate of the Biology Department's professional science master's program in ecosystem management. As part of the degree requirements, she interned at the Rocky Mountain Research Station, a branch of the U.S. Forest Service, where she collected data on public and private forested lands. The data were used to identify trends in forest ecosystem health, fire effects and fuel loads, and potential timber production.

## marriages

**Andrew Bloomcamp**, BS '96, a senior systems engineer with Allstate Insurance, married Kimberly Brandl in August of '10.

**Kathleen Klier**, BA '08, an investigator with the U.S. Food and Drug Administration offices in Des Moines, married Joshua E. Close in May of '11.

## births

**Kimberly (Mescall) Williams**, BA '94, and her husband, Eric, have a son, Aidan, born in September '10. He joins Collin, born April '07.

**Ariana Houghe-Liebsch**, BA '02, who is an associate veterinarian at North Heights Veterinary Clinic, in Appleton, WI, gave birth to a daughter, Ellison Ava, in November '10.

## deaths

**Wayne R. Tjelmeland**, BA '62, MA '63, of Bloomington, IL, died in April of '10.

**Kenneth D. Stauffer**, MA '66, of Elizabethtown, PA, died in May of '07.



# COMMITMENT COMES IN *ALL* **SHAPES** *and* SIZES

*It takes a lot to put our kids through college these days. It takes commitment from both the student and the faculty to do their respective jobs in the classroom; from family, friends and mentors to support their student—financially if they can, most certainly with their moral support and encouragement.*

*Luckily, though, our students also have the commitment of people whom they don't know and will likely never meet: people like you, our friends and alumni, who make an impact every day with your generosity. Never underestimate the difference you make—whether you loyally make a commitment every year when our student callers contact you for the Dean's Fund or Annual Fund, or if you make a bigger one-time gift that endows a scholarship or creates a professorship.*

*Our students bring their hopes and dreams to UNI, and our goal is to send them into the world equipped to tackle career and life challenges. Thank you for your partnership in helping us to do that. Your gifts, no matter what area you support, will impact our students for the rest of their lives. That's real commitment.*

#### FLOYDS CREATE ENDOWED PROFESSORSHIP IN BIOLOGY DEPARTMENT



Gary and Myrna Floyd have created an endowed professorship through an estate gift to the UNI Department of Biology. The Dr. Gary and Myrna Floyd Endowed Professorship in Plant Biology will provide funds for faculty salary, professional development, equipment and technical support, as well as funding for undergraduate and graduate research assistants. As lifelong educators, the Floyds know how important such additional support is, and they want to make sure future UNI faculty have the resources to be the best educators they can be.

"The most significant impact on our careers has been our start at UNI," said Gary. "We still remember the names and faces of our instructors. I think UNI is just the right size: large enough to hire super-quality faculty and small enough for

students to receive individual attention."

Gary and Myrna taught in Grinnell before moving to Oklahoma, where Gary earned his master's degree at the University of Oklahoma. Myrna continued teaching middle school science and earned her master's at Miami University of Ohio after Gary accepted a position to teach botany there and began work on his Ph.D. Gary then became a professor of biology at Rutgers University in New Jersey, and Myrna taught junior high science. In 1975 they moved to Columbus, where Gary eventually became dean of the College of Biological Sciences at Ohio State University and Myrna taught general science. They both retired in 1996 after teaching for a combined total of over 60 years.

#### HAWLEYS ESTABLISH CHEMISTRY AND BIOCHEMISTRY EDUCATION SCHOLARSHIPS



Dale and Janet Hawley of Manhattan, Ks., have recently made a planned giving commitment that will create two generous scholarship endowments for future chemists and chemistry educators. Proceeds from the Hawleys' gift of rural Kansas property will create the Dr. Dale and Janet Hawley Chemistry Endowed Scholarship and the Dr. Dale and Janet Hawley Chemical Education Endowed Scholarship. Dale and Janet, who have long supported the Chemistry and Biochemistry Department, knew they could make a significant impact upon the lives of future chemists and chemistry educators by gifting their rural land to UNI.

Dale's UNI chemistry professors were James Kercheval, Leland Wilson and Howard Lyon, all of whom strongly encouraged their students to pursue advanced studies in their chosen professions. With the foundation in chemistry that they provided, their encouragement, and the confidence in abilities and skills they instilled, many of their students went on to earn advanced degrees in chemistry, medicine and education. The Hawleys' scholarships are intended to honor their commitment to chemical education and to prepare future outstanding undergraduate chemistry majors for careers in chemistry and chemical education.

Dale earned bachelor's and master's degrees in chemistry in 1960 and '62, taught high school science and math for one year at Williamsburg, and received his Ph.D. in chemistry in 1965 from the University of Kansas. Janet received her bachelor's degree in art in 1959 and taught in the Reinbeck and Dike school districts in the year following her graduation. Dale spent one year as a research chemist at the Dow Chemical Company following his graduate studies before accepting a faculty position with the Kansas State University Department of Chemistry in 1966. He served 38 years at KSU, including nine years as department head, and retired in 2004. They have three daughters, Julie in Houston, Jenise in the D.C. area and Joyce in St. Louis, and five grandchildren.

# THANK YOU

The success of many of our students relies heavily on the contributions, involvement and guidance of our alumni.

We extend a heartfelt thank you to all our CHAS alumni who have so generously given of your time, treasure and talents to ensure the success of our students.

To further assist in the achievements of our students, please visit [www.uni-foundation.org](http://www.uni-foundation.org) or contact **Cassie Luze**, CHAS Director of Development 319-273-6360 800-782-9522 or [cassie.luze@uni.edu](mailto:cassie.luze@uni.edu).



Mr. Jon Doe  
1234 Any Street  
Anytown, USA 12345

