Ring around the hurricane: Satellites can predict storm intensity

By Liz Ahlberg
Physical Sciences Editor

Coastal residents and oil-rig workers may soon have more warning when a storm headed in their direction is becoming a hurricane, thanks to a UI study demonstrating how to use existing satellites to monitor tropical storm dynamics and predict sudden surges in strength.

Not a critical piece of information that’s really going to help society in coastal areas, not only in the U.S., but also globally, noted atmospheric sciences professor Stephen Nesbitt. Nesbitt and graduate student Daniel Harnos published their findings in the journal Geophysical Research Letters.

Meteorologists have seen large advances in forecasting technology to track the potential path of tropical storms and hurricanes, but they’ve had little success in predicting storm intensity. One of the biggest forecast problems facing the tropical meteorology community is determining rapid intensification, when storms suddenly transform into much stronger cyclones or hurricanes.

“Rapid intensification means a moderate-strength tropical storm, something that may affect a region but not have a severe impact, blowing up in less than 24 hours to a category 2 or 3 hurricane,” Harnos said. “This big, strong storm appears that wasn’t anticipated, and the effects are going to be very negative. If you don’t have the evacuations in place, people can’t prepare for something of the magnitude that’s going to come ashore.”

For example, Hurricane Charlie, which hit southern Florida in 2004, was initially forecast as a category 1 storm. However, when it made landfall less than 24 hours later, it had strengthened to a category 4, causing major damage.

Rapid intensification is so hard to predict in part because it’s driven by internal processes within the storm system, rather than the better-predicted, large-scale winds that determine the direction of the storms. The satellite imagery most commonly used for meteorology only looks at the clouds at the top of the storms, giving little insight as to what’s going on inside the system.

Nesbitt and Harnos focused their study on passive microwave satellite imagery. Such satellites are used commonly for estimating precipitation, but the Illinois researchers focused on using these sensors to systematically observe hurricane structure and intensity changes. Their study was the first to use objective techniques to investigate a convective ring structure that has been observed in tropical cyclones.

“What makes it ideal for what we are doing is that it’s transparent to clouds. It senses the amount of ice within the clouds, doing is that it’s transparent to clouds. It senses the amount of ice within the clouds, which tells us the strength of convection or see hurricanes. The research may help provide more advance warning when a storm is developing into a hurricane.”

Benefits Choice open, but waiting on news of health providers

By Mike Helenthal
Assistant Editor

UI employees clamoring for health-insurance information will have to continue to clamor.

As of May 2, the second day of the Benefits Choice enrollment period, no news had surfaced on appeals filed by two insurance carriers whose popular HMO plans were dropped by the state.

The Health Alliance and PersonalCare HMOs were replaced with two HMO plans from Blue Cross-Blue Shield and two open-access plans through HealthLink and PersonalCare.

Jim Davito, interim executive director of University Payroll and Benefits, said his office is trying to promote a “business as usual” approach, though he admits it’s nothing of the sort.

“People continue to be anxious for a decision from the state,” he said. “Hopefully, we won’t be waiting for much longer.”

In the meantime, Davito said he has tried to keep UI employees regularly updated with news through regular email updates. Davito’s office has scheduled a series of informational sessions for employees, though specific dates have not been set. He said the sessions will likely start in mid-May and include NESSIE registration assistance.

“Additional sessions will be added once health contracts are finalized,” he said, adding the state’s Central Management Service has promised to give employees ample time to make health benefits choices.

No health insurance enrollment forms will be offered until the state finalizes the provider selection list. Forms to enroll in either of the Flexible Spending Accounts – the Medical Care Assistant Plan and the Dependent Care Assistance Plan – are now available online.

“For changes to health, dental, life and adding or dropping dependents, the NESSIE Benefit Choice enrollment form will not be available to you until the health plan contracts are finalized,” Davito said in an April 29 email to employees. He said employees would be notified when the forms become available – which will happen after the state renders its coverage decisions.

Outside of coverage selection, Davito said there will be other changes when the coverage period begins July 1.

For one, dependent children less than 26 years old are eligible for health, dental and life insurance coverage through parents’ policies. And there is a change in the Quality Care Dental Plan’s claim administrator and adjustments in life insurance premiums.

Davito said there is no choice but to wait to the state to finalize the health insurance plan.

“They haven’t established an end date (to enroll),” he said of state officials. “Once they establish that, it will have been a delay, but hopefully not a long delay. Everyone is suffering the same difficulties.”

On the Web
For the latest information:

- Benefits Choice
  http://go.illinois.edu/BenefitChoice2012
- Benefit Choice Options booklet (limited information):
- Central Management Services
  http://www.cms.illinois.gov/

Questions?
Email benefits@uillinois.edu or call 217-333-3111.
Commencement ceremonies to take place May 15

The 140th commencement of the UI Urbana campus will be held in two ceremonies May 15 at Assembly Hall, 1800 S. First St., Champaign. 

The speaker at the 10:30 a.m. and 2 p.m. ceremonies will be William M. Daley, the White House chief of staff. Daley has been the chief of staff since January, when he was appointed by President Barack Obama. 

Previously, Daley served as vice chairman of the Office of Corporate Responsibility for JPMorgan Chase & Co. Daley served as president of SBC Communications from 2002-2006. 

He was the campaign chairman for Al Gore’s presidential run in 2000. Prior to the Gore campaign, Daley served as Secretary of Commerce (1997-2000), overseeing a department of more than 40,000 people. Daley also served as Special Counsel to President Clinton from 1993, focusing on international trade issues. 

Earlier in his career, Daley was a partner at the law firm of Mayer, Brown & Platt; was president and chief operating officer of Amalgamated Bank of Chicago; and was a lawyer in the firm of Daley and George. 

Daley was born in Chicago, where he also completed his education, earning a bachelor of arts degree from Loyola University and a law degree from John Marshall Law School. He is the youngest son of the late Chicago Mayor Richard J. Daley and the mother of Chicago Mayor Richard M. Daley. 

Gary R. List, a retired consultant for the University of Illinois, has been designated by the senate to serve on the committee. 

The senate lent its support to a Council of Academic Professionals resolution opposing the reclassification of academic professionals. 

The resolution proposes that the Urbana campus create a new unclassified, professional employee level for academic professionals that would give them a chance to compete with other employees. 

The senate voted 4-0, with one abstention, to defeat the proposal. 

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Two elected to American Academy of Microbiology

By Liz Ahlberg
Physical Sciences Editor

T
e two UI professors have been elected fellows of the American Academy of Microbiology. James Slauch and Wilfred van der Donk are among the 78 microbiologists chosen by their peers for significant contributions to their field.

Slauch, a professor of microbiology and of medicine, studies Salmonella bacteria, particularly the molecular mechanisms that cause Salmonella infections and allow the bacteria to elude the immune system. In addition to an annual 1.4 million cases of gastroenteritis and enteric fever, Salmonella is the leading cause of death from foodborne bacteria in the United States. Slauch studies specific proteins in Salmonella typhimurium and how they contribute to virulence and make the bacteria resistant to attack from phagocytes in the immune system. Understanding these pathways could be the key to identifying drug targets and designing treatments to inhibit Salmonella.

Slauch earned his doctorate from Princeton University. He completed a postdoctoral program at Harvard Medical School before joining the faculty in the School of Molecular and Cellular Biology at the U. of I. He also serves as the director of the Medi cal Scholars Program and is affiliated with the Institute for Genomic Biology.

Van der Donk, the Richard E. Hecht endowed Chair in Chemistry, focuses on harnessing enzyme functions for the discovery and design of new anti-inflammato ry agents and antibiotics. As bacteria become more resistant to commercially available medications, researchers have searched for alternative drug targets within bacteria’s cellular pathways.

Van der Donk earned his doctorate from Rice University. He did postdoctoral work at the Massachusetts Institute of Technology, and joined the faculty at Illinois in 1997. He is also a Howard Hughes Medical Investigator and is affiliated with the U. of I. Institute for Genomic Biology.

James Slauch
Wilfred van der Donk

The American Academy of Microbiology now has more than 2,500 fellows “representing all subspecialties of microbiology, including basic and applied research, teaching, public health, industry and government service,” according to a news release from the organization.

HURRICANES, CONTINUED FROM PAGE 1

the overturning of the atmosphere within the hurricane’s eyewall said. “It’s somewhat like trying to diagnose somebody with a broken arm by taking a picture of the arm, versus being able to X-ray it.”

This storm came from a pas sive microwave satellites from 1987 to 2008 to see how hurricanes behaved in the 24 hours before a storm underwent rapid intensification. Such a big-picture approach, in contrast to the case studies atmospheric scientists often perform, revealed clear patterns in storm dynamics. They found that, consistently, low-shear storm systems formed a symmetrical ring of thunderstorms around the center of the system about six hours before intensification began. As the system strengthened into a hurricane, the thunderstorms deepened and the ring became even more well-defined.

The study also looked at high-shear storms, a less common phenomenon invol ving atmospheric winds changing with height.

Such storms showed a different structure when intensifying. They form a large, bull’s-eye thunderstorm in the center of the system, rather than a ring around the center called an eye. We found that using existing data that can set off a red flag for forecasters, so that when they see this convective ring feature, there’s a high prob ability that a storm may undergo rapid in tensification.”

“Next, the researchers hope to even fur ther increase their forecasting ability by modeling the internal dynamics of the storm systems as they intensify to pinpoint the causes of the structural changes they ob served and find out what drives the intensifi cation process.”

“The satellite gives us as snapshot of what’s taking place,” Harnos said. “We know what’s going on, but not how those changes are occurring to end up in the pattern that we’re seeing. So what we’re working on now is some computer modeling of hurricanes, both real storms and idealized storms, to see dynamically, structurally, what’s taking place and what changes are occurring to produce these patterns that we see in the satellite data.”

The NASA Hurricane Science Research Program supported this work.

Tod Donley, a public relations supervisor working for Facilities and Services, coordinates the myriad graduation ceremonies conducted annually on the Urbana campus. He’s been a UI employee for 24 years, though he’s been in his current position for just two. Last year at this time, his department was responsible for setting up 400 campus events.

What was your work experience before you were promoted last year? I started as a building services worker and I worked the night shift for 16 years. Before I came here I was in the Navy for four years. I’m originally from Tolono, Ill., and was fortunate enough to get a job here and work my way up. I never thought I’d get to this level (of management) — now the BSWs work for me.

What special skills does your job require? After working here so long I kind of thought I knew it all; then I came to this position. It’s challenging, but it’s more customer service than anything. A lot of people will call us when they have an event and they don’t even know what they need. After you see it from this point of view, it’s totally different. You’re responding if something goes wrong. Problem-solving is a big thing here.

How involved are you in commencement and convocation activities? The main commencement is held at Assembly Hall, but we don’t have a lot to do with that. We do the convocations for the smaller colleges, where basically, we’re in charge of the whole nine yards. We’ll have nine convocation events to coordinate in ten days, the two biggest being at Huff Gymnasium and Smith Memorial Hall. I deal with a coordinator one-on-one at each college. I try to find what their needs are from how they want the stage set up to sound and lighting. It’s actually just a matter of lining it up and staying on time. I relay that information to my moving crew foreman, Paul Jensen.

Outside of graduation, what are some of the usual events you coordinate? Right now there are a lot of weddings at Foellinger Auditorium. They’ll contact me for chairs or just about anything they’re going to need. I try to tell them what they’re going to need and if they’ve forgotten any details. Homecoming is always challenging — actually, anything to do with the football team that time of year.

What are some of the more unusual events? There was an event on campus just last week that had camel rides. They called here to find out whether it was a good idea or not. I don’t know if we’ve ever had to go clean up behind a camel before, but luckily they policed the area themselves. You can get some inquiries about some pretty strange stuff.

How many different divisions of F&S are likely involved with a single event? I’m in charge of setting up electrics, though we call them sound techs.

Grounds employees help us with various things and, of course, custodial employees do the cleanup. This time of year, April or May or once the weather gets better, everyone wants to have outdoor events. I’m basically dealing with events across the whole campus, from the Chancellor’s Office to student groups.

What was it like putting together the commencement ceremonies? Nearest two years. Were there any gaffes or mistakes? Over at Huff (which seats 4,000) we had the stage set up and had reserved 700 seats on the floor for the students. As the graduates were being seated, all of a sudden we realized there were 18 chairs left and 250 people, because someone had miscouted. The music was playing and the parents and deans and professors were looking. We just started setting up a bunch of extra chairs as quickly as we could. This year is the first I’m on my own. I think I’m ready, but you think about stuff like that in the back of your mind. You just have to improve sometimes; thank goodness we had extra chairs there. Everything’s running smoothly at one event, I’ll go over and check on the other to make sure it’s running smoothly there too.

Why is putting together a good graduation ceremony important? Going to the University of Illinois is a big investment. To me, it reflects on us that we care enough to want it to go as smoothly as possible. Even if it’s not the fanciest building on campus, it’s still important to the students and parents. To hear a parent shout out to their kid, it can kind of get to you.

Interview by Mike Helefthal, assistant editor
Many strive to make sure course materials are accessible

By Mike Halamish
Assistant Editor

There are plenty of reasons to make information technology equally accessible, said one student.

For one, universities across the nation are being sued under the Americans with Disabilities Act because they’ve lagged in providing equal access to multimedia and other classroom materials.

And two years ago the state of Illinois adopted the Information Technology Accessibility Act, which specifically requires public institutions to deliver information on their websites in accessible formats, including conversion to all multimedia.

But atmospheric sciences professor Eric Snodgrass is one of the earliest adapters of the effort — led by Disability Resources and Education Services, or DRES, to bring UI in compliance with all technology-access laws.

Yes, that’s adapter not adopter — but only because Snodgrass hasn’t adopted anything.

“It’s made me think of new ways to teach,” he said. “As long as the student has the right attitude and wants to learn, we can work out anything.”

“But how do you tell someone about a class they’ve never seen one at?”

POLICY PRESENCE

Snodgrass has spent the past year working with DRES staff members trying to answer that question and a host of others that have popped up over time and unexpectedly as the university heeds the standard.

For his effort, Snodgrass has been recognized with the Delta Sigma Rho Distinguished Teaching Award, given by the university’s disabled students organization.

Angella Anderson, a DRES disability specialist, said the largest challenge facing the university is the speed at which information-driven delivery technologies are growing and even morphing into newer technologies.

Those lightning-speed delivery changes are even more pronounced for students with disabilities. Classroom access has always lagged for them because developing new tools to “translate” the flow of data can be costly and time-consuming.

“That’s always everyone’s first question, ‘How are we going to fund it?’” Anderson said.

“But there are as many as a 100 publishers out there marketing their software.”

And, she said, there are unintended benefits to some of the new technology.

DRES has been working with Google to develop software that can convert relief maps for a geology class.

“We need to provide full access to the classes,” she said.

The task was made more difficult by the fact that his classroom presentation uses lots of maps and graphs to illustrate complex weather patterns.

“It was an interesting and eye-opening experience,” he said. “It really became an all-encompassing challenge that was absolutely necessary to overcome.”

To deal with the workload, Anderson’s office has an academic hourly employee with multiple skills to assist in developing and testing captioning software.

Translating images

Eric Snodgrass, left, a professor of atmospheric sciences, received assistance from two students in his department while adapting his course to assist two blind students.

“Everybody seems to agree that captioning images is as exciting as the changes Snodgrass has brought about,” she said.

“It’s just the right thing to do,” he said.

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UI expert: Legal education must respond to market forces

“...So I think this is going to lead to an era of lawyers doing even more interesting things than they’re doing now. We’ll be rethinking what the study and practice of the law means.”

—Larry Ribstein

Law professor Larry E. Ribstein says predictions of impending doom for the future of legal education should be taken with a healthy dose of skepticism.

E. Ribstein says dire predictions of impending doom for the future of legal education should be taken with a healthy dose of skepticism.

By Phil Ciclona
Business & Law Editor

D re predictions of impending doom for the future of legal education should be taken with a healthy dose of skepticism, says a UI business law expert.

Law professor Larry E. Ribstein says both law schools and the legal profession are going through a period of change that will be rough for some, but will also open the door to new opportunities for others.

“I think the horizon for what you can do with a legal education hasn’t shrunk, but has actually expanded,” said Ribstein, the Mildred Van Woonhus Jones Chair in Law.

“Change can be bad for some people, especially for those who have a stake in the current system, but it can also be good, and I think the future is going to be much more complex than envisioned by some critics.”

According to Ribstein, the only certainty for law schools is that, for the first time in their existence, they will face the need to provide the type of education the market demands rather than mainly serving the preferences of lawyers’ and of law professors. And legal educators must respond to these market forces by serving not just the existing U.S. market for legal services but also a global market for legal information.

“The function of law school as a whole has been to train lawyers for particular types of practice, but we shouldn’t assume that is what the world is going to look like in the future,” said Ribstein, the associate dean for research in the College of Law.

“That leaves law schools in a quandary, and law professors to wonder how they should adjust to a very uncertain world. It’s a world nobody can predict right now.”

Although there are many possible futures for the legal business, which will by extension have many different implications for legal education, one thing is certain: The gravy train from law school to a “Big Law” job — typically, a first-year associate position at a large firm in a major metropolitan city — is pretty much over.

“If you talk to young lawyers who are in a Big Law job, a lot of them are happy because it believes it’s the be-all, end-all of their lives. We’re going into an era where the number of Big Law jobs will shrink, so that taking the road less traveled is going to become more the rule than the exception for law school graduates.”

The best hope for law schools may be to free them from their current accreditation straightjacket.

“If you look at the history of legal education, it’s really bound up with accreditation,” Ribstein said. “What law schools have taught has been regulated for over a century. There has been change in legal education, but it hasn’t been fundamental change. It’s been change around the margins, and that’s true also of the entire legal profession. I think the legal profession is something that Abe Lincoln would recognize if he were alive today, which is amazing considering all of the other changes in just about every other walk of life. And that couldn’t be maintained if legal education were subject to pressure from the market.”

Perhaps the most chilling aspect for current law students and recent graduates is the trend of offshoring entry-level legal work to cheaper labor in foreign countries. But Ribstein says much of the work that’s being outsourced today won’t even be performed by human beings in the near future.

“I see outsourcing as more of a transitory phenomenon, in that much of that work will shift to computers,” he said.

“But that will still leave a lot of necessary human judgment. Machines will never replace lawyers, but they will change what lawyers do, and I think it will make what lawyers do more sophisticated. So I think this is going to lead to an era of lawyers doing even more interesting things than they’re doing now. We’ll be rethinking what the study and practice of the law means.”

Some of the more radical changes that have inspired anxiety on the part of law professors and students will happen far enough out into the future that people who are heavily invested in the current system now should be able to finish out their careers.

“But the potential changes are something law students should be aware of,” Ribstein said.

Until then, the best strategy for law schools, professors and students is to devote more study to dynamic law markets than they have in the past.

“The plus side for entering law students is that their future is much more wide open than that of their immediate predecessors,” he said. “So that’s a cause for optimism.”

Ribstein’s article, “Practicing Theory: Legal Education for the 21st Century,” will be published in a forthcoming issue of the University of Iowa Law Review.
Child abuse risk tied to type, degree of disability, study finds

By Sharita Forrest
Education/Social Work Editor

Researchers have long known that children with disabilities are at a greater risk of being physically abused than their caregivers. But a groundbreaking new study by Jesse Helton, a faculty member in the Children and Family Research Center at the School of Social Work at the University of Illinois, indicates that the risk and degree of physical abuse vary according to the child’s type and level of disability – and those at greatest risk of maltreatment may be those with average functioning or only mild impairments.

“Studies show that children with behavioral, developmental, mental and physical disabilities are 3 to 11 percent more likely to be subject to abuse and the abuse also is likely to be of longer duration – than children without disabilities,” Helton said. “That isn’t a great way of looking at it because the World Health Organization and the medical community don’t consider a kid disabled versus not disabled – they consider raised as a child at age two or three or four by a parent on a continuum of health. If you have a kid with cerebral palsy who can’t move or speak very well, a kid with high-functioning autism, and one with functioning Down syndrome, they present different individual vulnerabilities to maltreatment.”

Helton, along with Denise Cross, a professor in the Children and Family Research Center, obtained the data from the National Survey of Child and Adolescent Well-Being and the National Survey of Child and Adolescent Well-Being, a national probability study comprising 5,500 children ages 3 to 11 in 36 states. The families in the study were the subjects of abuse-and-neglect investigations from the National Survey of Child and Adolescent Well-Being, a national probability study comprising 5,500 children ages 3 to 11 in 36 states. The families in the study were the subjects of abuse-and-neglect investigations from the National Survey of Child and Adolescent Well-Being, a national probability study comprising 5,500 children ages 3 to 11 in 36 states. The families in the study were the subjects of abuse-and-neglect investigations from the National Survey of Child and Adolescent Well-Being, a national probability study comprising 5,500 children ages 3 to 11 in 36 states. 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Encore of corporate tax holiday unlikely to stimulate economy

By Phil Clora
Business & Law Editor

A repeat of a corporate tax holiday that found little success in stimulating the economy in 2005 is still a long shot to jump-start a stagnant U.S. economy, says a UI expert in corporate and international taxation.

Dhammika Dharmapala, a professor of law at Illinois, says that while the idea of a tax holiday has found favor among some politicians and presidential hopefuls looking to jolt the country out of the financial doldrums, it would have little positive effect on economic growth.

"Ostensibly, the aim is to increase domestic investment and employment – that is, to induce firms to buy more machinery or hire more workers and the like," Dharmapala said. "However, the firms that repatriated money from abroad in 2005 tended not to increase domestic investment and employment levels. So to try the same thing again and expect a different result might be described as a triumph of hope over experience."

The 2005 tax holiday, which was a result of the American Job Creation Act of 2004, allowed firms to repatriate cash from abroad and pay only 5 percent in tax.

"If a firm was planning to spend $100 million on domestic investment, they could designate $100 million brought back from abroad as that money, which then frees up some other $100 million to repurchase shares," he said. "As long as the amount firms brought back doesn't exceed domestic investment, it's difficult to design a rule that could bypass that problem. Moreover, the laws that Congress passes about repatriation of future tax holidays.

Another short-term tax holiday may undermine these long-term goals," he said. ◆

UI Flash Index improves to 96.3 in April

A key indicator of economic activity in Illinois continues to show slow but steady improvement in the state. The UI Flash Index climbed to 96.6 in April, up three-tenths of a point from the previous month.

The index moved upward for the 12th month in a row, according to a UI professor of law and an expert in corporate and international taxation.

"April is a strong month for individual income receipts because of final payments that accompany tax filings," Giertz said. "Since the final payments were based on 2010 rates and not the current rates, collections were not particularly strong in April. The index is a weighted average of Illinois growth rates in corporate earnings, consumer spending and personal income. ◆
Row crops, field tiles causing water quality problems

By Sharita Forrest
Education Social Work Editor

In addition to causing widespread flood-
ing, the rains drenching the Midwest this spring may exacerbate another environmental problem – phosphorus and nitrate pollution in the water supply that is causing a growing hypoxic zone in the Gulf of Mexico, presenting a danger to marine life and wildlife habitats, according to recent studies by a team of scientists from the UI and Cornell University.

The hypoxic zone, which forms every spring or summer in the Gulf, covered 7,000 square miles last summer. With high flow in the Mississippi this spring, the zone may be large again this summer.

The researchers found that tile farmland, fields – the arable lands in Illinois, Indiana, Ohio and southwest Minnesota – and in the southeastern Missouri and northern Arkansas region are the largest contributors of nitrate and phosphorus pollution to rivers, lakes and streams that empty into the Mississippi River and, ultimately, the Gulf of Mexico.

Ingesting phosphorus in water is not harmful to humans, as it is an essential nutrient, said Mark David, a biochemist in the department of natural resources and environmental sciences, which is a unit in the College of Agricultural, Consumer and Environmental Sciences at the UI. David also is a member of the research team and has studied the problem of nutrient losses from agricultural fields to rivers since 1993.

The danger is that, in combination with nitrate, phosphorus can impair water quality and to the formation of algae that de-

Happy birthday:

D.C. 20004.

The research team analyzed 10 years of data on the 1,768 counties in the Missis-
sippi River Basin, including information on crop acres and yields, livestock head counts and census data, fertilizer usage and tile drainage systems, nutrient and phosphorus concentrations in waterways and river flow measurements.

They found that the extensive row crop-
ping in the Midwest, where land is flat and tile drainage systems and channel sectioned ditches and streams are common, in combination with high application and soil erosion, create pathways that transport nitrate and phosphorus from the soil into the water supply. The largest losses of nitrate, which occur every January-June, are related to intensive, fertil-
ized agriculture with tile drainage. Phosphorus to reduce both local and downstream quality standard for both nitrogen and phos-

Although animal manure is another po-
tential source of nutrient pollution, the researchers didn’t find it to be a big contributor in the Midwest. Bass pointed out production has moved further west, where there’s less precipitation and tile drainage – and less phosphorus and nitrogen entering the water supply than in Illinois, Indiana, Iowa and Ohio, which have extensive crop production.

“A watershed that’s 95 percent row cropped is going to have a higher phos-
phorus load than a forested watershed or a wa-
tershed that has a small percentage of agricultural drainage and typically less row crops, whether it has livestock or not,” David said.

Mitigating the nutrient losses will require a broad range of measures – some of them costly, such as implementing technology to reduce concentrations and amounts heading to the water supply and improve wa-
ter quality. Nitrogen and phosphorus pollu-
tation has the potential to become one of the costliest and most challenging environmen-
tal problems facing the U.S., Stoner wrote.

“The EPA is pushing all the states, es-
specially Illinois right now, to take a water quality standard for both nitrogen and phos-
phorus to reduce both local and downstream concentrations and amounts heading to the Gulf of Mexico,” David said. “And if they do that, at almost any levels that would be chosen, we won’t meet it in most waters.”

The team’s research was funded by the National Science Foundation Biocomplex-

Data analysis Average annual predicted January to June total phosphorus (A), dissolved reactive phosphorus (B), and particulate phosphorus (C) yields for the counties in the Mississippi River basin from 1997 to 2006.

Raymond Anderson, 79, died April 22 at his Champaign home. Anderson worked at the UI for 14 years, serving as regional dean of the College of Medicine, as well as emergency medicine and infectious diseases.

He left the UI in 1998. For 16 years after, he taught courses for UI Extension.

Laurie E. Drinkwater, Cornell University; and Linda M. Jacobson and Greg McIsaac, Pennsylvania State University. The team’s findings appear in the May-June 2011 issue of the Journal of Environmental Quality.

Mark David

May 5, 2011

In a March 16 announcement, Nancy K. Stoner, acting associate director of the U.S. Environmental Protection Agency, called upon officials in state agencies to partner with landowners and other stakeholders to reduce concentrations of nitrogen and phosphorus in the water supply and improve wa-
ter quality. Nitrogen and phosphorus pollu-
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Co-investigators on the study were: Laurie E. Drinkwater, Cornell University; and Linda M. Jacobson and Greg McIsaac, both at Illinois.

Dr. Charles Christopher Creagh, 79, died April 18 at his home in Poulsho, Wash. O’Mearc worked at the UI for 14 years, serving as regional dean of the College of Medicine, as well as emergency medicine and infectious diseases.

He left the UI in 1998. kế-

funeral services will begin at 3 p.m. May 7 at St. Barnabas Episcopal Church, 1187 West Way, Bainbridge, Wash. Memorials: O’Mearc Exchange Fellowship Fund or the Patricia J. And Charles C. O’Mearc Fellowship in Leadership Skills Award Fund at the UI, c/o UI Foundation, 1305 W. Green St., Urbana, IL 61801, MC-386.

Steven Scott Snyder, 47, died April 25 at Memorial Medical Center, Springfield. Snyder worked at the UI from 1999 until 2010. He was a groundkeeper for Facilities and Services.

Paul H. Tippin, 84, died April 27 in Marion, Ill. Tippin worked at the UI for 8 years, re-
tining in 1976 as head of correspondence for UI Extension. 

Ivy, Illinois and Connecticut, and served in the U.S. Navy during World War II. He then taught the graduate vocal literature class for 31 years, and served as a piano accompanist for thousands of voice students and faculty recitals. Memorials: American Heart Asso-
ciation (https://donate.americanheart.org).

In the 1970s, farmers were told to put a little extra phosphorus on their soil – it was money in the bank. Phosphorus stays very well in the soil … so basically we’re using that old buildup … However, the loss of phosphorus from soil to rivers has not changed and is still causing environ-
mental problems,” David said.

Although animal manure is another po-
tential source of nutrient pollution, the researchers didn’t find it to be a big contributor in the Midwest. Bass pointed out production has moved further west, where there’s less precipitation and tile drainage – and less phosphorus and nitrogen entering the water supply than in Illinois, Indiana, Iowa and Ohio, which have extensive crop production.

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Deaths
Eleven faculty members, four academic professionals and five graduate teaching assistants at the UI were honored April 26 for excellence in teaching and advising. The honors were presented during a reception at the Alice Campbell Alumni Center.

Faculty members honored with the Campus Award for Excellence in Undergraduate Teaching:

Catherine E. Gray, English, understands well the challenges of teaching literature of the distant past to today’s undergraduates. A colleague describes this literature as “potentially arcane” and “difficult” for students to comprehend and interpret. Despite these challenges, Gray consistently receives high ratings for her teaching, in part because she so expertly reduces students’ anxiety about approaching the texts she assigns. She encourages creativity among her students by sponsoring classroom activities that emphasize, in her words, “the rich strangeness of the past.”

A.J. Hildebrand, mathematics, was praised for his success in the classroom by a colleague who said this success can be attributed to his “knowledge and commitment to mathematics, his preparation and attention to detail, his friendly but demanding attitude, and his generosity in time and effort mentoring students.” Hildebrand also has led an NSF-funded research program for undergraduates and has served for more than two decades as head coach for Illinois in the Putnam Examination, known as the world’s toughest math test.

Cynthia J. Johnson, speech and hearing science, has appeared on the List of Teachers Ranked as Excellent 68 times in her 29 years at Illinois. Her enthusiasm for teaching is apparent both inside and outside of the classroom. She enjoys explaining difficult concepts and helping students make sense of them. She also mentors and advises undergraduates in learning and laboratory experiences. Johnson provides opportunities for students to take part in laboratory research through independent studies and has directed six to 12 undergraduate students each semester in her Child Language Laboratory.

Dimitrios C. Kyritsis, mechanical science and engineering, teaches undergraduate classes in the basics of thermodynamics and fluid mechanics, required courses that students often find extraordinarily difficult. He meets this challenge head-on by offering lectures that are, as one colleague writes, “models of clarity” enlivened by his infectious enthusiasm. Although his courses are demanding, he knows well how to help his students navigate every challenge he puts before them. In addition to maintaining a supportive classroom environment, Kyritsis also mentors undergraduate students and offers them opportunities to work with him as laboratory assistants.

Courses taught by Robert Pahre, political science, range from conventional undergraduate courses that focus on international political economy and the European Union to innovative courses such as those focused on environmental policy. In addition, many students have benefited from the travel experiences associated with Pahre’s courses. A student who enjoyed Pahre’s experiential learning techniques writes that he “allows students to figure out the answers themselves.”

See Teaching Awards, Page 10.
Barbara Hug, a clinical professor in curriculum and instruction, weaves two themes into all of her courses: scientific literacy and the use of technology in science. She provides students with valuable opportunities to design and teach their own lessons. Students describe her teaching style as one that challenges their beliefs and encourages them to evaluate critically their world views. Her dedication to students has led many to characterize her as “influential” and “phenomenal.”

In his narrative writing courses, John Rubins, an instructor in English, promotes an atmosphere of unrestricted creativity and constructive critique. In this spirit, he opens his life as a writer to scrutiny. Students often take multiple classes from Rubins in the hope of advancing their art under his guidance. A colleague attributes Rubins’ success in the classroom to his desire for students to “experience directly the lessons of the humanities.”

The teaching style of Peter S. Sheldon, a lecturer in advertising, has been called “passionate” and inspirational. In all of his courses, Sheldon conveys crucial concepts with clarity and grace. Students respond well to the industry professionals he brings into the classroom who help apply workplace standards in the evaluation of student portfolios. Students describe Sheldon as unusually demanding – but also respectful of their creativity.

Graduate teaching assistants who received the award are Adam C. Irish, an assistant professor of classics; Mary I. Unger, English; and Amanda Vican, psychology.

The awards recognize professors, instructional staff members and graduate teaching assistants who display consistent- ly excellent performance in the classroom, take innovative approaches to teaching, positively affect the lives of their students, and make other contributions to improved instruction, including influencing the curriculum.

Faculty members and instructional staff members selected for the awards each receive $5,000 cash and a $3,000 recurring salary increase; graduate teaching assistants receive $3,500.

Other award winners honored:
Roy A. Axford, a professor of nuclear, plasma and radiological engineering, and Bruce A. Conway, a professor of aerospace engineering, received the Campus Award for Excellence in Graduate and Professional Teaching. Each receives $5,000 and a $3,000 recurring salary increase.

Axford’s commitment to his students in his 45 years as a faculty member at Illinois has been reflected in innovative instructional methods and outstanding teaching evaluations. Former undergraduate and graduate students number among the nation’s most prominent nuclear professionals. A former student writes that one of Axford’s distinguishing features is his “ability to explain advance concepts to students without compromising mathematical rigor.”

Conway’s dedication to graduate education can be measured not only by his positive teaching evaluations, but also by the fact that six of his 13 Ph.D. advisees have become university professors. He exhibits a dynamic classroom style that enlivens the presentation of difficult mathematical concepts. Conway’s students appreciate his ability to “explain hard concepts clearly” as he helps them solve complex problems in engineering.

Scott K. Silverman, a professor of chemistry, received the Campus Award for Excellence in Guiding Undergraduate Research. The $2,000 award is designed to foster and reward excellence in involving and guiding undergraduate students in scholarly research. On a campus that values undergraduate research, Silverman’s involvement of undergraduates in ongoing research activities is in all ways exemplary. Undergraduates in the Silverman lab credit their mentor with a philosophy that places great emphasis on their “development and maturation” as scientists.

Shiv G. Kapoor, a professor of mechanical science and engineering, and Shelly J. Schmidt, a professor of food chemistry, received the Campus Award for Excellence in Graduate Student Mentoring, which provides each recipient with $2,000.

Many of Kapoor’s nearly 90 master’s and 34 doctoral students have gone on to hold positions at major research universities, have emerged as leaders in industrial and national research laboratories, or have gone on to become successful entrepreneurs. Kapoor maintains a robust research portfolio while also attending with great care to the students he mentors. Kapoor’s former students speak highly of his “willingness to engage in collaborations” and his creation of an “incredible learning environment.”

Schmidt is dedicated to readying her students for successful careers, and she is equally committed to sustaining their individual well-being. Colleagues report that she offers students in her lab a “promise and a warning.” The promise is “a commitment to help them no matter what issue or problem arises, and the warning... is to let them know that if she sees them heading in a ‘dangerous’ direction, either professionally or personally, she will talk with them about it.” The result: Schmidt’s students graduate well prepared to keep work and life in productive balance.

Liang Y. Liu, a professor of civil and environmental engineering, and Umberto Ravaiol, the senior assistant dean for undergraduate programs in the College of Engineering and a professor of electrical and computer engineering, received the Campus Award for Excellence in Undergraduate Advising, which provides each recipient with $2,000.

Liu is described as “passionate” about advising. He develops a sense of trust and friendship with his students. He was responsible for the department’s “Fall Kick-Off” at which freshmen could learn about the department from faculty and staff members, and upper-class undergraduates. Liu also revised the introductory course required of all freshmen in his department, which now engages small groups in civil engineering projects that require collaborative research and problem-solving.

In his role as an academic adviser, Ravaiol works tirelessly to understand students’ perspectives and to guide them toward course work and co-curricular experiences that are designed to help them grow toward the goal of becoming engineers. Ravaiol works with College of Engineering undergraduates, as well as Division of General Studies students who are looking to transfer into an engineering discipline. One student notes that because Ravaiol takes students’ “personal and academic issues to heart,” his influence is nothing short of “life-changing.”

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A first look at the mechanics of membrane proteins

By Diana Yates

In two new studies, researchers provide the first detailed view of the elaborate chemical and mechanical interactions that allow the ribosome — the cell’s protein-building machinery — to insert a growing protein into the cellular membrane.

The first study, in Nature Structural and Molecular Biology, gives an atom-by-atom snapshot of a pivotal stage in the insertion process: the moment just after the ribosome docks to a channel in the membrane and the newly forming protein winds its way into the membrane where it will reside.

A collaboration between computational theoretical scientists at the UI and experimental scientists at University of Munich made this work possible. Using cryo-electron microscopy to image one moment in the insertion process, the researchers in Munich were able to get a rough picture of how the many individual players — the ribosome, membrane, membrane channel and newly forming protein — come together to get the job done. Each of these structures had been analyzed individually, but no previous studies had succeeded in imaging all of their interactions at once.

“The computational methodology contributed by the Illinois group was crucial in interpreting the new cryo-EM reconstruction in terms of an atomic level structure, and testing the interpretation through simulation,” said co-author Roland Beckmann at the University of Munich. “Our joint study is unique in so closely and successfully combining experimental and computational approaches.”

To image the ribosome’s interaction with the membrane, Beckmann’s team used small disks of membrane held together with belts of engineered lipoproteins. UI biochemistry professor Stephen Sligar developed and pioneered the use of these “nanodiscs.”

The Illinois team used the cryo-EM images as well as detailed structural information about the ribosome and other molecules to construct an atom-by-atom model of the system that threads a growing protein into the cellular membrane.

Protein mechanics

UI biophysics professor Klaus Schulten, right, and postdoctoral researcher James Gumbart used cryo-EM images as well as detailed structural information about the ribosome and other molecules to construct an atom-by-atom model of the system that threads a growing protein into the cellular membrane.

“tells” the ribosome what kind of protein it itself in the membrane. Previous studies suggested that this signaling sequence at the start of the growing protein — the ribosome “pushes” the growing protein into the membrane channel, and then, in a second step, the protein enters the membrane. The original push, driven by the chemical energy that the ribosome harvests from other high-energy molecules in the cell, allows even highly charged proteins to pass easily into the oily, nonpolar environment of the membrane.

Schulten holds the Swanlund Chair in Physics at Illinois and directs the theoretical and computational biophysics group at the Beckman Institute for Advanced Science and Technology.
Susan Koch named new VP/chancellor at UIS

By Liz Ahlberg
Physician News Editor

Bacterial infections really stink. And that could be the key to a fast diagnosis.

Researchers have demonstrated a quick, simple method to identify infectious bacteria by smell using a low-cost array of printed pigments as a chemical sensor. Led by UI chemistry professor Ken Suslick, the team published its results in the journal Science last week.

Hospitals have used blood cultures as the standard for identifying blood-borne bacterial infections for more than a century. While there have been some improvements in automating the process, the overall method has remained largely constant. Blood samples are incubated in vials for 24 to 48 hours, when a carbon dioxide sensor in the vials will signal the presence of bacteria. But after a culture is positive, doctors still need to identify which species and strain of bacteria is in the vial, a process that takes up to another day.

“The major problem with the clinical blood culturing is that it takes too long,” said Suslick, the Marvin T. Schmidt professor of chemistry, who also is a professor of materials science and engineering and a member of the Beckman Institute for Advanced Science and Technology. “In 72 hours they may have diagnosed the problem, but the patient may already have died of sepsis.”

When there has been some interest in using sophisticated spectroscopy or genetic methods for clinical diagnosis, Suslick’s group at the university’s Center for Molecular Recognition in the College of Engineering has pursued chemical sensing as an alternative: smell. Many experienced microbiologists can identify bacteria based on their aroma. Bacteria emit a complex mixture of chemical odorants, so applying it to bacteria could be productive contributors to and leaders of public health services to underserved populations in the U.S. and abroad.

Of her career in teaching and university administration, Koch said: “I’m an educator first and my highest priority will be students.” Koch is a native of South Dakota, where she earned a bachelor’s degree in health/physical education/biology at Dakota State University. Her first job was as a high school teacher in Waterloo, Iowa. She returned to college at the University of Northern Iowa and earned a master’s degree and doctorate, both in health education. Koch joined the faculty at UNI in 1985 and moved into administration in 1995.

Koch will take the helm of the campus from interim vice president and chancellor Harry Berman who has served as interim since last September.

In a few hours, the array not only confirms the presence of bacteria, but identifies a specific species and strain. It even can recognize antibiotic resistance – a key factor to any hospital.

In the paper, the researchers showed that they could identify 10 of the most common disease-causing bacteria, including the hard-to-kill hospital infection methicillin-resistant Staphylococcus aureus (MRSA), with 98.8 percent accuracy. However, Suslick believes the array could be used to diagnose a much wider variety of infections.

“We don’t have an upper limit. We haven’t yet found any bacteria that we can’t detect and distinguish from other bacteria,” he said. “We picked out a sampling of human pathogenic bacteria as a starting point.”

Given their broad sensitivity, the chemical-sensing arrays also could enable breath diagnosis for a number of conditions. Medical researchers at other institutions have already performed studies using Suslick’s arrays to diagnose sinus infections and to screen for lung cancer.

Next, the team is working on integrating the arrays with vials of liquid growth medium, which is a faster culturing agent and more common in clinical practice than Petri dishes. They have also improved the pigment dots to be more stable, more sensitive and easier to print. The device company iSense, which Suslick co-founded, is commercializing the array technology for clinical use. The National Institutes of Health supported this research through the Genes, Environment and Health Initiative. Co-author of the paper included professor Jonin Imlay; and co-author and Beckman fellow Arindam Mitra, of the National University of Kaohsiung.

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Koch will take the helm of the campus from interim vice president and chancellor Harry Berman who has served as interim since last September. 
Record lows of Arctic zone

A Minute With …™ atmospheric scientist Don Wuebbles

Editor’s note: On April 5, the World Meteorological Organization announced that the stratospheric ozone in the Arctic had suffered an unprecedented drop over the winter and early spring, causing a large area of very thin ozone much like the annual ozone hole that forms over the Antarctic. In an interview with News Bureau physical sciences editor Liz Ahlberg, UI atmospheric sciences professor Don Wuebbles, an expert in stratospheric ozone, explains the processes behind ozone depletion and the implications of the record low levels.

What protection does the ozone layer offer? What are the risks of ozone depletion?

The stratospheric ozone layer is extremely important to life on Earth because it protects us from very harmful levels of solar ultraviolet radiation. Ozone is a molecule made of three oxygen atoms that absorbs ultraviolet radiation, preventing the most energetic wavelengths from reaching Earth’s surface. Ninety percent of atmospheric ozone is in the stratosphere. A decrease in the amounts of stratospheric ozone is of concern because more of the harmful levels of ultraviolet radiation can then reach the Earth. We talk about there being good ozone and bad ozone – good ozone is the ozone in the stratosphere that protects us from this UV radiation, whereas bad ozone is that in the smog we breathe in urban areas that has direct health effects.

How much did the Arctic ozone decrease?

There was a 40 percent decline in total ozone over a large region of the Arctic this winter and early spring. This was a very unusual event because most years it is not cold enough in the lower stratosphere over the Arctic to have such an event. This year the Arctic stratosphere was extremely cold leading to a very strong polar vortex and the formation of polar stratospheric clouds in the lower stratosphere. Those clouds act as reaction sites to convert less reactive forms of chlorine and bromine in the lower stratosphere to much more reactive forms that can then react catalytically to destroy stratospheric ozone.

Then spring starts setting in with warmer temperatures and wave activity that break up the vortex, essentially spreading the depleted levels of ozone throughout the planet. Ozone is constantly produced and destroyed so the Arctic will fill in with higher levels of ozone from other latitudes. These are essentially the same type of processes that produce the Antarctic ozone hole we have been seeing every year for more than 25 years, but we don’t call the Arctic decrease in ozone a “hole” because it is so unusual.

We’ve been hearing about the “ozone hole” over the Antarctic for some time. What is the significance of now having record low levels in the Arctic as well?

It is likely the decrease in Arctic ozone will continue to be an extremely unusual event, in which case there will be very little long-term impact. The Antarctic ozone decrease occurs annually and will do so until the long-lived CFCS (chlorofluorocarbons) and other gases that are the sources of the reactive chlorine and bromine in the stratosphere are finally removed from the atmosphere.

How are the atmospheric conditions and UV exposure in the Arctic differ from the Antarctic?

Because of the presence of the land masses in the Northern Hemisphere, and winds blowing over those land masses, waves are produced that are then transported into the stratosphere where they keep the vortex weaker and temperatures too warm to form polar stratospheric clouds, at least in a normal year. In contrast, Antarctica is surrounded by ocean water and the polar winter vortex is much stronger around Antarctica.

Most of the time period of the high depletion over the Arctic this year were also times of strong lower level clouds, so very little of the increased levels of UV radiation reached Earth’s surface. The ozone hole over Antarctica occurs every year so there is much more exposure to higher levels of UV for life in the Antarctic region.

The UN adopted the Montreal Protocol on Substances that Deplete the Ozone Level back in 1989. Wasn’t that enough to prevent further ozone loss? How long will recovery take?

The Montreal Protocol international agreement has resulted in the banning of the major compounds causing the high levels of chlorine and bromine in the stratosphere. However, many of these compounds have very long atmospheric lifetimes, so it will take a number of decades to clear the atmosphere sufficiently to allow ozone to recover. The Antarctic ozone hole may be with us for another 40-60 years.
Girls Engaged in Math and Science
Summer program for girls
Girls Engaged in Math and Science is accepting applications for its summer programs.

This year, the GEMS workshop will be from 9 a.m. to 3 p.m. June 27 to July 1. The program is open to girls in grades 6, 7 and 8 and we focus on learning computer science fundamentals through engaging games and puzzles. The activities introduce students to concepts such as binary numbers, algorithms, error detection and data compression in a fun and engaging way. Girls also will take a field trip to see the UI building that will house the Blue Waters supercomputer, which will be able to do quadrillions of calculations every second.

To apply, go to http://gems.ncsa.illinois.edu/index.php/gems-workshop/application. Applications will be reviewed on a first come, first served basis, and acceptance into the program will be confirmed through email. For more information, email education@ncsa.illinois.edu.

Politics of Advocacy
Qualitative inquiry congress is May 18-21
The Seventh International Congress of Qualitative Inquir

y will be May 18-21 at the Illini Union. This year’s Theme is “Qualitative Inquiry and the Politics of Advocacy.”

Qualitative researchers are increasingly being called upon to make their work relevant. They are encouraged to pursue social justice agendas and to be human-rights advocates. Many oppose any political agenda, calling for non-activist qualitative research.

The 2011 congress will offer scholars the opportunity to debate these issues, to form coalitions, to engage in debate and to use qualitative research can be used to advance the causes of social justice, while addressing racial, ethnic, gender and environmental disparities in education, welfare and health care.

Sessions will take up such topics as the politics of advoca
cy; value-free inquiry; partnership, bias; the politics of evidence; alternatives to evidence-based models; multiple and diverse public policy discourse; indigenous research ethics; decolonizing inquiry.

On May 18 there will be pre-conference events and on May 19 morning and afternoon professional workshops. The congress will consist of keynote, plenary, featured, regular and poster sessions.

Michal Kramer-Nevo, the director of the Israeli Center for Qualitative Research of Peoples and Societies at Ben-Gurion University of the Negev, will give the keynote speech, “Writing Against Otherting.” John H. Stanfield II, a professor of African American and African Diaspora Studies at Indiana University, will discuss “Turning the Next Wide 21st-Century Corner: Holistic Restorative Justice Principles in Qualitative Inquiry.”

More information is available at icqi.org.

Campus Parking
Rates increase for campus meters
On July 1, campus parking meter rates will increase 25 cents, to $1 per hour. The hourly rate has not increased since 2003.

The Parking Department will continue to offer campus visitors three payment options for meter usage: U.S. coins; Verrus pay-by-phone service, which allows users to pay by credit card with their phone; or CashKey, which offers a pre-pay option using cash, credit card or a university account.

According to the new rates, nickels will purchase three minutes, dimes will purchase six minutes and quarters will purchase 15 minutes.

The pay-by-phone convenience charge collected by Verrus will remain 35 cents per transaction.

For more information about the Parking Department, or the pay-by-phone or CashKey options, visit: www.parking.illinois.edu.

Crop sciences
Plant Clinic offers services
The UI Plant Clinic offers its services through Sept. 15. Services include plant and insect identification, diagnosis of disease, insect, weed and chemical injury (chemical injury on field crops only), nematode assays, and help with nutrient-related problems, as well as recommendations involving these diagnoses. Additionally, short courses and outreach for plant diagnostics will be available.

In addition, the clinic is now using Facebook and Twitter to keep commercial and residential growers up-to-date on the latest pest pest issues that are seen at the clinic and throughout the state. “By using social media such as Twitter and Facebook, I can put out pest updates very quickly and link them with pictures, fact sheets or other research based information to help growers make good pest control decisions,” said Stephanie Porter, a visiting plant diagnostician.

A special Diagnose-a-Day program will be available online at the clinic’s Facebook page, “Plant Clinic Diagnose-a-Day.”

The Plant Clinic is located on the north border of the UI South Farms in Urbana. Mail samples to Plant Clinic, 1401 W. St. Mary’s Road, Urbana, IL 61801. For more information, visit http://plantclinic.cropsci.illinois.edu/ or call 217-333-0519.

School of Music
Annual piano sale is May 5-8
Through the University Piano Loan Program, Samuel Music and Yamaha Corp. of America provide faculty members and students in the School of Music with new pianos. As the end of the academic year approaches, acoustic and digital pianos, along with a large selection of new and used pianos and Clavinova digital pianos, will be for sale.

All instruments will be sold at reduced prices with the Yamaha manufacturer’s warranty included, on a first come, first served basis.

Appointments are required to view the selection of pianos available. Appointments are available at the Music Building between 10 a.m. and 7 p.m. May 5 and 6, 10 a.m. to 5 p.m. May 7, and 1 to 6 p.m. May 8. To schedule an appointment, call 888-742-6632 or email univpiano@samuelmusic.com.

Support of this event enables Samuel Music and Yama
to continue to loan new instruments each year to the UI School of Music.

Faculty/Staff Emergency Fund
Employee fund seeks donations
Established in 1992, the Faculty/Staff Emergency Fund assists UI employees on the Urbana campus and their fami
dates during times of financial crisis. It is funded by donations from faculty and staff members to help colleagues in need. Volunteers are encouraging donations during the 2011 pledge drive.

Girls Engaged in Math and Science is accepting applications for its summer programs.

This year, the GEMS workshop will be from 9 a.m. to 3 p.m. June 27 to July 1. The program is open to girls in grades 6, 7 and 8 and we focus on learning computer science fundamentals through engaging games and puzzles. The activities introduce students to concepts such as binary numbers, algorithms, error detection and data compression in a fun and engaging way. Girls also will take a field trip to see the UI building that will house the Blue Waters supercomputer, which will be able to do quadrillions of calculations every second.

To apply, go to http://gems.ncsa.illinois.edu/index.php/gems-workshop/application. Applications will be reviewed on a first come, first served basis, and acceptance into the program will be confirmed through email. For more information, email education@ncsa.illinois.edu.

Politics of Advocacy
Qualitative inquiry congress is May 18-21
The Seventh International Congress of Qualitative Inquir

y will be May 18-21 at the Illini Union. This year’s Theme is “Qualitative Inquiry and the Politics of Advocacy.”

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Ad removed for online version
The program in Environmental and Resource Economics won the Team Award for Excellence. Contributions of any amount are encouraged. Donations of any amount are encouraged. Donations go directly into the fund.

The College of Engineering honored recipients of its annual faculty awards at a ceremony on May 2. Faculty members were honored with Rexx Awards for Faculty Research. Associate professors honored: Tarek Abdelzaher, computer science; Karin A. Dahmen, physics; and Harley T. Johnson, mechanical science and engineering. Assistant professors honored: Vijay Singh, agricultural and biological engineering; Dallas R. Trinkle, materials science and engineering; Eric Pop, electrical and computer engineering; Rohit Bhargava, bioengineering; and Joanna M. Austin, aerospace engineering.

E N G I N E E R I N G

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ACHIEVEMENTS

A report on honors, awards, appointments and other outstanding accomplishments of faculty and staff members.

BRIEFS, CONTINUED FROM PAGE 14

program’s annual fund drive. The annual fund drive is an effort to provide additional support for the University’s mission and academic programs. Donors are encouraged to contribute generously to support the University’s goals and objectives.

For more information and videos, go to http://awards.aces.illinois.edu.

LAND & BUSINESS

“The Atlas of World Hunger” (University of Chicago Press/2010) won the 2011 James M. Blaut Innovation Award. The book was written by UI faculty members Tom Bassett, geographer, and Alex Winter-Nelson, agricultural and consumer economics.

ENGINEERING

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The Illinois Program for Research in the Humanities hosted its annual award reception April 27. Faculty members honored: Jay Rosenzweig, a professor of journalism, received the IPRH Faculty Prize for Research in the Humanities for his documentary “The Lord is Not on Trial Here Today.” Honorable mention honors: Gabriel Solis, a professor of music, for his article “I Did It My Way. Rock and the Logic of Covers,” published in Popular Music and Society (July 2010); and Luisa-Elena Delgado, a professor of Spanish, Italian and Portuguese, for her article “The Sound and the Red Fury: The Sticking Points of Spanish Nationalism,” published in the Journal of Spanish Cultural Studies (2010).

Sally Perret, a Ph.D. candidate in Spanish, Italian and Portuguese, has been named the first recipient of the Kibbee Prize from the UI School of Literature, Cultures and Linguistics. Perret’s dissertation is titled “The Production of Cultural Citizenship in Democratic Spain: National Literary Awards and the Politics of Identity (1977-2010).” Her dissertation adviser is Luisa-Elena Delgado, a professor of Spanish.

The annual prize is named in honor of Professor Douglas A. Kibbee, the first director of the school. Kibbee retired in 2010.

SECRETARIAT

Joan Christian, an office manager in the Graduate College, recently was named Office Professional of the Year by the Secretariat. Christian was honored at a luncheon at the Union. The 19th year the organization – composed of employees in civil service classifications with qualifications that meet or exceed those of the Office Support Associate – presented the award.

BRIEFS, CONTINUED FROM PAGE 14

program’s annual fund drive. Thanks to volunteers and offices donating labor and materials, there are no administrative costs associated with this fund-drive, so 100 percent of donations go directly into the fund.

“Donations received during last year’s fund drive have been spent helping employees in need, and each year it is important to replenish the fund,” said Debbie McCull, chair and member of the volunteer employee emergency fund committee. “This is our special chance to help our Urbana campus colleagues who may experience a financial crisis at one time or another,” McCull said. “It could happen to any of us.”

Since its inception, the fund has provided confidential financial assistance in small grants to more than 700 employees. The fund has assisted employees with a rent or mortgage payment, utilities, medicine or medical bills, food or clothing during times of crisis such as a serious illness in the family or a house fire. Anyone applying for assistance is screened through the Faculty/Staff Assistance Program and then reviewed for approval by a separate confidential committee.

Contributions of any amount are encouraged. Donations are accepted through payroll deduction. Employees who donated last year and wish to continue donating in this manner may need to renew their pledge for this year. Employees also have the option of choosing payroll deductions that continue until they submit a new payroll deduction card or end their contributions. This year, payroll deductions or donation through credit cards can be set up through the UI Foundation website: http://www.giving.illinois.edu. Cash and donations by check also are welcome. Checks should be made payable to UIF/IUCF Foundation or UI School of Library and Information Technology and Communication – administrative/management or technical personnel.

For more information, visit www.fsap.illinois.edu or call 217-244-5312.

Eligible faculty and staff members may apply for emergency assistance at any time. All contacts are confidential and assessments are free. If you or someone you know might be eligible for assistance from the fund, call 217-244-5312 or contact the Faculty/Staff Assistance Program, http://www.fsap.illinois.edu.
Genetic study offers insight into the social lives of bees

Most people have trouble telling them apart, but bumble bees, honey bees, stingless bees and solitary bees have home lives that are as different from one another as a monarch’s palace is from a hippy commune or a hermit’s cabin in the woods. A new study of these bees offers a first look at the genetic underpinnings of their differences in lifestyle.

The study focuses on the evolution of “eusociality,” a system of collective living in which most members of a female-centric colony forego their reproductive rights and instead devote themselves to specialized tasks—such as hunting for food, defending the nest or caring for the young—that enhance the survival of the group. The study appears in the Proceedings of the National Academy of Sciences.

Eusociality is a rarity in the animal world, said Gene Robinson, a professor of entomology and the director of the Institute for Genomic Biology, who led the study. Ants, termites, some bees and a couple of mole rat species are the only animals known to be eusocial.

Among bees, there are the “highly eusocial” honey bees and stingless bees, with a caste of sterile workers and a queen that stingless bees, with a caste of sterile workers and a queen that "kicks back and becomes a queen," he said. Illinois entomology professor Sydney Cameron, a collaborator on the study and a social insect evolution expert, dislikes the term "primitively eusocial" because it suggests that these bees are on their way to becoming more like stingless bees or honey bees. Eusociality is not a progressive evolution from the “primitive” to the “advanced” stage, she said.

“They’re not striving to become highly eusocial,” Cameron said. “They don’t say to themselves, ‘If only I could become a honey bee!’ ”

Illinois entomology professor Matt Hudson used the only available bee genome, that of the honey bee, *Apis mellifera*, as a guide to help assemble and identify the sequenced genes in the other species and the team looked for patterns of genetic change unique to either the highly eusocial or primitively eusocial bees. The frequency and pattern of these changes in gene sequence suggest “signatures of accelerated evolution” specific to each type of eusociality, and to eusociality in general, the researchers reported.

“What we find is that there are some genes that show signatures of selection across the different independent evolutions (of eusocial bees),” Robinson said. “They might be representatives of the ‘gotta have it’ genes if you’re going to evolve eusociality. But others are more lineage-specific.”

This study was made possible with a one-gigabyte sequencing grant from 454 Life Sciences (Roche Diagnostics Corp.) by way of the Roche 1GB contest. The National Science Foundation and the National Institutes of Health also supported the research.

The study team also included researchers from Cornell University and from the Program in Ecology, Evolution and Conservation Biology and the Institute for Genome Biology at Illinois.

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**Eusociality** A new study found significant differences in gene sequence between 10 species of eusocial (red and blue) and non-eusocial (yellow) bees. The researchers also saw patterns of genetic change unique to either the highly (red) or primitively (blue) eusocial bees. The bees used in the study were *Frieseomelitta varia*, *Melipona quadrifasciata* (pictured: *Melipona eburnea*), *Apis florea*, *Apis mellifera*, *Eucera robsati* (pictured: *Eucera angophorae*), *Eulaema nigrita* (pictured: *Eulaema moreira*), *Englossos cordata* (pictured: *Englossos sp.*), *Megachile rotundata*, *Bombus impatiens*, *Bombus terrestris*.

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**Photo credits:** Photos provided by (clockwise from top left): Claus Rasmussen; Rasmussen; Zachary Huang; Huang; Michael Schwarz; Edward Ross; Benjamin Bembé; Theresa Pitts-Singer, USDA; James Whitfield; Whitfield.