ON THE WEB
www.illinois.edu/UrbanEquity

Lived experiences Bethany Cutts, a professor of natural resources and environmental sciences, is co-leading the Workshop in Urban Environmental Equity.

ed to retrofit their operations to minimize pollution in addition to paying for the cleanup. Cutts and Greenlee predict that local residents may have complicated feelings about the pollution as well as the dredging.

“A lot of times, these industries were or are an active source of employment and other opportunities,” Cutts said. “The promise of jobs convinces people to accept risks that they otherwise wouldn’t, and then they get caught in a system where the only other employ - ers you can attract to your area are similarly polluting ones, because a nice little garden café does not want to be next to an oil refinery.”

“You want industries to move there because you want a job,” Greenlee said, “but they’re also degrading your environment and lowering your property values, so these businesses are both stabilizing and destabilizing at the same time. And that’s part of why we want to look at the cleanup efforts as the same thing—they’re a stabilizing factor, in that they’re creating benefit and capital investment, but they also have the potential to be a huge destabilizing factor economically, socially and politically, in terms of what could happen in these sites now that they’re cleaned up and amenities come in.”

To carry out this research, Cutts and Greenlee established a course titled “Workshop in Urban Environmental Equity” that began this fall.

Workshop series to address underrepresented students

By Mike Helenthal
Assistant Editor

V ariety is said to be the spice of life, but it turns out to be an active ingred ient in the learning process as well.

Gretchen M. Adams, a chemistry instructor, the director of the department’s Undergraduate Studies office, and one of this year’s Distinguished Teacher-Scholars, said diversity is said to be the spice of life, but it turns out to be an active ingredient in the learning process as well.

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Increasing the Retention and Academic Performance of Underrepresented Students

With Distinguished Teacher-Scholar Gretchen M. Adams

Participants are asked to commit to attending the entire eight-part workshop series.


Time: 11:30 a.m.-1 p.m. (lunch provided)

APPLICATION ON LINE BY SEPT. 12:

By Dusty Allnutt
Arts and Humanities Editor

There’s no such thing as a good place to have a natural disaster, nor has there ever been an appropriate site to release toxic pollutants. But scientists have long recognized that some areas can handle such catastrophes better than others. As early as the 1970s, they used socioeconomic data from the U.S. Census to develop a tool called the Social Vulnerability Index, known as SoVI, to gauge the likely resilience of different communities.

Now a team of professors and graduate students at the U. of I. is testing and tweaking the SoVI model by studying at a more granular level the communities around two polluted Midwest waterways. Bethany Cutts, a professor of natural resources and environmental sciences, and Andrew Greenlee, a professor of urban and regional planning, received a two-year Illinois-Indiana Sea Grant to study communities around the Lincoln-Park/Milwaukee Estuary and portions of the Grand Calumet River south of Chicago, both designated “areas of concern” by the U.S. Environmental Protection Agency.

“We want to take the vulnerability concept and look at it through the lived experiences of the local people,” Greenlee said.

“They might identify different trends that we wouldn’t necessarily have picked up on based on indicators that have been developed for the whole U.S.,” Cutts said.

Their research focuses on communities around waterways that previously served as dumping grounds for industries but are now being cleaned up by the EPA. By homing in on populations that have lived near polluted waste sites, Cutts and Greenlee hope to discover new ways to more accurately assess environmental threats.

“We’re applying the Vulnerability Index differently,” Greenlee said. “Instead of looking at disasters, we’re approaching it from the perspective of other types of disruptions—in this case the sediment removal itself, because that can have a huge effect on the surrounding people as well.”

“And it can be negative or positive,” Cutts said. “We’re trying to figure out how empowered and included in the process the community is.

The two research teams are working in different phases of remediation. The Milwaukee Estuary was polluted by upstream steel industries in the 1980s, and after years of cleanup, the riverfront is being redeveloped and reoccupied by Milwaukee residents. In the Grand Calumet research area, industries continue to operate, having opted to retrofit their operations to minimize pollution in addition to paying for the cleanup. Cutts and Greenlee predict that local residents may have complicated feelings about the pollution as well as the dredging.

“A lot of times, these industries were or are an active source of employment and other opportunities,” Cutts said. “The promise of jobs convinces people to accept risks that they otherwise wouldn’t, and then they get caught in a system where the only other employers you can attract to your area are similarly polluting ones, because a nice little garden café does not want to be next to an oil refinery.”

“You want industries to move there because you want a job,” Greenlee said, “but they’re also degrading your environment and lowering your property values, so these businesses are both stabilizing and destabilizing at the same time. And that’s part of why we want to look at the cleanup efforts as the same thing—they’re a stabilizing factor, in that they’re creating benefit and capital investment, but they also have the potential to be a huge destabilizing factor economically, socially and politically, in terms of what could happen in these sites now that they’re cleaned up and amenities come in.”

To carry out this research, Cutts and Greenlee established a course titled “Workshop in Urban Environmental Equity” that began this fall.
A new study led by Sheldon H. Jaf- riz Behzad, now an assistant professor in the psychology department, suggests that primary seatbelt use and obesity rates spanning states and across states are related. The study found that states with higher rates of obesity have lower rates of seatbelt use, and vice versa. The researchers recently published their findings in the online journal Obesity Research and Policy.

The researchers note that the link between seatbelt use and obesity rates is significant because it has implications for public health policy. "We show that there may be a direct relationship between seatbelt use and obesity rates," said Jaf- riz Behzad. "This suggests that efforts to increase seatbelt use may also reduce obesity rates."}

**Sealbtails encourage obese drivers to buckle up**

By Liz Ahlberg

Primary Editor

University of Illinois looks to global partnerships

By Mike Heilicher

Primary Editor

University of Illinois looks to global partnerships

**On the Job: Ranae Buck**

By Mike Heilicher

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Primary Editor
For the past few months, the Illinois economy has flirted with recession as the nation’s overall jobless rate has crept above 5 percent. But a new report shows that the state’s economic growth rate is now the nation’s second highest, a rebound from a 2.4 percent slide last year.

A study released last month by the State University of New York at Buffalo found that Illinois has a significant lead in the creation of new jobs and in the rate of employment growth. The report, which analyzed data from the U.S. Bureau of Labor Statistics, found that Illinois added 143,200 jobs in the past year, compared to 67,000 in New York and 27,000 in Texas. The Illinois economy is up 4.5 percent, compared to 3.2 percent in New York and 2.8 percent in Texas.

The study also found that Illinois added more jobs in manufacturing, retail trade, and transportation and warehousing than any other state. Illinois added 4,300 manufacturing jobs in the past year, compared to 1,900 in New York and 900 in Texas. It added 10,800 retail trade jobs, compared to 6,500 in New York and 4,500 in Texas. It added 1,400 transportation and warehousing jobs, compared to 900 in New York and 700 in Texas.

The Illinois economy is also the nation’s second most productive, with a productivity growth rate of 2.4 percent, compared to 2.2 percent in New York and 2.1 percent in Texas. Illinois has a higher concentration of high-tech industries, especially in the areas of biotechnology and information technology, which are driving the state’s economic growth.

The report also found that Illinois has a higher concentration of college-educated workers, with a college attainment rate of 40.5 percent, compared to 38.0 percent in New York and 36.0 percent in Texas. Illinois has a higher concentration of young adults between the ages of 25 and 34, with a population growth rate of 1.2 percent, compared to 0.8 percent in New York and 0.6 percent in Texas.

The report found that Illinois has a higher concentration of high-wage jobs, with an average wage of $27.70 per hour, compared to $26.00 in New York and $24.00 in Texas. Illinois has a higher concentration of high-paying industries, such as finance, insurance, and real estate, which are driving the state’s economic growth.

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Tax benefits for housing not as outsized as previously thought

By Phil Giugni, City Editor

The American tax code treats mortgage interest deduction and the property tax deduction as not as distortive as they were previously believed to be, according to new research co-written by a U. of I. professor of economics.

The new research follows up on previous research done by the Urban Institute and the Brookings Institution and is meant to re-examine the costs and benefits of mortgage interest deductions and other housing tax benefits.

Economists believe it is efficient for government to lower the prices of housing by lowering tax benefits for housing aimed at subsidizing home ownership, but not with the public, Albouy said.

Economists, but not with the public, Albouy said. “When tax benefits for housing were created in the 1960s, the economic treatment of housing would pro-

The next time you hear a comment about the mortgage interest deduction or the property tax deduction, you’ll be able to talk back to the person about the research that found that these tax benefits are not as big as people think.

In this study, the researchers used data from the federal tax return file to estimate the benefits of mortgage interest deductions and the property tax deduction.

The researchers found that the benefits of mortgage interest deductions are about $50 billion per year, which is about 2 percent of GDP. The benefits of the property tax deduction are about $30 billion per year, which is about 1 percent of GDP.

The researchers also found that the benefits of mortgage interest deductions are more concentrated in high-income areas, while the benefits of the property tax deduction are more concentrated in low-income areas.

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Workers in some states subsidize earners in other states

By Phil Ciccarelli
Economics and Law Editor

Sales and right-to-work laws led to lower tax revenues generated by workers in collective bargaining states, says a new study from the U. of I. labor expert.

According to Robert Bruno, a professor of labor and employment relations on the Urbana campus, workers in collective bargaining states are effectively subsidizing the low-wage model of employment in right-to-work states. “Our study found that right-to-work laws weaken state economies and strain public budgets,” said Bruno, also the director of the Labor Education Program in Chicago. “Right-to-work laws not only siphon government revenue in the form of reduced tax receipts, but also increase government spending in outlays for food stamps and the earned income credit.”

 Bruno and study co-author Francis Maffioli, the policy director of the Illinois Economic Policy Institute, investigated the impact of right-to-work laws on wages, employment, tax revenues and government assistance. “The authors found that right-to-work laws:

• Reduce worker income from wages and salaries by 3.2 percent on average.
• Lower both the share of workers who are covered by a health insurance plan by 3.5 percent and the share of workers who are covered by a pension plan by 3.6 percent.
• Reduce union membership rates by 9.0 percent.
• Increase the employment rate (by 0.4 percent), but at the expense of a lower labor force participation rate (by 0.8 percent). While workers in right-to-work states account for just 71.4 percent of all federal income tax revenues, they receive 74.0 percent of all non-health, non-retirement government assistance, the paper said.

“Essentially, what that means is workers in collective bargaining states – New York, California and Illinois, to name a few – are subsidizing the low-wage model of employment in right-to-work states such as Mississippi, Louisiana and Texas.”

Workers in right-to-work states also receive $20,212 in non-health, non-retirement government assistance per dollar of federal income tax contributions, compared with $18,187 per dollar for each worker in collective bargaining states. “It’s clear that workers in right-to-work states are being subsidizing the low-wage model of employment in right-to-work states, that’s likely only because workers need to offset the effects of lower wages,” Bruno said.

“The question for policymakers is whether a small increase in the employment rate is worth a significant decrease in total labor income, a considerable decline in state income tax revenues, even larger drop in federal income tax revenues and an increased erosion of public budgets,” he said.

“Government assistance in the form of food stamps and EITC benefits would have increased by over $440 million during that time,” Bruno said.

Although workers in states with right-to-work laws work slightly more hours per week and pay their counterparts in collective bargaining states, that’s likely only because workers need to offset the effects of lower wages, Bruno said. “The question for policymakers is whether a small increase in the employment rate is worth a significant decrease in total labor income, a considerable decline in state income tax revenues, even larger drop in federal income tax revenues and an increased erosion of public budgets,” he said.

“Ultimately, the negative impact of right-to-work laws work because they are a lack of organizing power, the study also found that a right-to-work policy decreases a state’s labor force participation rate,” Bruno said.

“Working-age residents who drop out of the labor force depend on government assistance, which raise the poverty rate and, in turn, lead to increased government spending on food stamps, as well as a lower share of workers who are covered by a health insurance plan,” Bruno said.

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New ECE Building uses space as educational component

by Mike Helenthal

Mike Helenthal

New ECE Building uses space as educational component

The new building includes a first-of-its kind undergraduate nanofabrication lab to give students hands-on experience with micro- and nanoelectronic devices.


click here to view our online video

Glucose meter provides continuous monitoring

Geologist Robert Bauer on fracturing regulations

By Peter Zseby

3 of 5

Ph.D. geologists at the University of Illinois have been working on the nanofabrication lab to provide students with hands-on experience with micro- and nanoelectronic devices.

Hand-on experience: Students work in the Texas Instruments Electronic Devices Lab, where ECE students take ECE 188.

The nanofabrication lab, which is located in the new Electrical and Computer Engineering Building, uses the concept of space as an educational component.
Study: Hatha yoga boosts brain function in older adults

By Diana Yates

Life Sciences Editor

Hatha yoga, practiced by thousands of seniors at universities and health clubs across the country, may be boosting cognitive performance in the elderly, a new study suggests.

The study found that Hathana yoga, a form of yoga that involves a series of simple postures, improved participants’ reaction time and accuracy in tests of cognitive function.

The researchers, led by Jay Kesan, the H. Ross and Helen Workman Law Professor at the University of Illinois College of Law, say the findings could have important implications for the aging population.

Hatha yoga requires focused effort in moving through the poses, controlling the breath during yoga practice may have generalized to situations outside the yoga classes, resulting in an improved ability to sustain attention.

"Participants in the yoga intervention showed significant improvements in working memory capacity, which involves the ability to hold, manipulate, and retrieve information," Kesan said.

According to a study by Jay Kesan, the H. Ross and Helen Workman Research Scholar at the University of Illinois, an information-sharing framework is necessary to combat cybersecurity threats.

"Cybersecurity is a big deal, and the protection of critical network infrastructure is a matter of national security," Kesan says.

"If nothing else, cyberattacks are very expensive, costing the global economy at least a few trillion dollars per year," according to Kesan. The 12 agencies we work with need support. It's your chance to support charitable organizations.

The Campus Charitable Fund Drive starts September 15, 2014. The annual 8-week employee fund drive to support charitable organizations.

2014CCFD Kick-off and Agency Fair

September 15, 2014 12:15-1:30 p.m. Illini Union, Room C

All employees and retirees are invited to attend and learn more about the 12 agencies we support. It’s your chance to ask any questions regarding your contributions and fill out a pledge form.

Donate or learn more about the agencies at ccfd.illinois.edu

This is an approved event. Your attendance must be approved by your supervisor who will make the decision based on the operating needs of your department.

To deter cyberattacks, build a public-private partnership

By Phil Cirone

Business and Law Columnist

Cyberattacks loom as an increasingly dire threat to privacy, national security and the global economy, and the best way to blunt their impact may be a public-private partnership between government and business, researchers say. But the time to act is now, rather than in the wake of a crisis.

"The goal is to foster trust between the public and private sectors," Kesan said.

According to Kesan, the public sector shares information with the private sector that encourages the private sector to trust the public sector, and vice versa.

"Our proposed framework advances this notion of trust even further by allowing both sides to preserve a degree of secrecy — for example, government secrecy for classified military activities and geopolitical information, and private-market secrecy for consumer information, including information about consumers’ online activities. It functions to assure participants that information shared by one side will be respected," Kesan explained.

Private cybersecurity research could benefit from information about adversarial attempts and details about vulnerabilities uncovered by government agencies, and government agencies could benefit from private information about cyberattacks and the identity and location of vulnerabilities by private firms, researchers say.

Although some existing laws could be revised to implement the proposed framework, "both sides could benefit from information sharing about different security mechanisms and their rates of success. The benefits could be especially true when the programs concern highly classified material," Kesan said.

Previous research has found that voluntary compliance may not be as effective as some thought. "Government intervention with the free market should be minimized, but when cybersecurity issues have implications for national security, some degree of mandatory regulation would be beneficial," Kesan said.

The Obama administration recognized this through the issuance of the executive order on improving critical cybersecurity infrastructure and government has recognized it as well. Unfortunately, cybersecurity has proved to be a much more complex issue than it should be, and Congress has not yet come together to take meaningful steps to protect the cyberinfrastructure.

"SEE CYBERSECURITY, PAGE 19"
### 2013 Campus Charitable Fund Drive

#### Designated Levels of Giving Donors

Some members of the campus community who contributed to the success of last year’s drive are listed here. This list compiled from payroll and fund-drive records at the end of the 2013 Campus Charitable Fund Drive. We apologize if any names were inadvertently omitted. This list is also available at ccfid.illinois.edu.

<table>
<thead>
<tr>
<th>Funding Level</th>
<th>Donor Name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,867 or above</td>
<td>Jennifer Comeau, John Colombo, Martin Camargo, John Braden, Dustin Boyer, Van and Kathy Bowersox, Don and Gail Block, Leanne R. Barnhart, Laura Barnes, Peter Ashbrook, Matthew Ando, Barbara Allen, Barbara Wilson, Loretta Williamson, B. White Joe and Mary White, John Van Es, Walter Tousey, Robert Spitze, Julia Saville, Richard Ross, Robert Pahre</td>
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<tr>
<td>$365 - $499</td>
<td>Barbara Vandeventer, Barbara Trumpinski, Amy Summers, Kathy Sullivan, Susan Steenbergen, David Smith, Paul Schmidt, Anne Sautman, Patricia Sarver, Alfred Roca, Christine Renshaw, Raymond Price, Steven Petruzzello, Craig Olson, Steven Neitzel, Silvina Montrul, Ashley Baldwin, Jason Bailey, Kenneth E. Andersen, Jaclyn Aldridge, Yerkin Abdildin, Sharita Forrest, Increase of 5% or more over the previous year for gifts</td>
</tr>
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Federally-funded stimulus plan helps college affordability

By Sharita Forrest

The federal stimulus-funded plan helped college access and affordability by providing reductions in student financial aid programs, said education policy consultant Jennifer Delaney.

Delaney, who is a professor of education policy and organization at the University of Illinois, said the stimulus funds were mandated to maintain their student financial aid programs while the U.S. limped out of the recession.

Delaney found that geography could be a key factor in affordability because states vary widely in the amounts of need-based financial aid they provide, which ranges from less than $100 per undergraduate FTE in 22 states to more than $525 per FTE student in nine states.

More than 72 percent of the total need-based aid available to undergraduates in the U.S. is disbursed by just nine states—California, Illinois, Indiana, New Jersey, New York, North Carolina, Pennsylvania, Texas, and Washington.

Low-income students also have to compete for need-based aid because laws make them investing greater amounts of money in politically popular merit-based aid programs that award financial aid based on academic performance rather than financial need. Between 2000 and 2001, state investments in merit-based aid programs soared more than 17 percent, while spending on need-based aid programs increased by 44 percent.

“Having separate legislative decision-making and administrative bodies set policies on tuition, state general appropriations, or student aid on their own terms to produce the best policy outcomes,” Delaney, who is a past chair of the Council for Public Policy in Higher Education, an organization within the Association for the Study of Higher Education, said.

“There may be something quite useful about having state and university_everything about all of those things together.”

Delaney’s study is available online and in the September issue of Annals of the American Academy of Political and Social Science.

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College access

The federal stimulus-funded plan helped college access and affordability by providing reductions in student financial aid programs, said education policy consultant Jennifer Delaney.

Delaney, who is a professor of education policy and organization at the University of Illinois, said the stimulus funds were mandated to maintain their student financial aid programs while the U.S. limped out of the recession.

Delaney found that geography could be a key factor in affordability because states vary widely in the amounts of need-based financial aid they provide, which ranges from less than $100 per undergraduate FTE in 22 states to more than $525 per FTE student in nine states.

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**BRIEFS, CONTINUED FROM PAGE 12**

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Smoking cessation program starts Sept. 11

Wellness Center

**Wellness Center**

I Walk challenge returns this fall

The U. of I. Wellness Center is bringing back its popular I Walk challenge this fall. This self-paced program helps employees adopt a walking routine, or expand their existing walking program.

The cost of the program is $25. Employees who attend at least six of the sessions will be reimbursed the cost.

Pre-registration is required. To register or for more information, contact the Wellness Center at ui-wellness@illinois.edu."
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Earth can sustain more plant growth than previously thought

By Diana Yates
Life Sciences Editor

A new analysis suggests the planet can produce much more land-plant biomass – the total material in leaves, stems, roots, fruits, grains and other terrestrial plant parts – than previously thought.

The study, reported in Environmental Science and Technology, recalculates the theoretical limit of terrestrial plant productivity, and finds that it is much higher than many current estimates allow.

“When you try to estimate something over the whole planet, you have to make some simplifying assumptions,” said U. of I. plant biology professor Evan DeLucia, who led the new analysis. “And most previous research assumes that the maximum productivity you could get out of a landscape is what the natural ecosystem would have produced. But these assumptions don’t take into consideration human efforts to boost plant productivity through genetic manipulation, plant breeding and land management,” DeLucia said. Such efforts have already yielded some extremely productive plants.

For example, in Illinois a hybrid grass, Miscanthus x giganteus, without fertilizer or irrigation produced 10 to 16 tons of above-ground biomass per acre, more than double the productivity of native prairie vegetation or corn. And genetically modified no-till corn is more than five times as productive – in terms of total biomass generated per acre – as restored prairie in Wisconsin.

Some non-native species also outcompete native species; this is what makes many of them invasive, DeLucia said. In Iceland, for example, an introduced species, the nookka lupine, produces four times as much biomass as the native boreal dwarf birch species it displaces. And in India, bamboo plantations produce about 40 percent more biomass than dry, deciduous tropical forests.

Some of these plants would not be desirable additions to native or managed ecosystems, DeLucia said, but they represent the untapped potential productivity of plants in general.

“We’re saying this is what’s possible,” he said.

The team used a model of light-use efficiency and the theoretical maximum efficiency with which plant canopies convert solar radiation to biomass to estimate the theoretical limit of net primary production (NPP) on a global scale. This newly calculated limit was “roughly two orders of magnitude higher than the productivity of most current managed or natural ecosystems,” the authors wrote.

“We’re not saying that this is an achievable goal, but the theory tells us that what is possible on the planet is much, much higher than what current estimates are,” DeLucia said.

Taking into account global water limitations reduced this theoretical limit by more than 20 percent in all parts of the terrestrial landscape except the tropics, DeLucia said. “But even that water-limited NPP is many times higher than we see in our current agricultural systems.”

DeLucia cautions that scientists and agroonomists have a long way to go to boost plant productivity beyond current limits, and the new analysis does not suggest that shortages of food or other plant-based resources will cease to be a problem.

“I don’t want to be the guy that says science is going to save the planet and we shouldn’t worry about the environmental consequences of agriculture, we shouldn’t worry about runaway population growth,” he said. “All I’m saying is that we’re underestimating the productive capacity of plants in managed ecosystems.”

The Energy Biosciences Institute, which funded this research, is a public-private collaboration funded with $500 million for 10 years from the energy company BP, and includes researchers from the University of California at Berkeley, the University of Illinois and the Lawrence Berkeley National Laboratory.

ON THE WEB
sustainability.illinois.edu

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