No-till soybean fields give (even some rare) birds a foothold

By Diana Yates
Life Sciences Editor

Researchers report in a new study that several bird species — some of them relatively rare — are making extensive use of no-till soybean fields in Illinois. The team found significantly more birds and a greater diversity of bird species nesting, roosting and feeding in no-till soybean fields than in tilled fields.

The team spent about 13 weeks each spring and summer in 2011 and 2012 scouring a total of 24 fields (12 per year) in two counties in central Illinois. The fields ranged in size from 18 to 20 hectares (44-49 acres) on average, and the researchers walked roughly 3,200 kilometers (1,988 miles) in the course of the study.

The team found more bird nests and greater species diversity in the no-till fields than in the tilled soybeans. Nest losses were high, however. About 80 percent of nests in the no-till fields and more than 90 percent in tilled fields failed as a result of predation or the onset of farm operations before eggs hatched or young birds were ready to fly.

High mortality is fairly common in bird nests, however, and the losses in no-till soybean fields were greater than those seen in pristine grasslands, they were not much worse, the researchers said.

A paper describing the research appears in the journal Agriculture, Ecosystems and Environment.

“I was surprised to see all the different birds that are using these agricultural fields — especially during spring migration,” said Kelly Vanfeek, a wildlife biologist at the Wisconsin Department of Natural Resources who conducted the study while a graduate student at the U. of I. “I was shocked by the variety of sparrows species that we saw — white-crowned sparrows and white-throated sparrows, for example.”

Some of the birds using no-till fields are grassland species that have failed as a result of predation or cultural fields — especially row crops. “This just shows that we do make environmentally friendly paper products.”

Sustainable paper Two professors are using indigenous fibers and agricultural waste to make environmentally friendly paper products. 

Indigenous fibers and agricultural waste to make environmentally friendly paper products.

Bird behavior Many species, including ring-necked pheasants, vesper sparrows and the upland sandpiper, pictured, were found nesting in greater abundance in no-till than in tilled soybean fields. The upland sandpiper is a rare grassland species.

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By Mike Helenthal
Assistant Editor

If the 24 hours that passed on Jan. 8, one hour in particular plays over in an endless loop in the minds of Jason Hart and Dashon Jones.

It’s the hour where they were forced into action to assist a U. of I. building service worker who had collapsed from a heart attack in the meeting room of a work trailer outside Abbott Power Plant.

“We were working on something together and I was walking back and forth between our offices,” said Hart, a nine-year employee and Utilities Pipefitting Foreman for Facilities and Services. “I remember seeing her sitting there, taking a break, but I didn’t see anything out of the ordinary.”

“Then there was this loud banging noise,” said Jones. “It was the hour where they were forced into action to assist a U. of I. building service worker who had collapsed from a heart attack in the meeting room of a work trailer outside Abbott Power Plant.

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“When I got back to her I opened up the AED and turned it on right away,” he said.

The AED is computerized and gives users a simple list of commands for use on a heart attack victim.

“It tells you what to do and how to set it up,” Jones said. “It worked like it was supposed to, but things were just going a thousand-miles-a-minute in my mind.”

At that point firefighters arrived to take over, just as Jones was preparing to use the device on the victim.

“My heart was racing,” he said. “I didn’t have time to think we all thought she was dead.”

“They were great,” said Hart. “I didn’t have time to think we all thought she was dead.”

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Emergency Action Plan submission lagging

by Mike Helenthal

T h e r e are plenty of reasons to complete a building emergency action plan. First, completing the plan is required by law, and therefore, it’s a high priority. Second, it’s a way to meet every- one in your building. And third, the life you save by completing a plan is the life you save. “Considering the nature and frequency of events that have been occurring at schools throughout the country, it’s safe to say we’re seeing senseless tragedies every day,” said Todd Short, a U. of I. police lieutenant and the director of emergency planning in the Division of Public Safety. “We all need to know what to do during a crisis situation.” At the University of Illinois, the small group of public safety employees have been charged with ensuring campus compliance with federal and state law by working with various campus groups to complete individual Building Emergency Action Plans. Once a plan is completed, Short is responsible for training employees to understand the contents on their respective plan. So far, representatives for approximately 180 buildings have submitted a plan. “That’s not a bad number,” Short said, “but with 450 occupied buildings on cam- pus, there’s still a lot of plans that need to be completed.” The numbers are encouraging enough to Chief Police Captain Dusty Rhodes. “Wisely last week, she made a plea to the Senate Executive Committee, asking members to get word out about the importance of the plans in their buildings on campus during an emergency situation. “So far we’ve gotten very little buy-in,” she said. “The number of completed plans on campus recently were subjected to a sur- prise state inspection set up to test their readiness. She said fines for non-compli- ance are reasonable, she said, because some payments will be made 70 years in the fu- ture. By investing a very small amount now, the university expects to pay out over the next 70 years; that amount could be as much as $5 billion. He said the difference is because of how pension fund assets and liabilities are regarded. The amount shown for pension fund as- sets is reasonably close to their current val- uation. This is because there are many complicated factors affecting the university publishes (complicated) docu- ments to obfuscate the budget, said the re- port. “The level in both the Budget Request and Budget Summary (both pages respectively) seems entirely reasonable.” The report said the detail is necessary because of the university’s current financial condition, short with a “vastly complicated” opera- tions of the U of I. The report, which also expounds on other university financial issues including pensions, was requested by SEC Chair and the chair of the SEC Budget Commit- tee. “There have been some concerns that the university publishes (complicated) docu- ments to obfuscate the budget,” said the re- port. “The level in both the Budget Request and Budget Summary (both pages respectively) seems entirely reasonable.” The report said the detail is necessary because of the university’s current financial condition, short with a “vastly complicated” opera- tions of the U of I. 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Easter to better define president’s role for successor search

By Milie Hellenenthal Assistant Editor

Easter said there are plans this spring to introduce a formal campus budget review process that will include the input of campus and faculty leaders. A process already is under way to study the structure of the university’s health system and it was a topic at last month’s board retreat.

With a board point that ties tuition increases and the rate of inflation, lagging state funding, the president said financial planning is more important than ever in preserving the university’s academic mission.

“We do have enough information to make reasonable projections over the next few years,” he said, noting that Pierre is formulating a three-year budget projection.

Easter said he is committed to offering annual merit salary increases for employees, as well as a supplemental pension plan in an effort to remain competitive in hiring top-tier professors. He said the additional money to support those programs would have to come from both inside and outside the university.

“We’re looking for ways to control our costs and increase (funding) opportunities,” he said.

He acknowledged that if the temporary increase in the state’s personal income tax rate expires next year as scheduled, it could lead to “onerous cuts” to the state education budget and further exacerbate the university’s financial challenges.

Easter said he also is working to more clearly define the role of the provost, ahead of a search scheduled to begin later this year for a new president. Easter’s term ends June 30, 2015.

He said faculty members should help lead the search for the next president and that he thinks more clearly defining the expectations of his office will help match the new president to the university’s needs.

“What should (the president) go about doing on a daily basis?” he asked rhetorically.

Easter said his presidency has been heavy on external leadership, considering all the legislative issues affecting the university that have needed attention. He said much of his tenure has found him in Springfield and Chicago, meeting with government and business leaders.

“There is a need for us to be at the table when there are significant conversations going on throughout the state,” he said. “Not being there takes you out of that.”

He said a board of trustees retreat scheduled for July likely would be used to further discuss how to better define the president’s role.

“I don’t think we can be in a holding pattern for the next 1 1/2 years until someone else comes in,” he said.

Chancellor Phyllis M. Wise shared the findings of a report prepared by consultant Business Cluster Development, which she said sums up the Visions of Illinois Excellence theme of economic development.

The report was commissioned by the chancellor’s Economic Development Advisory Group, which is comprised of campus and local business leaders.

Titled “Identification of Technology Clusters for the U. of I.,” the report says that focusing on and developing those clusters can drive both a community and campus that are working in unison.

“Our goal would be to help the whole region grow and become a money generator as opposed to a money user,” she said.

“This study makes it clear that as our campus gets stronger, our ability to attract and retain outstanding faculty – to build broader collaborative networks, and to build our research infrastructure – are also greatly enhanced.”

Naturally occurring local clusters identified in the report include data analytics and management, and computing, biomedical, and bioengineering; and energy.

The report said six key community assets and resources provide a strong foundation for all three clusters. They are: the U. of I., the technical talent pool; the hospitals; the entrepreneurial ecosystem; the Research Park and its already established corporate relationships; and the culture of entrepreneurship in Illinois.

“By and large, the consensus is leveraging the assets and reputation of the U. of I. key to economic development in the community and attracting the targeted clusters,” the report said.

Wisell said developing the clusters through university partnerships and even active business recruitment, he said, would have a positive affect not just on the Central Illinois region.

“If you want flowers to grow in Chicago, you’ve got to keep planting seeds, fertilizing and watering them down here,” she said. “We need to find ways to build in these areas in a complimentary way.”
Board approves increase in tuition, fee, housing rates

By Christy Levy
UIC News

The University of Illinois trustees approved a 1.7 percent tuition increase for incoming freshmen that matches last year’s increase — both the smallest since 1994.

Tuition for the 2014-15 academic year for in-state freshmen increases to $12,036 per year at Urbana, $10,584 at UIC and $9,405 at UIS.

“We are following the board of trustees policy and proposing a tuition increase that is in line with increases of cost of living and inflation,” Christophe Pierre, the vice president for academic affairs, told trustees Jan. 23 at their meeting at UIC.

Under the state’s guaranteed tuition law, passed in 2004, tuition rates are fixed for four years.


John Jordean Dollins, 87, died Jan. 26 at her Champaign home. Dollins worked at the U of I. Memorials: Champaign County Humane Society, cancer.org.

Glenn McLaughlin Jr., 81, died Jan. 18 at Carle Foundation Hospital, Urbana. He retired from the U of I in 2011 after 30 years of service as a building service worker for Facilities and Services. Memorials: American Cancer Society, cancer.org.

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By Christy Levy
UIC News Bureau

A

t the Jan. 22 meeting of the U. of I. Board of Trustees, trustees directed university administrators to seek options for preserving employee retirement benefits in light of recent pension legislation.

The new pension law, passed by the General Assembly on Dec. 3, reduces cost-of-living adjustments, increases the retirement age for some employees and puts a cap on pensionable earnings.

“It is the highest priority for the university to remain competitive in the higher education marketplace, which will require the university to consider implementation of supplemental programs and options to address the changes made by the state’s pension reform,” said a board resolution passed unanimously at the meeting on the UIC campus.

University administrators will make their recommendations to the board before the law’s June 1 effective date.

Two lawsuits have been filed challenging the constitutionality of the pension legislation, which likely will delay that effective date, said Richard Dye, an economist in the Institute of Government and Public Affairs.

The pension law isn’t enough to tackle the state’s budget shortfall, Dye told trustees.

“Even if the law passes constitutional muster, we add a tax on what may be a maintaining higher tax rates, the state still has a sizeable fiscal gap,” he said.

“Pension reform still leaves us in an increasingly unbalanced situation going forward.”

The state faces other fiscal challenges, Dye said, including its high unemployment rate. While the national unemployment rate has declined to 7 percent, the jobless rate in Illinois is currently 8.7 percent, he said.

“There’s slower improvement in Illinois,” he said. “Labor markets are problematic.”

The state has shown a temporary improvement in its delay in paying bills, Dye said, but “the future is ominous.”

The state made the remainder of its fiscal year 2013 payments to the university in September but still owes $366 million of its $669 million fiscal year 2014 appropriation, said Walter Knorr, the university vice president and comptroller.

Board discusses new pension law’s impact on U. of I.

Charles Henry Beigler Jr., 85, died Jan. 18 at the Covenant Medical Center, Urbana. Beigler was a scientific artist for the School of Life Sciences from 1955-1968. Memorials: First Presbyterian Church of Champaign, 302 W. Church St., Champaign, IL 61820.

Alfreda Brent, 81, died Jan. 21 at Carle Foundation Hospital, Urbana. Brent was an extra help food-service worker for University Housing from 1999-2003.

Marianne “Mannie” Brun, 84, died Jan. 6. Brun worked at the U. of I. for 11 years. She helped create the artist-in-resident program at Unit One in Allen Hall and was the program’s director in 1986 when she retired.


John J. Desmond, 87, died Jan. 23. Des- mund worked at the U. of I. for 11 years, re- tiring in 1986 as the associate director of the Engineering Experiment Station at the U. of I. Memorials: Champaign Park District.

Judy Jordean Dollins, 87, died Jan. 27. She was a staff nurse at McKinley Health Center from 1995-2003. Memorials: American Cancer Society, cancer.org.


Paul Edwin Hemp, 91, died Jan. 26 at Pres- ence Covenant Medical Center, Urbana. He was a faculty member for 25 years, retiring in 1983 as a professor and chair of agricultural education in the College of Education. Memorials: St. Peter’s United Church of Christ Endowment Fund, 905 S. Russell St., Champaign, IL 61821, stpetersucc.com.

Betty Marie Kresca, 85, died Jan. 23 at her Champaign home. Kresca worked at the University of Illinois Economic and Business Research from 1940-47. Memorials: St. John Lutheran Church, 509 S. Mattis Ave., Champaign, IL 61821.

Glenn McLaughlin Jr., 81, died Jan. 18 at Carle Foundation Hospital, Urbana. He re- tired from the U. of I. in 2011 after 30 years of service as a building service worker for Facilities and Services.


Henry Raymond “Hank” Spies, 81, died Jan. 23. Spies served on the faculty of the U. of I. Small Homes Research Council for 30 years, retiring in 1990. He was also well known for his monthly radio program on home maintenance and repair on WILL-AM that was broadcast for more than 20 years.

Augusta Bernadette “Bea” Stroza, 85, died Jan. 28 at Carle Foundation Hospital, Urbana. She worked in food service at the U. of I. for 31 years, starting as a cook and later becoming a supervisor for University Housing.

The board approved a three-year con- traction extension for Mike Thomas, the director of athletics, through 2019.

“In his tenure at Illinois, Mike Thomas has kept his focus squarely on the ‘student’ when it comes to our student-athletes,” Chancellor Phyllis M. Wise said. “He has developed a leadership team of coaches, admin- istrators and advancement officers who are dedicated to building a sustainable and nationally recognized program that ensures our student-athletes’ success on the playing field and in the classroom. He understands that the Illinois experience for these stu- dents is one that isn’t measured in years of eligibility but in preparing them for lives of impact.”

Deaths
SAFETY, CONTINUED FROM PAGE 1
Both men had completed CPR training components – Hart through his apprentice-
ship with Plumbers and Pipe Fitters Local 149, Jones while earning his bachelor’s
degree in sports management – as well as
in-house safety training. But neither consid-
ered the likelihood of ever having to use
the training in a real-life situation.
“The training tells you to just go with
the plan and not give up,” Hart said. “The
whole goal is to help as much as you can.
If you were down, you’d want someone to
help you and not give up.”
Paramedics were able to revive the
woman and she was admitted to a local hos-
pital and underwent surgery later that night.
She's still in serious condition and has med-
ical challenges, but doctors are optimistic
about her recovery.
Mike Larson, the director of utility op-
erations for the campus’s Utility and Energy
Services Division, said he was impressed
with the way the men kept cool in such a
high-stress situation – and how they instinc-
tively reverted to their training.
“We really preach the fact that safety
training is a big deal,” said Larson, “but it
has to become a mindset. It's got to be part
of our everyday routine.”
“Once you go through something like
this, you see things differently,” Jones said.
“We don’t know what’s going to hap-
pen, but it has to be part of your culture.”
Larson said safety issues are especially
important for workers at Abbott, many
of whom hold jobs that involve operating
heavy equipment and being placed in poten-
tially dangerous situations.
“In this facility, the potential for danger
is already higher than in most other (build-
ings) on campus,” he said, “but this incident
teaches you there are things you can do on a
daily basis to raise your awareness and look
out for one another.”
Much of the training is required through
state or federal programs. The utilities pro-
duction division of F&S has both a safety
engineer and training coordinator to en-
sure all of those rules and regulations are
followed. To further supplement the staff
training efforts, the department recently
purchased and implemented specialized
training software for Abbott employees that
covers plant equipment and standard oper-
ating procedures, as well as safety topics.
In addition, the department regularly offers
presentations and seminars hosted by sub-
ject matter experts, as well as university
staff members, to keep the information up
to date.
“We’ve been trying to supplement their
training as much as we can,” Larson said.
“Safety is a component of everything we do
and it’s always evolving. I think the culture
here has changed significantly in the last
five or 10 years and our proficiencies have
improved. This incident will help our whole
organization raise the bar.”
One of the safety components involves
a post-incident review where all involved
discuss the incident and how it could have
been managed more effectively. Hart and
Jones agree that, while the outcome this
time was a positive one, there always is
room for improvement.
“One person who didn’t follow the rules
was the one who got injured,” Larson said.
“We've been trying to supplement their
training as much as we can,” Larson said.
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Financials, CONTINUED FROM PAGE 2
Once the recent legislative changes have chal-
 lenged in court.
“We don’t know what’s going to happen,” said Kindt, a professor emeritus of
business and legal policy. “I wouldn’t start
setting (retirement plans) in concrete.”
A recommendation in Sandretto’s report
calls for a closer look at the university’s use
of transfer pricing – the price that one unit
charges another unit for students who take
courses outside their unit.
He said studying the practice and recal-
culating the rate might provide incentives
for campus academic leaders to admit more
(or fewer) students in some colleges and to
offer more (or fewer) courses in some col-
leges. He said the basic method was estab-
lished many years ago and that rates had
been increased over the years.
However, as the system stands, “That
process gives colleges little incentive to ac-
ccept additional students; it also gives them
little incentive to accept students from other
colleges into their most popular courses.”
He said 51 percent of resident tuition
is directly allocated to the colleges, with the
rest going to university administration and
then indirectly reallocated to the colleges.
The rate is 23 percent for nonresident stu-
dents.
“With more revenue directly allocated to
colleges, colleges might decide they are
better off financially if they increase fac-
ulty and admit more students in some de-
partments,” he said, “and better off if they
increase faculty and admit more students
from other departments. It’s something you
could do and some people would look at it
as a learning experience.”
Larson said the experience, especially
the lessons learned from it, would help in-
form and lead future safety training.
“You have a responsibility to point
something out when it doesn’t add up,” he
said. “If you don’t stop and tell a co-worker,
you’ve failed. If you’ve learned something
and don’t go and implement it, you’ve
failed. The training gave these guys the con-
fidence to act.”
Jones and Hart recently were rewarded
for their efforts following a happy reunion
with the woman’s grateful husband.
“When he came in he gave us both a big
hug,” Jones said. “He said he was happy we
were there and took action.”
Financials
Once the recent legislative changes have
challenged in court.
“We don’t know what’s going to happen,” said Kindt, a professor emeritus of
business and legal policy. “I wouldn’t start
setting (retirement plans) in concrete.”
A recommendation in Sandretto’s report
calls for a closer look at the university’s use
of transfer pricing – the price that one unit
charges another unit for students who take
courses outside their unit.
He said studying the practice and recal-
culating the rate might provide incentives
for campus academic leaders to admit more
(or fewer) students in some colleges and to
offer more (or fewer) courses in some col-
leges. He said the basic method was estab-
lished many years ago and that rates had
been increased over the years.
However, as the system stands, “That
process gives colleges little incentive to ac-
ccept additional students; it also gives them
little incentive to accept students from other
colleges into their most popular courses.”
He said 51 percent of resident tuition
is directly allocated to the colleges, with the
rest going to university administration and
then indirectly reallocated to the colleges.
The rate is 23 percent for nonresident stu-
dents.
“With more revenue directly allocated to
colleges, colleges might decide they are
better off financially if they increase fac-
ulty and admit more students in some de-
partments,” he said, “and better off if they
increase faculty and admit more students
from other departments. It’s something you
may want to look at because transfer prices
influence behavior.” Several committee
members pointed out that tuition revenue is
substantially less than published because of scholarships and other grants, which reduce
tuition income. They also pointed out that
the scholarships and grants have increased
substantially in recent years.
Major discussion topics on the Feb. 10
senate agenda include an update on the univer-
sity’s foray into massive open online
courses and a proposal by the Office of the
Provost that would make changes in the
campus policy on Specialized Faculty.

Ads removed for online version
Cultural sensitivity necessary for global business leaders

By Phil Ciciora
Business and Law Editor

Global leaders must adapt their behavior to the country in which they are doing business or risk being perceived as ineffective and unable to handle complexity, change and ambiguity, says a paper co-authored by a U. of I. business professor.

With different cultures placing different relative value on certain leadership behav-
iors, styles, cultural sensitivity and a holistic approach to people are necessary qualities for executives working outside the U.S.,说Anupam Agrawal, a professor of business administration at Illinois.

"Most major firms are grappling with this issue – how to have managers and lead-
ers at all levels perform well at the individ-
ual, classroom and family levels.

For aspiring global leaders, the key take-
away from the research is that leadership
tends to be much more effective as a leader, where

Global leaders. Cultural sensitivity and a holistic approach to individuals are necessary qualities for executives working abroad, says Anupam Agrawal, a professor of business administration at Illinois.

By Sharita Forrest
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A new monograph, co-edited by an ex-
pert in early childhood special education at the U. of I., presents research-based prac-
tices that families, teachers and practitio-
ers can use to address and prevent problem behaviors.

"Challenging behavior" can take a va-
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scribe actions that pose potential injury to
the child or others, cause damage to the
physical environment, interfere with skill
development and preventing challenging
behaviors.

"We wanted to answer the question, 'Do
global leaders always perform in the same
different leadership behavior patterns
from their counterparts in the West-
ern Hemisphere?"" Agrawal said. "As an
input, 360-degree feedback is useful in
that it allows us to evaluate global leader-
ship behaviors from multiple perspectives:
from peers, subordinates and superiors.

Regardless of where the behavior mani-
ysts themselves, prevention and intervention
strategies are a significant concern for edu-
cators and families worldwide. According
to Michaelene M. Ostrosky, a co-editor of the
monograph.

"We're not saying this certain character-
istic is good or bad – our focus is on ex-
ploring comparative leadership from differ-
cultures," he said. "To be an effective
global leader, it's imperative to be mindful
of something called a cultural context. If
you're not cognizant of that, chances are
that you might not be an effective leader.

Agrawal said the key take-
away from the research is that leadership
is culturally and context-driven. Agrawal
said, "It's not something that's developed in
isolation," he said. "It's not something that
can be deployed everywhere in the same
way, because it doesn't work that way."

According to Agrawal, the research is especially relevant to successful employees
who work for large, multinational firms.

"As businesses are becoming more glob-
al, the chances are good that if you wish to
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for an extended period of time," he said.
"There's a much greater need for peo-
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The paper will be published as a chapter
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Challenging behavior. A new monograph, co-edited by Michaelene M. Ostrosky, an expert in early childhood special education at Illinois, presents research-based practices that families, teachers and practitioners can use to address and prevent problem behaviors.

Model, which promotes social-emotional skills, and Prevent-Teach-Reinforce for Young Children, a practice that focuses on positive behavior support techniques for toddlers and preschoolers. Along with de-
tailed explanations of the interventions, au-
ths provide guidance on implementation and assessment.

All of the researchers emphasize the importance of forming collaborative part-
tnerships between families and educators
to develop interventions that are consistent with each family’s goals and priorities for their child.

Additionally, the significance of design-
ing culturally responsive behavioral sup-
pport systems, and the role of arts therapies,
Barton and Rashida Banerjee, faculty mem-
ers at the University of Colorado-Denver and the University of Northern Colorado, respectively.

Ostrosky is a co-author of an article that recommends strategies that early childhood teachers can use to help children understand and accept classmates that exhibit problem behaviors. In addition to classroom-based activities for students, the authors recom-
mended teachers to consider how their beliefs, attitudes and responses may influence students’, families’ and col-
leagues’ perceptions.

Ostrosky and co-authors SeonYeong Yu
and Lori Erbедерis Meyer also offer guid-
ance on communicating with parents to pro-
mote understanding of inclusive education
and the importance of respecting differing abilities and cultures.

"Addressing challenging behavior is a significant concern of educators, families and practitioners," Ostrosky said. "The monograph conveys evidence-based practices in an accessible format and offers guidance on how to implement them. It also provides readers with an index of free, on-
line resources."
Campus Community,

Our 2013 Campus Charitable Fund Drive (CCFD) was highly successful with over $1.3 million raised for local, national, and global charities. An increase of $34,035 in gifts over 2012 totals demonstrates the compassionate spirit and continued generosity of our campus. I am deeply grateful for the support of a broad range of donors including faculty, staff, and retirees without whom the success of our 2013 fund drive would not have been possible. Gifts to the eleven participating agencies benefit our community in countless ways, providing support to those who need it most.

I would like to thank the volunteer unit and section leaders who worked tirelessly throughout the drive to coordinate our efforts, assisting and encouraging donors. The CCFD Advisory Board would also like to thank the Office of the Chancellor, which provides financial support for the drive, ensuring that every dollar pledged goes directly to charitable agencies. Finally, I am grateful to the hard-working staff of participating agencies that insure gifts reach people in need.

With sincere appreciation,

Ed Slazinik
Chair, CCFD Advisory Board
Associate Vice Chancellor and Director, Auxiliary Services
Office of the Vice Chancellor for Student Affairs

Plan Now: CCFD 2014 is September 8 - November 7

ccfd.illinois.edu

Sponsored by the Office of the Chancellor and managed by the Office of Public Engagement at the University of Illinois at Urbana-Champaign, the Campus Charitable Fund Drive is the annual, eight-week employee fund drive that supports charitable organizations.
**Illinois team seeks source of body louse pathology**

By Diana Yates  
*Life Sciences Institute*

A new study seeks to determine how one parasitic species can give rise to two drastically different outcomes in its host. The human body louse (Pediculus humanus) can transmit dangerous bacterial infections to humans, while the human head louse (Pediculus humanus capitis) does not.

From the journal *Insect Molecular Biology*.  
*Body louse-transmitted diseases include trench fever, relapsing fever and epidemic typhus,* said U. of I. entomologist professor Barry Pittendrigh, who led the research. In a previous study, Pittendrigh and his colleagues compared the sequences of all protein-coding genes in head and body lice and determined that the two belonged to the same species. However, they had a long-term goal of trying to solve this question of why body lice transmit bacterial diseases and head lice don’t, Pittendrigh said.

*In the new study,* Clark’s group infect- ed head and body lice with Bartonella quintana, which causes trench fever. Pittendrigh’s lab then looked at gene expression in each to see how the bacteria, and the infection progressed further in body louse over time.

*By eight days post-infection, head lice had killed or contained the invading *B. quintana,* whereas the bacteria were still proliferating and spreading in body lice,* the researchers reported.

*The team cannot yet say why head and body louse immune responses differ from one another,* but Pitteindrigh hypothesizes that the body louse has a reason to be more tolerant of bacterial infection.

*Head and body lice have beneficial bac- teria living inside them,* he said. *These bacteria make vitamins that the lice need to grow and survive. Body lice tend to grow larger than head lice, and that strategy has led them to evolve different immune systems.*

*So body lice may grow bigger, but they also are more likely to get sick with the bugs than head lice,* Pittendrigh said.

**Illinois art professors talk about their hopes to revolutionize the paper industry with paper made from prairie grasses and agricultural waste.**

By Dudy Rhodes  
*Arts and Humanities Editor*

*In their pole barn studio, they file samples of each type of paper they’ve produced, along with meticulous “recipes” of the fiber blend. Cooking and beating times, with test results indicating how the paper responds to various printing processes and inks.*

“We can use our papers for screenprint, letterpress, inkjet printers, digital offset printers and Xerox GEn, so I think it has contending viability in the marketplace,” Benson said. “The fiber sources, however, was a just the first step of the transformation. Benson and Kostell constantly tweak the entire paper-making process to make it as enviromentally sustainable as possible. It begins at the U. of I.’s Sustainable Student Farm, where farm director Zack Grant supplies them with bales of agricultural waste. Instead of using additives to bleach their fibers, they lighten the color through “ultraviolet bleaching” (letting vines sit out in the sun) or blend it with naturally white cotton fiber (scaps from a textile manufacturer’s waste stream). They also produce papers with earthly hues instead of bright white. “There are all these beautiful tones that people could be using,” Kostell said, “especially if they’re not doing much with bright printing ink on it.”

*The grasses, vines and stalks have to be dried, chopped and then boiled with soda ash to neutralize the acids and ecoclnor the paper as a whole.*

*They have already produced a variety of papers using prairie grasses, soybeans, toma- tos and sunflower stems, as well as rye, Miscanthus giganteus and big bluestem prairie grass.*

*A new papermaking method is being developed that uses Illinois Native grasses and agricultural waste to make paper products,* Pittendrigh said. “We’re really interested in changing the system of papermaking,” Benson said. “Currently, the system is based on harvest- ing trees, and we find that to be a very un- environmentally friendly method of paper- making.”

“We want what we do to is cause a para- digm shift in where our fibers come from and responsible use of materials,” Kostell said.

**Their project has received grants from the U. of I.’s Student Sustainability Com- mittee, the Campus Research Board, and the College of Fine and Applied Arts. Fresh Press won a 2013 (Re)Design Award from AIGA, the professional association for design. They have fulfilled commissions from the U. of I.’s Rare Book and Manuscript Li- brary, Krannert Center for the Performing Arts and the office of the university presi- dient. Their largest job so far was producing more than 250 sheets of 12-by-18 inch prai- re grass paper for the Student Stabilizab- ity Committee. The paper was sent to the university’s document services shop, where a Xerox GEn quartered and trimmed the sheets, yielding more than a thousand cards.**

Benson and Kostell believe their venture could eventually aid the local economy by paying farmers for their agricultural waste. “Using that existing stream of fiber will be a lot more of a socially and environmentally friendly way of stewarding the land,” Ben- son said.  

**New study**  
*Entomology professor Barry Pittendrigh and his colleagues analyzed the factors that make human body louse susceptible to bacterial infections, which they can pass to their hosts.*

*photo by L. Brian Stauffer*

*Their team cannot yet say why head and body louse immune responses differ from one another,* but Pittendrigh hypothesizes that the body louse has a reason to be more tolerant of bacterial infection.

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*So body lice may grow bigger, but they also are more likely to get sick with the bacteria than head lice,* Pittendrigh said.  

**The study also includes research- ers from Purdue University, Seoul National University, the University of California at San Francisco, the University of Massachu- setts and the U. of I. department of animal biology.**

**One species, two outcomes**

*The human head louse, left, and body louse, right, are the same species, but differ in their ability to transmit disease to their host.* Researchers now think they know why.

**Paradigm shift**

*Steve Kostell, left, and Eric Benson, professors in the School of Art and Design, hope to change the paper industry with their Fresh Press project, using indigenous grasses and agricultural waste to make paper products.***

**ON THE WEB**

Illinois art professors talk about their hopes to revolutionize the paper industry with paper made from prairie grasses and agricultural waste.

[go illinois.edu/fresh_press](http://go.illinois.edu/fresh_press)

** graduate research assistant for the University of Massachusetts, on the molecular biol- ogy and genomics of head lice. Clark was a lab- orator on the 2012 study, and the two have had “a long term goal of trying to solve this question of why body lice trans- mit bacterial diseases and head lice don’t,” Pittendrigh said.

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Munching microbes dominate deep sandstone formations

By Diana Yates

Living in underground environments are organisms that thrive in extreme conditions, such as high pressure, low oxygen, and utter darkness. These microorganisms have adapted to survive in these hostile environments, and recent research has revealed the existence of a new species of these resilient dwellers.

**Halomonas** bacteria are a hardy breed of bacteria. They have been discovered in the deep sandstone formations of the Illinois Basin, a vast, subterranean bowl that covers parts of Indiana, Kentucky, and Tennessee. These bacteria are a hardy breed of bacteria that thrive in extreme conditions, particularly in environments with low oxygen and high pressure.

**Fouke** and his colleagues have been exploring these subterranean environments for the past decade. They have found that these bacteria are capable of metabolizing aromatic compounds, which are common components of petroleum. This discovery is significant because it suggests that these bacteria may help in the exploration and recovery of oil and gas resources.

**Fouke** noted that these bacteria are capable of surviving in environments that would kill most other organisms. They have adapted to these conditions by developing unique metabolic pathways that allow them to thrive in the absence of oxygen.

**The research team** has also discovered that these bacteria are capable of forming biofilms, which are clusters of microorganisms that can protect them from harsh environmental conditions. This finding is important because it suggests that these bacteria may be able to form communities that can work together to produce fuel or other valuable products.

**Fouke** and his team are currently working on developing technologies that will allow these bacteria to be used in industrial processes. They believe that these bacteria could be used to produce biofuels, bioplastics, or other valuable products.

**Fouke** stressed the importance of continuing to explore these subterranean environments. "We are using new DNA technologies to understand the distribution of life in extreme environments," said study leader Bruce Fouke, a U. of I. professor of geology and of microbiology, and an affiliate of the Institute for Genome Biology at Illinois.

**Fouke** said that these bacteria are known as "micro-organisms with a whole world of possibilities." They have the potential to change the way we think about the role of microorganisms in our environment.

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Off-the-shelf materials lead to self-healing polymers

By Liz Allmarg
Physical Sciences Editor

The key advantage of using this material is that it’s catalyst-free. So they don’t have to store or transport any dangerous chemicals. Moreover, the new systems are solid, strong, and can be healed multiple times,” Cheng said. “These are very nice materials for internal cracks. This can heal the crack before it causes major problems by propagating.”

Other self-healing material systems have focused on solid, strong materials. However, the new study uses softer elastic materials made of polyurea, one of the most widely used classes of polymers in consumer goods such as paints, coatings, elastics and plastics.

After the polymer is cut or torn, the researchers press the two pieces back together and let the sample sit for about a day to heal – no extra chemicals or catalysts required. The materials can heal at room temperature, but the process can be sped up by curing at slightly higher temperatures (37 degrees Celsius, or about body temperature). The polymer bonds back together at the molecular level nearly as strongly as before it was cut. In tests, the bond was as strong as before, and the samples had healed completely.

The researchers use commercially available ingredients to create their polymer. By slightly tweaking the structure of the molecules that join up to make the polymer, they can make the bonds between the molecules stronger so that they can more easily pull apart and stick back together – the key for healing. This molecular-level re-bonding is called dynamic chemistry.

Dynamic chemistry has been explored in some other polymers, but those materials tend to be for specialized applications or laboratory settings, rather than the conventional polymers used commercially. By focusing on consumer materials and using readily available ingredients, the researchers hope that manufacturers could easily integrate dynamic materials. “We just buy commercial materials and mix them together, no fancy controls or special apparatus,” Cheng said. “It’s a very simple, low-cost, inexpensive process. Anybody can do this on any scale.”

Now that they’ve established the chemistry required, the researchers are exploring how dynamic polyurea could behave differently for different applications. For example, they could fine-tune the mixture so that a polyurethane coating or paint could be removable. “In some areas, when it’s not necessary for the coating to be permanent and you want it to be removable, this chemistry may be applied to existing coating materials to make it reversible,” Cheng said. “In general, polyurea and polyurethane are widely used. This chemistry could modify existing materials to make them more dynamic, healable.”

High honors. Roger Ebert, the late Pulitzer Prize-winning film critic for the Chicago Sun-Times and co-lead of the popular review program “Siskel and Ebert at the Movies,” has been chosen by U. of I. journalism faculty members to receive the 2014 Illinois Prize for Lifetime Achievement in Journalism.

On the Web
media.illinois.edu/ journalism/Illinois-prize

Self-healing. A close-up of an elastic polymer that was cut in two and healed overnight.

Ebert honored with lifetime journalism achievement award

By Craig Chamberlain
Social Sciences Editor

Roger Ebert, who was a Pulitzer Prize-winning film critic and journalist for the Chicago Sun-Times, as well as an influential and groundbreaking film critic on television, will be honored posthumously with the 2014 Illinois Prize for Lifetime Achievement in Journalism. Ebert also was a lecturer on film for the University of Colorado at Boulder. In 2001, he received the highest honor bestowed by the state of Illinois, the Orson Welles Medal, an award that recognizes a contributor to film in Illinois.

The National Science Foundation and the National Institute of Health supported this research.

Cheng also is affiliated with the departments of chemistry and of bioengineering, the Beckman Institute for Advanced Science and Technology, the Institute for Genomic Biology, the Frederick Seitz Materials Research Laboratory and the Micro and Nano Technology Laboratory at the U. of I.
Russia expert Diane Koenker on the Winter Olympics at the beach

Editor's note: The Winter Olympics coming Feb. 7 to Sochi, Russia, are the most expensive by far (more than $50 billion), perhaps the most vulnerable (due to terrorist threats from a nearby insurgent region) and the first to be held at a beach resort (it's Russia's version of Florida, though there are ski slopes inland from the coast). Illinois History chair Diane Koenker, an expert on the Soviet Union and modern Russia, knows Sochi well from research for her recent book "Club Red," which chronicled the history of the Soviet vacation system, of which Sochi was the crown jewel. She spoke with News Bureau social sciences editor Craig Chamberlain.

Given the terrorist threat from the nearby North Caucasus region and Sochi's sub-tropical climate, why would the Russians even consider the city as the site for a winter games?

For Soviet citizens, beginning in the 1930s when Soviet Premier Joseph Stalin made it his vacation home, the resort at Sochi represented a magical medical playground. Soviet vacations emphasized the purposefulness of medical therapy and culture, and the pleasure of rest and luxury. Sochi gained the aura of a mystical, Shangri-La-like destination, with its combination of sub-tropical coastline and the majestic Caucasus mountains, with a monumental architecture that incorporated exotic Eastern motifs.

Filmmakers loved to shoot their films in Sochi, cosmonauts recuperated from their space trips there, foreign dignitaries were treated to its spa treatments, and athletes began to train there. It was the one place everyone dreamed of visiting, even if just once in their lives. Russian President Vladimir Putin continued the tradition by establishing his own vacation residence in Sochi, and by skiing the slopes of Krasnaya Polyana, a mountain valley 28 miles from the Black Sea, at an elevation of 1,840 feet. For Russians, Sochi is Switzerland and the Riviera rolled into one, and they feel it is unique in the world.

How real is the threat of violence? What's the source of grievance of those threatening terrorism?

The threat of violence is very real, but the security measures in and around Sochi are extremely tight, with about 100,000 security troops and police in the Olympic areas and in the town. Terrorists will be unlikely to strike in Sochi itself, but there are many "soft targets" in Russia within easy reach of the terrorist groups operating in the Caucasus.

The grievances underlying this terrorism go back to the 1800s, when the Russian tsarist government forcibly annexed the Caucasus region. Hundreds of thousands of native Circassians were forced into exile, living today in Syria and Turkey. Stalin considered many of the peoples of the Caucasus potentially disloyal and had them forcibly relocated during World War II – this included the entire population of Chechnya, who were eventually permitted to return.

Since the end of the Soviet Union, there have been numerous separatist movements in the Caucasus – in Chechnya, Dagestan and elsewhere – that are using violence and terror to intimidate the Russian regime into granting them independence. Putin owes much of his own popularity as president to his strong stance against these separatists.

Putin has been at the center of almost everything connected with these games, from selling Sochi as a site to supplying the massive funding, and the apparently massive corruption that went with it. What does his role, and the process, say about the state of Russia and its politics?

Speaking of the Olympic games in 2006, a Sochi taxi driver told me, "If Putin wants it, it will happen." Putin has amassed great popular authority because he led the country in its recovery from the crisis years of the 1990s under Boris Yeltsin, when Russia's economy and international prestige plummeted.

But Putin has not modernized Russia's political system even while his authority has increased. It is a system based on informal networks of power, including close relations among the government, state-owned enterprise and private enterprise. We see in Sochi how this has led to extraordinary corruption, with huge cost overruns lining the pockets of Putin's friends and allies. It is a system that prioritizes short-term profit at the expense of long-term economic sustainability, and personal loyalty at the expense of professionalism.

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What’s at stake for Putin in the outcome of these games? For Russia?

For Putin and for Russia, the games are meant to demonstrate that “Russia is back” in its role as an economic and political superpower. “Russia is a land of possibility” is their new slogan, and the Sochi Olympics are designed to show that anything is possible in Russia. Whatever they decide to do, they can do: build stadiums and railroads, and mount lavish spectacles. A successful, peaceful Olympics will reinforce Putin’s authority at home and in the region, and Putin believes that this will show the world that Russia deserves and commands respect.
Archaeological science featured Feb. 21

The Illinois State Archaeological Survey and the Program in Archaeological Technologies and Archaeological Materials will host the third Science and Archaeology Symposium from 8:30 a.m.-4:30 p.m. Feb. 21 on the third floor of Levis Commons.

Archaeological science, or archaeometry, is the interface between archaeology and the natural and physical sciences. This interdisciplinary field encompasses both the study of early human behavior and cultural history (e.g., flint knapping, pottery, metalworking, etc.) and analyses of archaeological and historic materials using modern instrumental techniques. Research and applications include isotopic and chemical analyses of ceramic and metal artifacts, and the use of molecular, compositional and sourcing studies, ancient DNA evidence of population history, remote sensing and satellite imaging, and 3-D imaging and digital-enhancement methods.

The symposium will provide an opportunity for students and professionals in archaeology and other fields to share information about their research projects. The symposium will include 15-minute paper presentations and a poster session. The schedule of papers with abstracts is available online at www.isas.illinois.edu/atam/2014.html.

For questions about the symposium or the ATAM program, contact Kristin Hedman at khd151@illinois.edu.

Child Development Laboratory

Tours offered for child care programs

The Child Development Laboratory is accepting applications for the 2014-15 school year. Full-day child care programs for children ages 6 weeks to 4 years are open in session from 7:30 a.m. until 5:30 p.m. Monday through Friday.

Tours of both facilities are offered each week. Hourlong tours depart from the lobby of the Early Child Development Lab Wednesdays at 3:30 p.m. and Thursdays at 9:30 a.m. Use the Library entrance at the corner of White and Sixth or the Jimmy John's parking lot. There are no tours during the enrollment month of May.

To complete an online enrollment application, go to childcare.illinois.edu. For more information or to schedule a tour, call 217-333-2550. For full consideration, applications should be submitted by May 15.

Illinois Program for Research in the Humanities

Prizes for humanities research offered

The Illinois Program for Research in the Humanities has distinguished the Urbana-Champaign community from most other communities in America’s Midwest,” according to Schwa

The Illinois Program for Research in the Humanities has recognized outstanding humanities research in numerous ways during its 16-year existence. The IPRH Prizes for Excellence honor faculty members, graduate students and undergraduate students whose excellence in the humanities, scholarship, and submissions and nominations are being solicited for the 2013-14 academic year. These prizes recognize outstanding humanities research at the U. of I. and provide support for the many music ensembles and performers that were recorded by Pogo Studio will provide scholars with tremendous primary source information about America’s popular music culture between 1983 and 2013,” Schwartz said.

Student Employee of the Year

Contest to recognize student employees

Each year, the Office of Student Financial Aid coordinates the U. of I. Student Employee of the Year contest and recognition event. Both are designed to recognize outstanding contributions made by the more than 10,000 undergraduate students employed on campus. At the event, the U. of I. Student Employee of the Year, a runner-up and two honorable mention winners are announced along with the Champaign Urbana Research and Development Tour Guide program.

At the event, the U. of I. Student Employee of the Year receives a scholarship and is considered for state, regional and national recognition.

Endnotes

1. This interdisciplinary field encompasses both the study of early human behavior and cultural history (e.g., flint knapping, pottery, metalworking, etc.) and analyses of archaeological and historic materials using modern instrumental techniques. Research and applications include isotopic and chemical analyses of ceramic and metal artifacts, and the use of molecular, compositional and sourcing studies, ancient DNA evidence of population history, remote sensing and satellite imaging, and 3-D imaging and digital-enhancement methods.

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- Student Employee of the Year
A new exhibition at the University YMCA’s Murphy Gallery explores the experiences of LGBTQ clergy and religious leaders from many traditions and denominations. “We Have Faith: Lesbian, Gay, Bisexual and Transgender People of Faith Speak Out” is the latest touring photo-text exhibition created by Family Diversity Projects. The exhibit includes interviews by Peggy Gillespie of leading LGBTQ clergy, allied people and people of faith, with photographs by Gigi Kaeser.

The exhibit will be on display through March 2.

BRIEFS: CONTINUED FROM PAGE 12

Student’s photographs featured

The Illini Union Art Gallery will host an opening reception for the exhibit “The World Through My Eyes,” by Wendy Zhao, at 5 p.m. Feb. 7. Light refreshments will be served.

Zhao is a doctoral candidate in the School of Architecture at Illinois. She earned her master’s degree in architecture at the University of Wisconsin-Madison and a bachelor of fine arts degree at the University of Illinois at Chicago. Zhao has traveled extensively and pursued her passion for photography during her extensive travels.

The exhibition is a comprehensive view into the various towns and locations she has explored. Each photograph represents a city or village she has visited, accompanied by a personal narration of the experience.

The exhibition will be on display through Feb. 28. This is a free show open to the public. The art gallery is located on the northwest wing of the building.

Illinois Program for Research in the Humanities

Reading groups wanted for 2014-15

The Illinois Program for Research in the Humanities invites applications from continuing and new reading groups for the 2014-15 academic year. Reading Groups may be formed around any topic or theme and need not be coordinated with any IPRH theme. IPRH will circulate information about the reading groups to the campus community to widen the reach of the groups and attract new members. In addition, IPRH offers its seminar space for use by those groups. Each reading group will be responsible for its own administration, including all clerical and meeting-related activities and the distribution of readings and publicity materials.

Reading groups that want to be included in the IPRH publicity materials must apply no later than May 15. To apply, send a Word document to iprh@illinois.edu with the names, departmental affiliations and email addresses of the group’s organizers along with a short statement (maximum 75 words) describing the goals of the group and a brief outline of the proposed activities.

Spice Box

Dinners hosted by students, guest chefs

During the Spice Box’s 2014 season, U. of I. hospitality management students and guest chefs from around the country will offer food and restaurant concepts often not experienced in Central Illinois.

The 18 nights of unique dining experiences begin Feb. 7. The program includes an introductory BBQ, which can be enjoyed on Wednesday and Friday evenings throughout the semester.

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These themes include It’s Amore: Italian Inspired Cuisine, Into the North: Cuisine from the Northwoods, and Backyard BBQ, which can be enjoyed on Wednesday and Friday evenings throughout the semester.

A complete list of the dates of the meals, meal themes and guest chefs is available on the Spice Box website at spicebox.illinois.edu. Full menus will be posted there as they become available. Email Craft, jmr06@illinois.edu, to be placed on an email list to receive updates on upcoming events.

Each dining event offers either a four-course meal – including salad, appetizer, entrée and dessert – or a two-course salad-and-entree combination. A specialty alcoholic beverage and a regular wine list also are offered.

Prices vary according to menu. Meals are available by reservation only with seatings available at 5, 5:30, 6, 6:30, 7 and 7:30 p.m.

To make a reservation, call 217-333-6520.

Support for weight loss and quitting smoking

Wednesday Center classes start Feb. 18

Stay on track with your wellness resolutions with two classes offered by the U. of I. Wellness Center Classes are available for employees and their partners.

Healthy Weigh, a weight-management program, will meet Tuesday evenings from 5:15-6:15 beginning Feb. 18. Led by a certified health educator and registered dietician, this program empowers people to lose and maintain weight safely and effectively. The program includes skill building sessions, kitchen demonstrations, personalized food analysis, dietary consultations and the Healthy Weigh manual. Participants will learn how to set a healthy rate of weight loss, master portion control, maximize success by keeping a food log, create realistic goals, become active, and shop, cook and eat healthfully.

Ebertfest

Documentary about Ebert to be shown

The new documentary “Life Itself,” about the life of Roger Ebert, will be one of 12 films shown at this year’s Roger Ebert’s Film Festival, or “Ebertfest,” coming April 23-27 to Champaign-Urbana.

Premiering at the Sundance Film Festival last month, “Life Itself” was directed by documentary filmmaker Steve James (“Hoop Dreams”) and is based on Ebert’s 2011 memoir of the same name. It features interviews with more than two dozen of Ebert’s lifelong friends, professional colleagues and filmmakers, including Ramin Bahrani, Werner Herzog and Martin Scorsese.

“Roger Ebert and I first championed my film, ‘Hoop Dreams,’” which was essential to its success,” according to James, in an open letter for The Daily Beast. “With the same spirit in which Roger shared so much of his life with his fans and followers, we hope to build a community for this film where people can participate in the celebration of Roger’s legacy and impact on all of us.”

“Many know Roger’s story to be inspiring,” James wrote. “But he was also a flesh and blood man whose life was full of humor, hubris and his own share of heartbreak.”

See BRIEFS, PAGE 14

Renowned scientist Gene E. Robinson to deliver CAS lecture Feb. 19

Gene E. Robinson, the Swalland Chair of entomology and director of the institute in genetic Biology at the U. of I., has been selected to deliver the Center for Advanced Study’s 23rd Annual Lecture, continuing the center’s tradition of showcasing outstanding scientists and scholars. Robinson’s lecture, which begins at 7:30 p.m. Feb. 19 at Spurlock Museum, is free and open to the public.

Robinson’s research focuses on how genes, hormones and neurochemicals influence the evolution of social behavior, using the Western honey bee as his principal model system. He leads the Honey Bee Genome Sequencing Consortium and the Illinois Bee Research Facility.

In his lecture, titled “Me to We: Searching for the Genetic Roots of Sociality,” Robinson will use the honey bee and related species to demonstrate how researchers who have used genomics to study the social life of insects have illuminated the molecular basis of how social insects regulate selfish behavior. They also have documented connections between socially responsive genomics and human health.

Robinson has received Fulbright and Guggenheim fellowships, a National Institutes of Health Pioneer Award, and the Animal Behaviorist award. He is a member of the American Academy of Arts and Sciences, the National Academy of Sciences, and the American Society of Evolutionary Biologists. He has written or co-written more than 250 publications, and has been named a University Scholar and a G. William Arends Professor of Integrative Biology.

The Center for Advanced Study supports and promotes exemplary scholarship in all areas of knowledge at the University of Illinois at Urbana-Champaign. Read more about the CAS lecture at artsandsciences.illinois.edu.

ON THE WEB cas.illinois.edu
EJP information fair is Feb. 27

The Education Justice Project, a unit of the College of Education, provides upper-division undergraduate courses on everything from architecture and economic theory to philosophy and world history at Danville Correctional Center, a state prison for men about 35 miles east of the U. of I. campus. EJP is accepting applications for course instructors (computer, math, mindfulness, science and writing), ESL teachers and computer lab support for the fall. All positions are volunteer.

EJP will host an information fair from 4-6 p.m. Feb. 27 in the north lobby of the Education Building. The deadline for applications is March 3. For more information or to download an application form, visit educationjustice.net. Founded in 2006, EJP’s prison programming is augmented by services for families of current EJP students and community events on the U. of I. campus. Members regularly produce critical scholarship about prison education as part of a continuing mission to demonstrate and document the positive effects of college-in-prison programs.

The “Life Itself” screening is sponsored by Steak ‘n Shake, a longtime Ebertfest sponsor and the subject of a chapter in Ebert’s book.

Ebertfest is a five-day film festival that annually has showcased 12 to 14 films that Ebertt, a 1964 Illinois journalism graduate, believed had been overlooked by audiences, critics or distributors. Ebert died on April 4, 2013.

Presented through the College of Media at Illinois, the festival will be hosted, as in recent years, by Ebert’s wife, Chaz. All films are screened at the 1,500-seat Virginia Theatre, 203 W. Park Ave. in downtown Champaign, a restored movie palace built in the 1920s. A portion of the festival’s income is devoted to the theater’s ongoing renovations.

The full slate of films and guests for this year’s festival will be announced in March. Past festivals have included a variety of renowned actors and filmmakers.

P.S. For the 16th annual Ebertfest, covering all screenings, are now on sale and can be purchased online through the festival website, www.ebertfest.com, or the Virginia Theatre box office. Tickets for individual films will be available for purchase starting April 1.

Volunteer teachers, tutors needed

The luncheon event, “Beyond Visibility: Supporting LGBTQ Faculty and Staff,” marks the first time LGBTQ employees have met as a group. The event will include remarks by Chancellor Phyllis M. Wise and roundtable discussions involving participants.

The luncheon will take place from 11:30 a.m.-1 p.m. at the I Hotel and Conference Center. All LGBTQ faculty and staff members are invited; lunch will be provided. Departments are encouraged to allow their non-exempt (eligible for overtime) civil service employees to attend this event with prior supervisory approval. To register online, visit go.illinois.edu/LGBTlunch. For more information, contact Lydia Khuri: 217-265-6276, mkhuri@illinois.edu.

The luncheon event is hosted by the Committee on Lesbian, Gay, Bisexual and Transgender Concerns, a group of students, faculty and staff members charged by the chancellor and provost to provide advice and leadership on LGBTQ issues for the campus community.

While LGBTQ issues have recently been gaining public visibility nationally and on campus, the committee seeks to gain a better understanding of specific ways the university can enhance the campus environment for LGBTQ faculty and staff members. Inspired by the work done last year by the Gender Equity Council on the concerns of women faculty members, the committee is eager to gather with LGBTQ employees to develop recommendations that will positively influence the campus climate and influence policies and practices.

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Ads removed for online version
3-D imaging provides window into living cells, without dye

By Liz Ahlberg
Physical Sciences Editor

Living cells are ready for their close-ups, thanks to a new imaging technique that needs no dyes or other chemicals, yet renders high-resolution, three-dimensional, quantitative images of cells and their internal structures—all with conventional microscopes and white light.

Called white-light diffraction tomography (WDT), the imaging technique opens a window into the life of a cell without disturbing it and could allow cellular biologists unprecedented insight into cellular processes, drug effects and stem cell differentiation.

The team of U. of I. researchers, led by electrical and computer engineering and bioengineering professor Gabriel Popescu, published their results in the journal Nature Photonics.

"One main focus of imaging cells is trying to understand how they function, or how they respond to treatments, for example, during cancer therapies," Popescu said. "If you need to add dyes or contrast agents to study them, this preparation affects the cells' function itself. It interferes with your study. With our technique, we can see processes as they happen and we don’t obstruct their natural behavior."

Because it uses white light, WDT can observe cells in their natural state without exposing them to chemicals, ultraviolet radiation or mechanical forces—the three main methods used in other microscopy techniques. White light also contains a broad spectrum of wavelengths, thus passing the interference issues inherent in laser light—speckles, for example.

The 3-D images are a composite of many cross-sectional images, much like an MRI or CT image. The microscope shifts its focus through the depth of the cell, capturing images of various focus planes. Then the computer uses the theoretical model and compiles the images into a coherent three-dimensional rendering.

The greatest potential of WDT, according to the researchers, is the ability to study cells in three dimensions over time. Since the cells are not altered, they can be imaged repeatedly, allowing researchers a glimpse into the dynamics of a cell as it goes about its life—or as it is treated with a new drug.

"As a cell grows we can see the change in all three dimensions," said Taewoo Kim, a graduate student and first author of the paper. "We can see the dynamics of the cell in 3-D, which hasn’t been done in a quantitative manner. For example, we could see, in the span of a minute or over a cell’s lifetime, how it grows and how the things in the cell move around."

"With this imaging we can tell at what scale things within the cell are transported randomly and at what scale processes are actually organized and deterministic," Popescu said. "At first glance, the dynamics looks pretty messy, but then you look at it—we stare at movies for hours and hours—and you realize it all makes sense. Everything is organized perfectly at certain scales. That’s what makes a cell alive. Randomness is just nature’s way to try new things."

WDT uses a component that adds onto a conventional phase contrast microscope, a common piece of equipment in biology labs, without altering the microscope itself.

The researchers used conventional microscopes with the intention of making these new optics principles easily accessible for biologists. The researchers hope that this will allow rapid large-scale adoption of WDT, and Popescu founded a startup company, Phi Optics, to help achieve that goal.

In addition to biological applications, the WDT technique has implications in the broader field of optics as the researchers pushed the boundaries of physics by applying scattering theory to imaging optics.

"The physics behind this technique is another thing we were fascinated about," Kim said. "Light propagation in general is studied with approximations, but we’re using almost no approximation. In a very condensed form, we can perfectly show how the light changes as it passes through the cell."

"We started on this problem two years ago, trying to formulate mathematically the sectioning effect observed in spatial light interference light microscopy (SLIM)," said Renjie Zhou, a graduate student and co-first author of the paper. "We came up with equations which eventually described WDT. The final equation is beautiful and the theory opens opportunities for solving other optics problems in a new theoretical language."

Next, the researchers hope to pursue cross-disciplinary collaborations to explore applications of WDT in biology as well as expansions of the imaging optics demonstrated in WDT. For example, they are using WDT to watch stem cells as they differentiate in hopes of better understanding how they turn into different cell types. Since stem cells are so sensitive, only a chemical-free, non-invasive, white-light technique such as WDT could be used to study them without adverse effects.

The National Science Foundation supported this work. U. of I. electrical and computer engineering professors P. Scott Carney and Lynford Goddard; graduate student Mustafa Mir and postdoctoral fellow S. Derin Babacan also were co-authors of the paper. All authors were part of the Beckman Institute for Advanced Science and Technology at the U. of I. Popescu, Zhou and Goddard also are affiliated with the university’s Micro and Nanotechnology Laboratory. ◆