Brain gene expression changes when honey bees go the distance

By Diana Yates
Life Sciences Editor

Tracking honey bees into thinking they have traveled long distance to find food alters gene expression in their brains, researchers report. Their study, in the journal Genes, Brain and Behavior, is the first to identify distance-responsive genes.

Foraging honey bees make unique research animals in part because they communicate in a language humans can decode, said UI entomology and neurosciences professor Gene Robinson, who led the study. After a successful hunt, a forager performs a highly stylized "dance" that tells her peers what direction to go to find the food, how good it is and how far away it is. The bee does a "round dance" if the food is close to home, while a "waggle dance" indicates it is farther away.

The new study used an established method for altering a honey bee's perception of distance as she flew through a tunnel to gather food. Vertical stripes or a sparse pattern on the tunnel walls can trick a bee into thinking she is traveling a greater distance, while horizontal stripes or a dense pattern indicate a shorter distance — even though the tunnels are the exact same length. At the end of the flight, a researcher watches the honey bee dance to find out how far she thinks she flew. "This is a great example of what you can learn if you are able to manipulate an animal to be able to tell you what it's thinking," Robinson said.

Using microarray analysis, which tracks the activity of thousands of genes at once, the researchers compared gene expression in the brains of bees that thought they had traveled shorter or longer distances. The team focused on two brain regions: the optic lobes, which process visual information, and the mushroom bodies, which integrate sensory information and have been implicated in learning and memory.

Some bees (labeled S —► S bees) traveled through a tunnel that leads to a food source by varying the pattern on the tunnel walls. A busy pattern, as seen here, is perceived as a longer distance than a sparse pattern.

Researchers can trick a honey bee into thinking she has traveled a longer or shorter distance through a tunnel that leads to a food source by varying the pattern on the tunnel walls. A busy pattern, as seen here, is perceived as a longer distance than a sparse pattern.

Fan loyalty

There’s a reason why some sports fans are referred to as "die-hards" — even after they move away, their loyalty to their hometown team endures, according to research by two UI professors.

Scott Tainsky and Monika Stodolska, professors of recreation, sport and tourism, say new residents of a community maintain an attachment to their old team or former city as a way of asserting their identity after they move. "People new to a city don’t just adopt their new hometown’s team as a way to acclimate themselves in a new community," Tainsky said. "For new residents, sports is not that tool to stand around the water cooler and start the assimilation process — at least not right away, and possibly never for some. They see it more as a way to assert their loyalty to their old hometown team, or the city they identify with. That leads us to conclude that the team or city someone identifies with is a relationship that endures."

The study, published in Social Science Quarterly, looks at the stability of fan identification among individuals who relocate, and whether that identification represents a real bond between fan, team or city. The researchers found that new population inflows, regardless of whether it’s domestic transplants moving to a new city or international immigrants moving to the U.S., was not associated with an increase in television ratings for NFL broadcasts in the new city.

"I think we tend to think of groups of fans as static groups," Tainsky said. "But one thing we know is that the number of times the average U.S. citizen moves in their lifetime is close to 12 times. Most of the time, those moves are within the same metropolitan area, or within the same state. But between 2.2 and 2.7 percent of the population moved from state-to-state annually. So we have to understand not just the people who’ve lived somewhere for a while, but also the motivations of this large group of new people.”

Tainsky and Stodolska also discovered that individuals who previously resided in a market were more likely to tune into a telecast featuring a team representing their former city, but only when the game was being held in their former city of residence. Tainsky says this accounts for why some sports teams have large fan diasporas spread across the country — why there are, for example, Pittsburgh Steelers and Chicago Cubs fans nationwide. It’s also consistent with existing research that teams that have been in the marketplace longer have an extremely loyal fan base.

Team-loyalty research yields insight into ‘die-hard’ fandom

By Phil Ciciora
News Editor

There’s a reason why some sports fans are referred to as “die-hards” — even after they move away, their loyalty to their hometown team endures, according to research by two UI professors. Scott Tainsky and Monika Stodolska, professors of recreation, sport and tourism, say new residents of a community maintain an attachment to their old team or former city as a way of asserting their identity after they move. “People new to a city don’t just adopt their new hometown’s team as a way to acclimate themselves in a new community,” Tainsky said. “For new residents, sports is not that tool to stand around the water cooler and start the assimilation process – at least not right away, and possibly never for some. They see it more as a way to assert their loyalty to their old hometown team, or the city they identify with. That leads us to conclude that the team or city someone identifies with is a relationship that endures.”

The study, published in Social Science Quarterly, looks at the stability of fan identification among individuals who relocate, and whether that identification represents an actual bond between fan, team or city. The researchers found that new population inflows, regardless of whether it’s domestic transplants moving to a new city or international immigrants moving to the U.S., was not associated with an increase in television ratings for NFL broadcasts in the new city.

“I think we tend to think of groups of fans as static groups,” Tainsky said. “But one thing we know is that the number of times the average U.S. citizen moves in their lifetime is close to 12 times. Most of the time, those moves are within the same metropolitan area, or within the same state. But between 2.2 and 2.7 percent of the population moved from state-to-state annually. So we have to understand not just the people who’ve lived somewhere for a while, but also the motivations of this large group of new people.”

Tainsky and Stodolska also discovered that individuals who previously resided in a market were more likely to tune into a telecast featuring a team representing their former city, but only when the game was being held in their former city of residence. Tainsky says this accounts for why some sports teams have large fan diasporas spread across the country – why there are, for example, Pittsburgh Steelers and Chicago Cubs fans nationwide. It’s also consistent with existing research that teams that have been in the marketplace longer have an extremely loyal fan base.
Hauser named ACES dean

By Diana Yates

Robert J. Hauser, who has been serving as the interim dean of the College of Agricultural, Consumer and Environmental Sciences at the University of Illinois since August 2009, will be named as the permanent dean of the college, pending approval by the UI Board of Trustees at its Sept. 23 meeting in Urbana. Hauser’s appointment is effective Sept. 27.

“Bob has provided terrific leadership over that period,” said Richard Wheeler, interim vice chancellor for academic affairs, “both as an advocate for the College of ACES and as a leader in the campus effort to address some very serious issues.”

On Aug. 16, 2009, Hauser was appointed as the Clearing Corp. Professor in the department of agricultural and consumer economics. He serves on the board of the department from January 1995 through August 2010.

HONEY BEEs: CONTINUED FROM PAGE 1

elect the “short” distance repeatedly to get to the food, while others (the S —> L bees) trained on the “short” distance and then were remated to the depart-
take food in the opposite direction.

Brain gene expression differed between the groups. A total of 29 annotated genes (for which sequence data on the genome and function are known) were “differen-
tially regulated between the S —> L and S —> S bees, either in the optic lobes, mushroom bodies, or both,” the researchers wrote.

Surprisingly, the patterns of gene expression (which genes were turned on, down, or off in response to the experience) were similar in both bees, regardless of whether they took their flight distance to the hive by communicating it hive-mates by dance language.”

This study adds a new dimension to the ongoing exploration of the socially responsive genome, Robinson said. The genome is not a static blueprint for life, as was once believed, he said. “Instead we see how responsive the genome is to environmental stimuli and especially socially relevant stimuli. Here is another piece of the puzzle of how we communicate this to our hive-mates.”

This study was supported by the Na-
tional Science Foundation and the Illi-
nois Sociogenomics Initiative.°

ON THE WEB

http://go.illinois.edu/beehive

Bob Easter

Welcome from ACES

To: Members of the Campus Community

From: Robert A. Easter, chancellor and provost (interim) and Richard P. Wheeler, vice chancellor for academic affairs (interim)

We write to welcome you back for academic year 2010-2011 and also to update you on some of the campus ac-
tivities that have taken place throughout the summer and to provide you with the most current status of our fiscal situa-
tion.

To date, we have charged 17 Stew-
arding Excellence @ Illinois Project Teams, 16 of which have submitted reports. To learn more about all proj-
et, visit http://oe.illinois.edu/budget/
projectteams.html.

We are grateful for the hard work of the project teams and to the campus community, who demonstrated their thoughtful engage-
ment with this process through their public comments. It is heartening that faculty, staff,
students, and the public care so deeply about our institution and are committed to our con-
tinued excellence.

Nine projects have completed the initial feedback process and have been submitted to the Office of the Chancellor and the Office of the Vice Chancellor for Academic Affairs. Our staff has reviewed those documents and has consulted broadly with the Council of Deans, Faculty Senate, student leaders and the Council of Graduate Advisors to identify short-term and long-term actionable items. We have carefully considered the public comments and the unit responses and incorporated those diverse perspectives and ideas in our decision-making process. In the days and weeks to come, we will tell you about the solutions we will imple-
ment this fall that will produce change on our campus that achieve both cost-savings and
institutional transformation that will protect the quality for which we are known and better
position the university to meet the current and future needs of our students, our state and the larger community. We will continue to launch new projects early this academic year as we continue the activities of Stewarding Excellence. Our objective remains to minimize the stress from this difficult financial time while transforming the institution for a brighter future.

As we begin a new academic year, we continue to face the extraordinary financial chal-

enge that we encountered in fiscal year 2010 due, in large part, to the serious fiscal prob-
lems of the state of Illinois. As of this writing (Aug. 27), the state owes the university $119 million for FY 2010 (which ended June 30, 2010) and $122 million that has already been billed for FY 2011. Since the last fiscal year, the number of questions about the level of state support we might re-
cieve and an uncertain national economic recovery, we have taken steps to make the institu-
tion more fiscally nimble without compromising our core values.

One of those steps was to offer voluntary programs to reduce our work force. More than 500 employees took advantage of our Voluntary Separation Incentive Program, and some 90 tenured faculty members and 16 adjunct professors and lecturers will leave the university under the Voluntary Retirement Incentive Program. Achieving this reduction in staff through voluntary programs minimized the dislocation and disruption that would have resulted from more drastic measures. We thank you for your patience and cooperation as we adjust to the reality of a smaller work force. We believe that these are significant short-term actions that position us more favorably for the future.

Although some of the employees who participated in these voluntary separation pro-
grams will be replaced, most are not. We continue to consider the options that may be available to us to reduce our costs and further the campus’ commitment to a diverse work force. Additionally, because of the talent of our current work force, we restrict necessary hiring to internal applicants whenever appropriate.

We are mindful that our great faculty remain attractive prospects for other institutions. Illinois is strong because, for 143 years, we have provided a nurturing and supportive envi-
ronment for faculty members to teach and to research. In an effort to retain our stellar faculty, we are working with the Council of Deans and department heads to proac-
tively demonstrate our commitment to provide our faculty with competitive compensation, a productive working environment, and outstanding research support. To this end, we have taken measures to retain faculty and those staff who we were at risk of losing to other insti-
tutions.

On Monday, Aug. 23, classes began. During our Convocation this year we welcomed 7,000 first-year students to our campus – our Class of 2014. They, along with returning, transfer, graduate and professional students will comprise a projected total enrollment of approx-
imately 42,000 students on our campus. Our students come not only from Illinois, but also from throughout the United States and the world.

Thank you for your tremendous contribution to our institution. We wish you a productive academic year.

Dean

Robert J. Hauser

Welcome, Bob!
A Minute With ...

Gene Moore

UI police Detective Gene Moore is one of seven detectives who work for University Police in the Division of Public Safety. The group investigates a variety of crimes on campus.

How does your job as a detective differ from that of other police officers?

Detectives are responsible for the follow-up investigation of the daily reports taken by patrol officers. All detectives read every report, and the detective sergeant, our direct supervisor, assigns us to individual cases. Each detective has a specific area he or she typically investigates. But we all investigate theft cases.

Are all reports investigated?

How they’re investigated is determined by how much information is available. For example, if a bicycle is stolen we can use serial numbers and other identifiable traits to see if it matches any items in the state database called LEADS (Law Enforcement Agencies Data System) or the national database called NCIC (National Crime Information Center).

What kind of cases do you work on?

I do most of the sexual assault investigations. Other detectives sometimes work on them, but most of those cases come to me. Usually the biggest crime on campus is theft—laptops, cell phones and iPods—and we are not alone in this.

Why is there so much campus theft?

It has to do with opportunity. We try to preach safety and prevention on campus and to the community in general. Every year we start over with a new set of 18,000-odd folks who are away from home for the first time in their lives. They advise us to lock their doors, shut and lock their windows, and not to have the ‘‘me’’ attitude. But staff members can be as bad as students if they don’t secure their offices. Sexual assaults include finding things like hard drives or making the hard drive itself a crime to investigate. Tell me about that process.

We don’t get to investigate a lot of the campus crimes because the survivor doesn’t wish to talk to police. In these cases we are required to complete a Cleary Act report. Universities are required to publish crime statistics concerning a report of any case involving serious crimes against a person on a college campus. Of those we do investigate, we work with the survivor to make the whole process as comfortable as possible. For assault cases, we’re required to collect as much information as possible—leaving out victims’ names—and whether or not DNA evidence was collected.

Do you talk to sexual assault survivors?

Sometimes, but survivors aren’t forced to talk to the police. Health care providers encourage it, but we aren’t going to make them talk to us. Talking to police is a tough decision for a woman to make and we understand that. We’d like to get them to at least go through the medical exam, though. Alcohol is a big factor on this campus, as well as other drugs. We try to see crimes that involve date-rape drugs, but most sexual assaults tend to involve high-alcohol consumption. How did you start your career in law enforcement?

I was in the Navy for almost six years as a military policeman but I was never assigned to a ship. I was, for the most part, stationed in Alameda, Calif. I also worked for five years at the Champaign County Jail as a corrections officer. I came on here as a patrol officer, which is how everyone starts. To become a detective in our department, you are required to be a patrol officer for at least two years and interview when there is a vacancy open. I interviewed here and I was hired.

What is something that you take pride in as a detective?

It’s nice to get somebody’s property back or to solve a case. I try to work hard either way. A lot of the time it’s frustrating. I feel bad when there’s nothing I can do. I also have had sexual assault victims who wanted me to pursue an investigation against the suspect, but also didn’t want to go through the whole process. In one case, I was able to identify the officer in law enforcement who couldn’t be there to go through the process of pressing charges.

What is something that your unit does here that people might not realize?

We do a lot of our own computer forensics to investigate pornography crimes, identify theft, drug cases and burglaries. (Computer forensics refers to law enforcement’s ability to gather evidence of crimes from computers and other electronics.) We have the ability to access certain files from computers or cell phones—even if they have been erased. We are able to track many stolen computers using MAC addresses or serial numbers. CITES (Campus Information Technologies and Educational Services) security has been a great partner in solving computer crimes on campus.

Interview by Anna K. Herbek, Assistant Editor
Ad removed for online version
Meet a few of campus’s newest faculty members

By Anna K. Herkamp

NEW faces 2010

Harriett Green
English and digital humanities librarian and an assistant professor of library administration

Education: M.S. (library and information science), University of Illinois at Urbana-Champaign; M.A. (humanities with creative writing concentration), UIC; A.B. (history and literature), Harvard University.

Why Illinois? “The University of Illinois at Urbana-Champaign is a vibrant research institution that I am honored to join as a tenure-track faculty member at the University Library,” Green said. “I look forward to working with students and faculty members across the humanities on their research in literatures. I also hope to collaborate on digital humanities projects and initiatives with members of the campus community, and work with scholars in diverse ways to expand their scholarship in literature and the digital humanities.”

Research interests: How humanist researchers integrate digital tools and resources with traditional resources in their research workflows. Also interested in developing digital research tools to assist humanities scholars in their research.

Harriett Green brings a set of skills, experiences, and preparatory education that make her a perfect fit for the position of English and digital humanities librarian,” said Paula T. Kaufman, university librarian and the Juanita J. and Robert E. Simpson Dean of Libraries. She understands both traditional and emerging research methodologies in the humanities and will be working collaboratively with colleagues to develop and deliver services designed to meet the needs of faculty and students here on campus.

Cliff Shin
assistant professor of industrial design
School of Art and Design in the College of Fine and Applied Arts

Education: M.A. (industrial design), Purdue University; B.S. (manufacturing engineering technology), Arizona State University.

Research interests: Empathetic/emotional design and sustainable/eco design.

“Cliff has a wonderful blend of professional and educational skill sets, as well as the important beginnings of some important research,” said Nan Goggin, the director of the School of Art and Design. “His experience working at the headquarters of LG in Seoul as both a practitioner and as an educator and businessman will give our students practical insight. He had a strong portfolio of his work as well as his students’ and he is a very good communicator.”

Why Illinois? “I chose Illinois because it has one of the oldest industrial design programs in the United States,” Shin said. “The program’s strong foundation and the great networking opportunities with many successful alumni in the profession make the industrial design program stronger than ever. I also will be able to continue with my research. Additionally, although the campus is bit far from the bigger cities, the many sponsored projects from well-known companies enrich students’ experiences.”
Body-image distortion predicts onset of unsafe behaviors

By Phil Ciciora
News Editor

Normal weight and underweight teenage girls who falsely believe they are overweight are at significantly greater risk of succumbing to unnecessary and unsafe weight-loss behaviors than girls who can accurately assess their weight status, according to new research by a UI expert in eating disorders and body-image perception.

Janet M. Liechty, a professor of social work and of medicine at Illinois, says that body-image distortion, rather than the more commonly used measure of body dissatisfaction, may be a better screening tool to help identify non-overweight girls at risk for unsafe weight-loss practices.

“Body-image distortion appears to be a more discriminating indicator of distress than body dissatisfaction, but it’s not something that’s typically screened for by health-care providers,” Liechty said. “Usually, teens and their parents only get weight-related feedback from the doctor when the child is overweight. But kids of any weight can struggle with body-image, and poor body-image can negatively affect medical outcomes in ways we often don’t recognize.”

Childhood obesity is an important public health concern, but if the emphasis is only on children who are overweight, signs of body-image distress among normal weight kids could be overlooked, Liechty says. If left unaddressed, those problems could eventually translate into unhealthy weight-loss behaviors, disordered eating and future weight-related problems.

“Body-image distortion is something we can begin to screen for to identify teens at risk for unsafe weight-loss behaviors,” she said.

Liechty’s research, published in the Journal of Adolescent Health, examined the relationship between body-image distortion and three types of weight-loss behaviors — exercise, dieting, and extreme ways of losing weight such as laxatives, diet pills and purging.

“Culling from a longitudinal sample of more than 5,000 non-overweight adolescent girls in the U.S. whose body-mass index was less than the 85th percentile, Liechty compared the teens’ actual, objective weight status with what they believed their weight status to be, and looked for discrepancies. If the teens perceived themselves to be overweight when they actually were not, the discrepancy was flagged as overestimation, or body-image distortion.

To examine how overestimation of weight status affected future weight-loss behaviors, Liechty employed logistic regression analysis to predict the onset of the three types of weight-loss behaviors one year later. She discovered that body-image distortion predicted the onset of dieting, and the onset of extreme and unsafe ways to lose weight.

“This study suggests that if otherwise healthy, non-overweight girls begin using a type of potentially unsafe weight-loss strategy, such as dieting or an extreme method, the odds that they will continue to use that method one year later increase from three to 11 times,” she said.

“In other words, if a teen starts down a path of risky weight-loss practices, they’re much more likely to continue using that method. ‘It doesn’t just fade away or stop all of a sudden,’ Liechty said. ‘That’s why early detection of risk factors such as body-image distortion, and prevention of unnecessary dieting and unsafe weight-loss methods, is the key to pre-empting unhealthy behaviors. We need to educate girls and their parents that fad diets, quick-fix promises, and extreme weight-loss methods are a hoax. They don’t work over the long term and then they start to cause other problems.’

‘Compared to body dissatisfaction — which has been positively correlated with eating disorders, depression and high-risk behaviors among adolescent girls — body-image distortion may be a better red flag for unsafe weight-loss among teens. ‘Body-image is often measured as body-image satisfaction, which is how satisfied you feel about your body,’ she said. ‘While that’s important, the problem with that measure is that some studies show that 50 to 80 percent of youth are overweight or underweight.’

“This discovery highlights the importance of cultivating an accurate and positive body-image throughout the teenage years, and of being wary of dieting and extreme methods to lose weight among teens, which are somewhat of a trap,” Liechty says.

‘This study suggests that if otherwise healthy, non-overweight girls begin using a type of potentially unsafe weight-loss strategy, such as dieting or an extreme method, the odds that they will continue to use that method one year later increase from three to 11 times,” she said.

“In other words, if a teen starts down a path of risky weight-loss practices, they’re much more likely to continue using that method. ‘It doesn’t just fade away or stop all of a sudden,’ Liechty said. ‘That’s why early detection of risk factors such as body-image distortion, and prevention of unnecessary dieting and unsafe weight-loss methods, is the key to pre-empting unhealthy behaviors. We need to educate girls and their parents that fad diets, quick-fix promises, and extreme weight-loss methods are a hoax. They don’t work over the long term and then they start to cause other problems.’

‘Compared to body dissatisfaction — which has been positively correlated with eating disorders, depression and high-risk behaviors among adolescent girls — body-image distortion may be a better red flag for unsafe weight-loss among teens. ‘Body-image is often measured as body-image satisfaction, which is how satisfied you feel about your body,’ she said. ‘While that’s important, the problem with that measure is that some studies show that 50 to 80 percent of youth are overweight or underweight.’

“This discovery highlights the importance of cultivating an accurate and positive body-image throughout the teenage years, and of being wary of dieting and extreme methods to lose weight among teens, which are somewhat of a trap,” Liechty says.

‘This study suggests that if otherwise healthy, non-overweight girls begin using a type of potentially unsafe weight-loss strategy, such as dieting or an extreme method, the odds that they will continue to use that method one year later increase from three to 11 times,” she said.

“In other words, if a teen starts down a path of risky weight-loss practices, they’re much more likely to continue using that method. ‘It doesn’t just fade away or stop all of a sudden,’ Liechty said. ‘That’s why early detection of risk factors such as body-image distortion, and prevention of unnecessary dieting and unsafe weight-loss methods, is the key to pre-empting unhealthy behaviors. We need to educate girls and their parents that fad diets, quick-fix promises, and extreme weight-loss methods are a hoax. They don’t work over the long term and then they start to cause other problems.’

‘Compared to body dissatisfaction — which has been positively correlated with eating disorders, depression and high-risk behaviors among adolescent girls — body-image distortion may be a better red flag for unsafe weight-loss among teens. ‘Body-image is often measured as body-image satisfaction, which is how satisfied you feel about your body,’ she said. ‘While that’s important, the problem with that measure is that some studies show that 50 to 80 percent of youth are overweight or underweight.’

“This discovery highlights the importance of cultivating an accurate and positive body-image throughout the teenage years, and of being wary of dieting and extreme methods to lose weight among teens, which are somewhat of a trap,” Liechty says.

‘This study suggests that if otherwise healthy, non-overweight girls begin using a type of potentially unsafe weight-loss strategy, such as dieting or an extreme method, the odds that they will continue to use that method one year later increase from three to 11 times,” she said.

“In other words, if a teen starts down a path of risky weight-loss practices, they’re much more likely to continue using that method. ‘It doesn’t just fade away or stop all of a sudden,’ Liechty said. ‘That’s why early detection of risk factors such as body-image distortion, and prevention of unnecessary dieting and unsafe weight-loss methods, is the key to pre-empting unhealthy behaviors. We need to educate girls and their parents that fad diets, quick-fix promises, and extreme weight-loss methods are a hoax. They don’t work over the long term and then they start to cause other problems.’

‘Compared to body dissatisfaction — which has been positively correlated with eating disorders, depression and high-risk behaviors among adolescent girls — body-image distortion may be a better red flag for unsafe weight-loss among teens. ‘Body-image is often measured as body-image satisfaction, which is how satisfied you feel about your body,’ she said. ‘While that’s important, the problem with that measure is that some studies show that 50 to 80 percent of youth are overweight or underweight.’

“This discovery highlights the importance of cultivating an accurate and positive body-image throughout the teenage years, and of being wary of dieting and extreme methods to lose weight among teens, which are somewhat of a trap,” Liechty says.

‘This study suggests that if otherwise healthy, non-overweight girls begin using a type of potentially unsafe weight-loss strategy, such as dieting or an extreme method, the odds that they will continue to use that method one year later increase from three to 11 times,” she said.

“In other words, if a teen starts down a path of risky weight-loss practices, they’re much more likely to continue using that method. ‘It doesn’t just fade away or stop all of a sudden,’ Liechty said. ‘That’s why early detection of risk factors such as body-image distortion, and prevention of unnecessary dieting and unsafe weight-loss methods, is the key to pre-empting unhealthy behaviors. We need to educate girls and their parents that fad diets, quick-fix promises, and extreme weight-loss methods are a hoax. They don’t work over the long term and then they start to cause other problems.’

‘Compared to body dissatisfaction — which has been positively correlated with eating disorders, depression and high-risk behaviors among adolescent girls — body-image distortion may be a better red flag for unsafe weight-loss among teens. ‘Body-image is often measured as body-image satisfaction, which is how satisfied you feel about your body,’ she said. ‘While that’s important, the problem with that measure is that some studies show that 50 to 80 percent of youth are overweight or underweight.’

“This discovery highlights the importance of cultivating an accurate and positive body-image throughout the teenage years, and of being wary of dieting and extreme methods to lose weight among teens, which are somewhat of a trap,” Liechty says.
Researchers advance understanding of DNA-regulating enzyme

By Liz Ahlberg
Physical Sciences Editor

Thanks to a single-molecule imaging technique developed by a UI professor, researchers have revealed the mechanisms of an important DNA regulating enzyme.

Helicase enzymes are best known for “unzipping” DNA for replication, but have many other functions for DNA repair and maintenance. The Illinois team focused on a particular bacterial helicase called PcrA involved in preventing unwanted recombination.

A DNA double helix consists of two strands twisted around each other. When one strand is damaged or breaks, the surrounding area is degraded, leaving a single-stranded region. Specialized proteins then start the process of recombination – rebuilding the second strand using the intact DNA as a template.

“Recombination is essential for DNA repair, but if it runs amok, it causes problems,” said UI physics professor Taekjip Ha. “This helicase controls recombination by removing recombination proteins from the DNA.”

Using a technique called single-molecule fluorescence resonance energy transfer (FRET), Ha and his team were able to identify one of the mechanisms that PcrA uses to regulate recombination. The system uses two dyes that change in relative intensity depending on their proximities to one another. The researchers attached the two dyes to the opposite ends of the single-stranded DNA tail.

Helicases are motor proteins, a class of enzymes that use chemical energy to move along a DNA molecule like a train on a track. But using FRET, the researchers observed the two dyes gradually moving closer to each other, then flying apart, repeatedly. Instead of moving along the single-stranded tail, PcrA binds at the point of the break, where the double- and single-stranded regions meet. Then, it uses its motor function to “reel in” the tail, like a fisherman pulling in a rope.

“By combining the structure-specific binding of the enzyme to the DNA and the motor function, the enzyme can reel in the DNA and in the process kick off recombination proteins,” said Ha, who also is a Howard Hughes Medical Institute investigator.

When PcrA reaches the end of its DNA rope, it releases it and starts the reeling in process over again, removing any additional problematic proteins that have bound to the damaged DNA as it reels.

By using FRET, a technique Ha developed, the team also was able to answer another question about PcrA: How consistent is its motor function? Researchers agree that on average, PcrA moves one DNA unit, called a base pair, for each unit of cellular energy it uses, called ATP. But because researchers traditionally study the enzyme in relatively large samples, broad distributions of data have led to conflicting views on whether the helicase moves in uniform steps or those of varying lengths – even up to six base pairs per ATP.

Since FRET is a single-molecule technique, the researchers were able to document a single enzyme’s function, step by step, and found that PcrA does, in fact, move in uniform steps of one base pair per ATP.

Next, the team plans to create a reaction environment more similar to that in vivo, using three and four colors of FRET dyes to measure activities of multiple proteins simultaneously. They are also working toward understanding why helicase moves only in one direction.

“This is an ideal marriage of a new technology and an interesting biological problem,” Ha said.

The team published its findings in the Aug. 20 edition of the journal Cell. Team members included UI graduate students Jeehae Park and Kyung Suk Lee; bioengineering professor Sua Myong; Anita Niedziela-Majka and Timothy Lohman, of the Washington University School of Medicine in St. Louis; and Jin Yu, of the University of California at Berkeley. The National Institutes of Health and the National Science Foundation supported this work.
Salmon baby food? Babies need omega-3s and a taste for fish

By Phyllis Picklesimer
ACES News Writer

UI food science professor has two important reasons for including seafood in a young child’s diet, reasons that have motivated her work in helping to develop a tasty, nutritious salmon baby food for toddlers.

“First, babies need a lot of the omega-3 fatty acids found in fish for brain, nerve and eye development,” said Susan Brewer, a registered dietitian. “And when they switch from breast milk or formula to solid food, most of them don’t get nearly enough.”

“Second, children’s food preferences are largely developed by the time they’re 5, so I urge parents to help their kids develop a taste for seafood early,” she said.

Fish that are high in omega-3 fatty acids, such as salmon, have many health benefits and help to prevent coronary artery disease, but most adults don’t eat fish twice weekly as experts recommend. In predisposing children toward liking fish, parents are doing their kids a favor, she said.

Brewer knows her recommendations might meet with some resistance.

“When we started working on salmon baby food, I thought, ‘Ew, eewh!’ But the American Heart Association and the American Academy of Pediatrics is solidly behind the idea, and fish-based baby foods, particularly docohexaenoic acid (DHA), provide calcium in a form that is readily available for bone building in children. Salmon roe provide high-quality protein and contains significant quantities of vitamin D and omega-3 fatty acids, particularly docohexaenoic acid (DHA).”

“A newborn infant’s brain is 50 percent DHA,” she said. “However, babies and toddlers have immature livers and can’t synthesize enough DHA to ensure an adequate supply to their developing nerve tissues. If small children are going to get DHA, they must ingest it in their food.”

According to Brewer, the results of her experiments have been encouraging.

“Salmon is very mild, and the toddler dinners, which are 27 percent meat or fish, don’t taste or smell fishy at all. They remind me of that salmon and cream cheese dip you have during the holidays.”

In a recent sensory panel conducted in the scientist’s lab, parents found little difference in taste between formulations that contained roe or bone meal and those that didn’t. Eighty-one percent of the 107 parent panelists – even those who don’t eat salmon themselves – said they would offer it to their children after taste testing the product.

“It’s not enough for mothers to know that toddlers need fish in their diets. They won’t buy a product unless it also appeals to the eye and the taste buds,” she said.

“Our goal is to deliver maximum nutrition in an entrée that’s aesthetically pleasing, and these studies show that we can do just that,” she said.

The paper on including salmon roe in a form that is readily available for bone building in children. Salmon roe provide high-quality protein and contains significant quantities of vitamin D and omega-3 fatty acids, particularly docohexaenoic acid (DHA). A newborn infant’s brain is 50 percent DHA,” she said. “However, babies and toddlers have immature livers and can’t synthesize enough DHA to ensure an adequate supply to their developing nerve tissues. If small children are going to get DHA, they must ingest it in their food.”

According to Brewer, the results of her experiments have been encouraging.

“Salmon is very mild, and the toddler dinners, which are 27 percent meat or fish, don’t taste or smell fishy at all. They remind me of that salmon and cream cheese dip you have during the holidays.”

In a recent sensory panel conducted in the scientist’s lab, parents found little difference in taste between formulations that contained roe or bone meal and those that didn’t. Eighty-one percent of the 107 parent panelists – even those who don’t eat salmon themselves – said they would offer it to their children after taste testing the product.

“It’s not enough for mothers to know that toddlers need fish in their diets. They won’t buy a product unless it also appeals to the eye and the taste buds,” she said.

“Our goal is to deliver maximum nutrition in an entrée that’s aesthetically pleasing, and these studies show that we can do just that,” she said.

The paper on including salmon roe in a form that is readily available for bone building in children. Salmon roe provide high-quality protein and contains significant quantities of vitamin D and omega-3 fatty acids, particularly docohexaenoic acid (DHA). A newborn infant’s brain is 50 percent DHA,” she said. “However, babies and toddlers have immature livers and can’t synthesize enough DHA to ensure an adequate supply to their developing nerve tissues. If small children are going to get DHA, they must ingest it in their food.”

According to Brewer, the results of her experiments have been encouraging.

“Salmon is very mild, and the toddler dinners, which are 27 percent meat or fish, don’t taste or smell fishy at all. They remind me of that salmon and cream cheese dip you have during the holidays.”

In a recent sensory panel conducted in the scientist’s lab, parents found little difference in taste between formulations that contained roe or bone meal and those that didn’t. Eighty-one percent of the 107 parent panelists – even those who don’t eat salmon themselves – said they would offer it to their children after taste testing the product.

“It’s not enough for mothers to know that toddlers need fish in their diets. They won’t buy a product unless it also appeals to the eye and the taste buds,” she said.

“Our goal is to deliver maximum nutrition in an entrée that’s aesthetically pleasing, and these studies show that we can do just that,” she said.

The paper on including salmon roe in a form that is readily available for bone building in children. Salmon roe provide high-quality protein and contains significant quantities of vitamin D and omega-3 fatty acids, particularly docohexaenoic acid (DHA). A newborn infant’s brain is 50 percent DHA,” she said. “However, babies and toddlers have immature livers and can’t synthesize enough DHA to ensure an adequate supply to their developing nerve tissues. If small children are going to get DHA, they must ingest it in their food.”

According to Brewer, the results of her experiments have been encouraging.

“Salmon is very mild, and the toddler dinners, which are 27 percent meat or fish, don’t taste or smell fishy at all. They remind me of that salmon and cream cheese dip you have during the holidays.”

In a recent sensory panel conducted in the scientist’s lab, parents found little difference in taste between formulations that contained roe or bone meal and those that didn’t. Eighty-one percent of the 107 parent panelists – even those who don’t eat salmon themselves – said they would offer it to their children after taste testing the product.

“It’s not enough for mothers to know that toddlers need fish in their diets. They won’t buy a product unless it also appeals to the eye and the taste buds,” she said.

“Our goal is to deliver maximum nutrition in an entrée that’s aesthetically pleasing, and these studies show that we can do just that,” she said.
NETWORK NEUTRALITY, FROM PAGE 3
Internet experience will become one defined by the quality of service one purchases, whether that's through Verizon, Comcast, AT&T or some other company. Each corporation will seek to meet consumer needs, but in a way that maximizes its profit. For example, every service will offer movies, but the cost, terms of service and so on, will be those of that provider. There will be a financial incentive to deprecate services that don't generate revenue. What's being sold is then a package of services, not general communication access.

The ordinary user will see some enticing new services, as each corporation tries to lure customers. But she or he will not find some content they find now, because it won't support the business model. A recent example is Comcast's undermining of net neutrality by shutting down peer-to-peer networking – in particular, BitTorrent. A U.S. Appeals Court ruled that under the assumption of the Internet as information service.

And it's not just cheap entertainment that will be lost. About the same time as the U.S. Appeals Court ruling, WikiLeaks released a classified U.S. military video showing the American military presence in Iraq, including two Reuters news staff members. What guarantee do we have a politician will seek to provide open access to independent media?

Suppose you think BitTorrent and WikiLeaks are wrong. Do you want your Internet provider to decide what you can and cannot see? Beyond the specifics of access, privacy, free speech and innovation, the real question is: "Who should decide Internet policy?"

"Mission accomplished"

From left, Gov. Pat Quinn, UI President Michael Hogan and Urbana Chancellor Robert Easter hold up their gold-level commitment to the second Illinois Campus Sustainability Compact, which they signed Aug. 27 during the fifth annual Sustainable University Symposium on the Urbana campus. The UI is the first institution to sign the new five-year agreement that commits the university to continued energy and environmental improvements. The goal of the compact is to encourage universities and colleges within the state to incorporate sustainability into their campus operations, academic and research programs, student activities and community outreach. The Urbana campus committed to achieve the highest level of commitment - the gold level - which is for institutions that are integrating sustainability throughout their campuses and working toward measured improvement. The Urbana campus already met its initial compact goal to reduce energy use by 10 percent within three years and now it plans to reduce overall energy use to 1990 levels.

"Choosing a lifestyle that's sustainable and healthy - where the fuel intake matches the output - is really the safest long-term plan for weight management," Liechty said. "Even though excessive exercise or exercise addiction can become a problem for a small percentage of people, staying physically active is an important ingredient of lifetime weight management. But if we exercise out of addiction or a punitive attitude toward our bodies, it's associated with depression and anxiety. So the attitude and the relationship with self and with body matter a lot in how we approach taking care of ourselves."

"Overweight teens who desire to lose weight need support and a sensible, sustainable plan," Liechty says. "Parents can encourage healthy eating and exercise habits from the start by leading by example, but if teens want to lose weight, parents should take them to the doctor or health-care professional and discuss how much they should lose, at what pace, and how to do it safely in a careful, planned way."

"The underlying issue is our relationship with food and our bodies," Liechty said. "A distorted view of one's weight status makes one more vulnerable to using unsafe weight-loss behaviors. The key is to cultivate a positive, realistic, and appreciative relationship with your body regardless of your weight, then get support to develop eating and activity habits that balance input and output, and that you can live with for long time."
O

n their first day of veterinary school, a group of students was hard at work learning the finer points of suturing, a skill they’ll use throughout their careers as veterinari-

ians.

The students were practicing their su-
tures on boards with different colored string and a material that resembles the elasticity of skin. The suture board is just one of many models available in the College of Veteri-

nary Medicine’s new Clinical Skills Learn-

ing Center.

Long before they treat patients, the cen-
ter gives veterinary students an opportunity to learn and practice technical aspects of their future profession – including suturing, scrubbing for surgery, assembling an anesthesi

a machine, positioning animals for X-

rays, performing ultrasound examinations and many other skills – before performing them for real. When students ultimately encounter animal patients, they can focus on problem-solving and patient care rather than on technique.

Created last fall, the center supports the goals of the new Illinois Integrated Veteri-
nary Professional Curriculum, which seeks to better prepare students for clinical prac-
tice.

First-year students are immersed in a va-

riety of clinical settings during the first eight weeks in the program and again for seven weeks in the second year of the program. In traditional veterinary curricula, students do not engage in a clinical setting until the fourth and final year of the program. The new curriculum also focuses on integrating clinically relevant material into the basic science courses in the first two years that cover biological structure and function and the pathobiological basis of disease.

In addition, the clinical experiences in also expose students to the variety of vet-

erinary career paths early on.

The skills center is one of only a few in the world that offers such comprehensive clinical skills training for veterinary stu-
dents, said Dr. Dawn Morin, assistant dean of academic affairs and curriculum. Morin and other college leaders visited similar centers at veterinary and medical schools in the United Kingdom and U.S. when planning the UI facility.

Morin said students will get plenty of hands-on practice at the center, which fea-
tures manikins, models, simulators and a variety of veterinary equipment. One room features several dog manikins and models that are used to teach students how to listen to heart and lung sounds, find blood vessels and place catheters. The man-


kins also are used to simulate an emergency room scenario during which students prac-
tice CPR and communicating with clients.

Other rooms feature full-scale models of livestock and horses that allow students to practice bandaging, perform techniques to diagnose pregnancy or learn how to avoid being injured while examining large ani-
mals.

Veterinary students will take comprehen-
sive clinical skill examinations in their sec-

ond and third years to demonstrate that they can perform the skills they need to diagnose and treat patients in the Veterinary Teaching Hospital.

UI veterinary technicians Connie Arnold and Heather Soder manage the center and help students master the intricacies of the skills they need to learn.

What makes the Illinois Integrated Veterinary Professional Curriculum different?

- Increased time working with ani-

mal patients in a clinical setting, begin-

ning with the first eight-week block of the program during which students will rotate through a new area of the Veterinary Teaching Hospital each week.

- Shorter, more intensive basic sci-

ence courses that emphasize the clinical relevance of the material.

- Self-directed learning through online modules and in the Clini-

cal Skills Learning Center.

- Comprehensive milestone exami-

nations in the second and third years to help students assess their mastery of the material.

- An eight-week “professional de-

velopment” period immediately before graduation.

Clinic coaches

Heather Soder, left, and Connie Arnold, College of Veterinary Medicine veterinary surgical technicians, teach the college’s veterinary students many of the technical skills necessary for their future careers as veterinarians. The college’s new Clinical Skills Learning Center features models, manikins, simulators and a variety of veterinary equipment offering a hands-on approach to learning these skills.

Assistant Editor

By Anna K. Herkamp

Super size

A life-size model horse is used by Geopreens Zyrkowski and Wesley Parquette for bandaging practice as well as for learning how to position radiograph machines.

Knot practice

Matt Szalay, left, and Ryan Bailey work on their suture-tying technique.

Side view

Lifelike manikins, including this one of a newborn kitten, allow students – such as Jennifer Ida, left, and Melissa McCue – to learn emergency treatment skills without the pressure of an emergency.
Activity and brain function

Psychology professor and Beckman Institute director Art Kramer, doctoral student Michelle Voss and their colleagues found that a year of moderate walking improved the connectivity of specific brain networks in older adults.

A recent study by Kramer, Voss and their colleagues found that older adults who are more fit tend to have better connectivity in specific regions of the DMN than their sedentary peers. Those with more connectivity in the DMN also tend to be better at planning, prioritizing, strategizing and multitasking.

The new study used functional magnetic resonance imaging (fMRI) to determine whether aerobic activity increased connectivity in the DMN or other brain networks. The researchers measured participants’ brain connectivity and performance on cognitive tasks at the beginning of the study, at six months and after a year of either walking or toning and stretching.

At the end of the year, DMN connectivity was significantly improved in the brains of the older walkers, but not in the stretching and toning group, the researchers report.

The walkers also had increased connectivity in parts of another brain circuit (the fronto-executive network, which aids in the performance of complex tasks) and they did significantly better on cognitive tests than their toning and stretching peers.

Previous studies have found that aerobic exercise can enhance the function of specific brain structures, Kramer said. This study shows that even moderate aerobic exercise also improves the coordination of important brain networks.

“The higher the connectivity, the better the performance on some of these cognitive tasks, especially the ones we call executive control tasks – things like planning, scheduling, dealing with ambiguity, working memory and multitasking,” Kramer said. These are the very skills that tend to decline with aging, he said.

This study was supported by the National Institute on Aging at the National Institutes of Health.

Get moving

Moderate walking three times per week for a year increased brain connectivity and brain function in older adults, the researchers found.
Ad removed for online version
Divers explore the mysteries of sacred Maya pools

By Diana Yates
Life Sciences Editor

Steering clear of crocodiles and navigating around massive submerged trees, a team of divers began mapping some of the 25 freshwater pools of Cara Blanca, Belize, which were important to the ancient Maya. In three weeks this May, the divers found fossilized animal remains, bits of pottery and – in the largest pool explored – an enormous underwater cave.

This project, led by UI anthropology professor Lisa Lucero and funded by the National Geographic Society and an Arnold O. Beckman Award, was the first of what Lucero hopes will be a series of dives into the pools of the southern Maya lowlands in central Belize. The divers returned this summer to assess whether archaeological excavation is even possible at the bottom of the pools, some of which are more than 60 meters deep.

“We don’t know if it’s going to be feasible to conduct archaeology 200 feet below the surface,” Lucero said. “But they are going to try.”

The Maya believed that openings in the earth, including caves and water-filled sinkholes, called cenotes (sen-OH-tays), were portals to the underworld, and often left offerings there. Ceremonial artifacts of the Maya have been found in pools and lakes in Mexico, but not yet in Belize.

Maya structures have been found near two of the eight pools the team surveyed. “The pools with the most substantial and most obvious settlement at the edge also turn out to be the deepest that we know,” Lucero said. The divers so far have explored eight of the 25 known pools of Cara Blanca.

The use of these pools at the end of the Late Classic period (roughly A.D. 800-900) corresponds to an enduring drought that deforested parts of Central America and – some believe – ultimately drove the Maya from the area.

The need for fresh water could have drawn the Maya to the pools, Lucero said. No vessels other than water jars were found in the structures built near the pools. “They could have been making offerings to the rain god and other supernatural forces to bring an end to the drought,” she said.

Patricia Beddows, one of the divers and a hydrologist and geochemist at Northwestern University, found that the chemistry of the water in each of the pools was distinct. She also found that the water in Pool 1, the pool with the huge cave and a Maya structure at its edge, held the freshest water of the pools surveyed. But the water contained a lot of soluble minerals, Lucero said, making it problematic for anyone who used it as their primary water supply. Those who drank the water over an extended period would have been at risk of developing kidney stones, she said.

The divers extracted core samples of the sediment at the bottoms of two of the pools. An analysis of the soil, debris and pollen in the cores will offer insight into the natural history of the cenotes and the surrounding region.

Lucero recruited expert cave exploration divers for the expedition. She provided food, lodging and other basics, but the divers donated their time and expertise. The dive team included Robbie Schmitzer (www.xibalbadivecenter.com), Kim Davidsson (an independent cave dive instructor), Bil Phillips (www.speleotech.com), and videographer Marty O’Farrell (www.seaofarrell.com), who produced the video.

The research team also included archaeologist Andrew Kinkella, of Moorpark College. In Pool 1, Kinkella and diver Edward Mallon recovered ceramic jar shards in the wall of the pool just below the Maya structure.

Three more divers, Steve Boggaerts (www.aztecdiving.com), James “Chip” Petersen (www.belizedivingservices.net) and still photographer Tony Rath (http://tonyrath.com/index.html) joined the project this summer.

Lucero has studied Maya settlements and sacred sites in Belize for more than 20 years, and works under the auspices of the Institute of Archaeology, which is part of the National Institute of Culture and History, Government of Belize.

For videos and a slide show of the expedition
http://www.news.illinois.edu/news/10/0721dive.html
Researchers sequence human body louse genome

By Diana Yates
Life Sciences Editor

Like an unwelcome houseguest or itinerant squatter, the human body louse shows up when times are bad and always makes them worse. Now a multi-institutional team reports that it has sequenced the body louse genome, an achievement that will yield new insights into louse—and human—biology and evolution.

The study, which also sequenced the genome of a microbe that lives inside the body louse, appears in Proceedings of the National Academy of Sciences.

Thanks to its tenacity, the tiny, blood-sucking parasite *Pediculus humanus humanus* L. has witnessed, and played a role in, millions of years of human history. The body louse spread epidemic typhus and what is now termed trench fever to Napoleon's retreating army in Russia in 1812, and body lice plagued Lewis and Clark on their adventures in the New World.

The human body louse seems to appear out of nowhere during economic downturns, wars and other crises that cause people to live in unsanitary conditions. It is closely related to the head louse, *Pediculus humanus capitis*, which also feeds on human blood. But the body louse lives in clothing and, unlike the head louse, can spread bacterial diseases.

The body louse genome is the smallest known genome of any insect, said UI entomology professor Barry Pittendrigh, who led the drive to fund the project and coordinated the international team of scientists who analyzed the sequence. The size of the body louse genome probably reflects its rather protected habitat and predictable diet, he said. “It is just as reliant on the organism for the study of resistance to insecticides or other types of chemical defense,” Pittendrigh added. “The ecology of lice is very, very simple. Either lives in your hair or on your clothing, and you don’t like it.”

Like most of the genes that are responsible for sensing or responding to the environment, it is very much reduced.”

The genome analysis found very few genes for light-sensing protein receptors, for example. UI entomology professor Hugh Robertson was responsible for sorting out the genes contributing to chemical sensing, and discovered that the louse has significantly fewer taste and odorant receptors than other insects.

The body louse also has “the smallest number of detoxification enzymes observed in any insect,” the researchers wrote. John Clark, of the University of Massachusetts at Amherst, and Si Hyeock Lee, of Seoul National University, led this part of the analysis. The body louse’s pared-down list of detoxifying enzymes makes it an attractive organism for the study of resistance to insecticides or other types of chemical defense, Pittendrigh said. UI entomology professor and department head May Berenbaum and former graduate student Reed Johnson contributed to this effort.

The body louse is completely dependent on humans for its survival; it will die if separated from its host for very long. It is just as reliant on a microbe that lives inside it: the bacterium *Candidatus Riesia pediculicola*.

In the *Riesia* genome, the team found genes for the production of an essential nutrient, pantothenate (Vitamin B5), which the louse requires and cannot make on its own. The *Riesia* genome also is quite small in comparison to its closest “free-living” relatives. So too are the genomes of the bacterial pathogens that the body louse transmits to its human hosts: *Rickettsia prowazekii* (which causes epidemic typhus), *Borrelia recurrentis* (the agent of relapsing fever) and *Bartonella quintana* (which causes trench fever). Thus, the researchers report, will make the body louse a useful tool for understanding the co-evolution of disease-carrying parasites and their bacterial co-conspirators.

The body louse genome will aid a host of other lines of research, Pittendrigh said. “Lice have been used to understand human evolution and migration. They’ve been used to estimate when we started wearing clothing,” he said. “The genome should also help us develop better methods of controlling both head and body lice.”

“Beyond its importance in the context of human health, the body louse genome is of considerable importance to understanding insect evolution,” Berenbaum said. “It is only the second genome sequenced to date of an insect with gradual development—that is, that does not undergo profound anatomical and ecological change as it matures from egg to adult. Although most of the insect species on the planet undergo complete metamorphosis—developing from egg to caterpillar to pupa to adult—in fact gradual metamorphosis is the older developmental program. The body louse genome can provide a baseline for understanding how complete metamorphosis, a key to insect domination of the planet, came to evolve.”

The genome sequencing effort involved researchers at 28 institutions in the U.S., Europe, Australia and South Korea. First author Ewen Kirkness coordinated sequencing and gene identification at the J. Craig Venter Institute; Clark; Lee; Spencer Johnson, of Texas A&M University; Jeanne Romero-Severson, of the University of Notre Dame; Greg Dasch, of the Centers for Disease Control and Prevention; and Pittendrigh wrote the original proposal to obtain funding for the genome sequencing effort from the National Institutes of Health and guided the effort. Evgeny Zdobnov and his team conducted the evolutionary analysis.

The UI team also included Weilin Sun in the entomology department, crop sciences professor Manfredo Sauerfeld, and post-doctoral researcher Hong-Mei Li. ♦
The Blagojevich trial

A Minute With ...™
legal process expert Andrew Leipold

Editor's note: Shortly after jurors failed to reach a verdict on all but one of the charges surrounding the allegations against former Illinois Gov. Rod Blagojevich, U.S. Attorney Patrick Fitzgerald said that the government would seek to retry the case. Andrew Leipold, an expert on criminal law and the federal judicial process, discusses what went wrong, and how embarrassing is this for the U.S. attorney’s office? I don’t know that the result is embarrassing to the prosecutors, but it is surely frustrating. I’m sure they thought they had presented a complete and compelling case of guilt, and the fact that the jury was unable to agree on a verdict must be discouraging. Now they need to find out what they can from the first trial and plan ways to avoid the problem the next time around.

How often are high-profile cases retried?

In a case like this, where the jury was deadlocked on nearly every count and where the preliminary indications are that the jury was split 11-1 on a few of the big counts, the government will almost always retry the case. What we have learned so far is that the jury felt that it did not have enough guidance in how to evaluate the prosecution’s evidence, but this is a problem that the government can address in a new trial. If the jury had come back and simply said the government’s case was not credible, that would be a finding of unreasonableness by the prosecutors. Some of the jurors felt the prosecution’s case was confusing, and lacked a “smoking gun.” What can the prosecution do, if anything, at the retrial to strengthen its case against Blagojevich?

The prosecution may drop a couple of the counts to present the jury with a more streamlined set of allegations. It also may spend more time helping the jury see how the evidence fits together as a whole, rather than as discrete parts.

Of course, the government undoubtedly thought that it was doing this already, plus there will be an entirely new jury panel, so it’s not obvious to me that the government will make major changes to its presentation.

What can we look forward to at the retrial?

Is it likely we’ll see Antoin “Tony” Rezko, who was convicted on corruption charges in 2008, take the stand?

What the government will do in the new trial will depend in part on the feedback they get on the last trial. You’ll recall that there were witnesses at the first trial who agreed to testify after pleading guilty, and if the jurors found them significantly less credible because of the deals they made, offering more witnesses like that might not be effective. On the other hand, if witnesses like Rezko can help the jury see the government’s case in a more coherent light, we might see them testify despite the baggage he would bring.

The summerlong trial of former Gov. Rod Blagojevich may have ended, but the saga surrounding the allegations against him persists. To continue into the foreseeable future with a second trial, the charges against the former governor and the trial have raised Illinois’ “culture of corruption” to national prominence, but it will take more than this one example to finally change that culture, according to Robert F. Rich, director of the UI Institute of Government and Public Affairs. He was interviewed by News Bureau business and law editor Jan Dennis.

Will the Blagojevich trial finally bring real change to curb corruption in Illinois government?

No, the Blagojevich trial by itself will not bring an end to corrupt practices in Illinois government. We as a state need to focus on a set of initiatives to bring about long-term change in the political culture. This change will not be brought about simply through legislative changes or a set of prosecutions. It will involve introducing innovative curriculum for civics and ethics at the elementary, secondary and college levels; it will also involve initiatives by political parties and increased vigilance by consumer groups to questions of openness and transparency. To change the political culture, we need to focus beyond government alone to business, educational institutions and the not-for-profit sector. Citizens need to regain confidence and trust in our elected officials.

I do believe, however, that the trial has highlighted problems with corruption in government. It is also true that the state of Illinois has, over the past several years, taken measures to positively affect Illinois through new ethics legislation, campaign finance reform and initiatives to increase openness and transparency in government. Illinois is not alone in needing to address problems related to political corruption. This is an issue in many states, at the national level, and internationally as well, such as in China.

Does the fact that the jury found former Gov. Blagojevich guilty of only one charge and could not decide on the other 23 charges do anything to slow or stop progress toward higher integrity among public officials?

This one count carries a maximum sentence of five years in prison and a maximum fine of $250,000. In other words, this is a serious verdict. However, I think the prosecution, the defense and the public are all frustrated with the outcome. This verdict could make citizens even more cynical about all institutions of government and could make people wonder about what was going on with this jury, especially when one of the most serious charges (i.e., racketeering) apparently was 11-1. But, I also think the majority of people will favor another trial, because people will want to see a definitive outcome. In addition, there will continue to be pressure in Illinois to look at a variety of “better government” initiatives, including more campaign finance reform, recall provisions, term-limit initiatives and continued measures to increase openness in government.

Why has ethics reform moved so slowly, despite the high-profile case against Blagojevich and earlier corruption cases involving former governors George Ryan and Otto Kerner?

Ethics reform has moved so slowly in Illinois because of how deeply corrupt and questionable ethical practices are rooted in the political culture of this state. States like Wisconsin and Minnesota, for example, have long-traditions of populism and good government – ethical behavior by public officials is the norm in those states. Citizens simply do not accept practices that are often seen as normal in Illinois. Our state has only recently pursued meaningful ethics reform, and our package is much more limited than many states.

The Illinois political culture has been very permissive in terms of public officials influencing hiring practices and other decision-making extending well beyond government. Some public officials feel they are entitled to have a major influence that extends well beyond what statutes and formal rules specify. I recall a press conference where former Mayor Richard J. Daley responded to a question about the city of Chicago’s insurance business going to his son’s firm, saying: “What father wouldn’t want to help his son?” Citizens have come to expect this from public officials and they accept this as regular practice. It is only in the last few years that there have been demands for change from both sides of the political aisle.

Do citizens share responsibility for a system that has allowed corruption to flourish?

Citizens definitely share responsibility for the current political culture in Illinois. We, as citizens, are accountable because we have the power to vote officials in and out of office. The ultimate “term-limit” is an election; no one is forcing us to continue to re-elect the same people every election. Moreover, citizens and citizen groups can and should put pressure on elected officials to change laws and, even more importantly, to adopt regular practices which contribute to the development of our political culture.

We can help bring about change through our schools, the political parties, citizen groups/lobbies, and our voting practices. As already indicated, change in the political culture can begin with statutory changes, but needs to extend to daily behavior.

In addition, the news media can play a very important role in highlighting unethical practices, highlighting the agenda of reform groups and helping to foster and develop needed changes in our political culture.
Both have extensive experience working in the Veterinary Teaching Hospital and also assist with course laboratories. They say it’s easy for students to get flustered as they perform the finer aspects of technical skills such as scrubbing for surgery.

“It’s not like at home,” Soder said of the clinical scrubbing process, which takes about five minutes.

Medical students in their residency programs who are learning to care for human patients must spend a certain amount of time in clinical skills laboratories. The new UI center is very similar, but more diverse, Soder said, because veterinarians must learn how to care for the species that medical doctors don’t treat.

Arnold and Soder will teach almost all of the school’s nearly 500 students at some point in the veterinary curriculum. And the students will come out of their training with enhanced skills and more confidence.

Before the center opened, veterinary students did not receive comprehensive surgical skills training until their third year, shortly before they were expected to participate in surgical procedures. The center now provides surgical skills training in both the first and second years, while students are on their weeklong surgery rotations. Students also spend time in the center while on rotations for anesthesia, radiology, ultrasound, emergency medicine and farm animal medicine.

Today’s veterinary students will spend more than twice the amount of time practicing clinical skills than previous students. Arnold and Soder are available to any student who needs a little extra help mastering a skill, and if students want to learn and practice on their own, they can. The center is equipped with online tutorials and PowerPoint presentations that include video demonstrations of various clinical skills.

“Wood’s never without a way to get help,” Soder said. “I think they’re going to walk out of here and be ahead by leaps and bounds.”

Eventually, college leaders hope to increase use of the center by interns and residents in veterinary medicine and by veterinary technology students at Parkland College.
The essential ingredients of supportive sibling relationships

By Phyllis Picklesimer

m any moms and dads say the toughest part of parenting is keeping the peace when their kids squabble and bicker. But making an end to conflict your primary focus is a mistake, said Laurie Kramer, a UI professor of applied family studies and co-editor of a special section of Child Development Perspectives devoted to sibling relationships.

Parents should concentrate more on all the positive things they can do to help their children get along, Kramer wrote in an article for the journal.

“Even if you’re successful at reducing conflict and antagonism, research suggests that you’ll probably be left with little positive interaction between siblings,” she said. “Do you really want your kids to head for their rooms and spend time mainly on their own interests and with their own friends?”

She urges parents to think about the relationship they want their kids to have with each other — now and as adults — and to be intentional in helping them create that positive, supportive bond.

“Most parents would like for their kids to be able to talk with each other, have fun together, and be a source of support for each other during stressful times in their lives,” she said.

Kramer knows siblings can learn the skills that enable them to be more supportive brothers and sisters because her own research has demonstrated it. She is the creator of the UI’s More Fun With Sisters and Brothers program.

Kramer encourages parents to examine the goals they have for their children’s current and eventual relationship, and then to take the actions that will help their kids achieve those goals.

“If you love the idea of your kids just having fun together, schedule more family activities and help to make that happen,” she said. “If you do have big problems with fighting among your kids, help them learn and practice strategies for solving problems and managing conflicts.”

“Problems have solutions, and there’s a logical process that you go through to achieve consensus. Make sure both siblings understand what the fight is about, have them practice telling their own viewpoint and taking the other person’s perspective, then help them to brainstorm different ways of solving the problem that have a win-win solution. If the solution doesn’t work, well, you try again.”

Kramer knows that parents are busy and may believe they don’t have time for coaching perspective taking and problem solving. “Helping your children acquire these skills does take time and energy, but they soon become part of family life. Besides, your efforts will have lasting benefits. Your kids are developing positive ways of dealing with others that will be useful outside the family as well.”

There’s no doubt that sibling relationships are complicated. Brothers and sisters who differ in age and temperament often seem to delight in pushing each other’s buttons; however, normal sibling relationships actually feature many fluctuations between very positive and very negative behaviors. Kids can even have these opposing feelings simultaneously, she said. Because children’s emotions regarding their siblings are complex and confusing, it’s important for parents to be good role models, she said.

“If parents think it’s important for people to remain calm during an argument, to talk things out, and to try to see the issue from the other person’s point of view, they should behave that way with each other and with other adults,” she said. “Their kids are watching and learning from those interactions.”

Katherine J. Conger of the University of California at Davis co-edited the three-article section, “Perspectives on Sibling Relationships: Advancing Child Development Research,” in which Kramer’s article appears. The section is part of the August issue of Child Development Perspectives.
School of Music
Harp quartet to perform Sext. 11 concert

The School of Music will commemorate the ninth anniversary of the Sept. 11 attacks with its annual memorial concert.

The observance, free and open to the public, will begin at 7:46 a.m. Sept. 11 in Smith Hall. The start coincides with the time that the first hijacked plane struck the North tower of the World Trade Center in New York City. The program will conclude about 15 minutes later, marking the time that a second airliner struck the center’s south tower.

The recently formed UI Harp Quartet will perform the works “Carl & Ellie” from the Disney-Pixar film “UP,” J.S. Bach’s “Ich ruf zu dir,” Here (I call to you, Lord),” Debussy’s “Clair de Lune” and Faure’s “Berceuse” from the “Dolly Suite.” Op. 56.

As in previous years, there will be no speeches or talkings at the event, and audience members are asked to enter and leave in silence.

Office of Volunteer Programs
Volunteer fair is Sept. 8

The 2010 Campus Volunteer Fair will be from 10 a.m. to 2 p.m. Sept. 8 at the Illini Union. The event will feature more than 60 agencies with information on fall 2010 volunteer opportunities.

Free and open to the general public, the fair allows prospective volunteers to speak directly with representatives from dozens of Champaign-Urbana agencies. Attendees do not need to pre-register.

The event will provide information on a range of volunteer opportunities, including coaching sports through the Champaign Park District, making memorial teddy bears for Provena Covenant Medical Center, tutoring after school at University High School Elementary School in Champaign, providing manicures for indigent seniors, building green businesses and giving support to homeless and underprivileged residents.

Staff members from the Office of Volunteer Programs will assist attendees in identifying appropriate volunteer and service opportunities. For more information, e-mail ovp@illinois.edu or call 217-333-7424.

The Office of Volunteer Programs maintains a searchable database of Champaign-Urbana volunteer opportunities submitted by agencies that are available online after the event. The volunteer fair is sponsored by the Office of Volunteer Programs.

Assembly Hall
Single tickets on sale for Broadway series

Single tickets to the 2010-11 “WCIA 3 Broadway Series” are now on sale. The five shows presented this season: “Spring Awakening” (Oct. 17), “A Chorus Line” (Nov. 18), “Grease” (Dec. 1), “Mamma Mia!” (March 15) and “Legally Blonde” (May 1). All performances begin at 7:30 p.m. except for “Mamma Mia!” which will include a performance at 3 p.m. (subscriptions only) and 8 p.m. Subscriptions to this year’s Broadway series may be ordered through the first is charged.

Opening-night party Tiempo Libre, a Cuban Latin jazz group, will perform at 7 p.m. Sept. 10 in the lobby of Krannert Center for the Performing Arts as part of the center’s opening-night celebration. Admission is $5; doors open at 6 p.m. The event will feature outdoor food tents, as well as family activities in the lobby. Three-time Grammy-nominated Tiempo Libre is one the hottest young Latin bands today. Group members were all classically trained at La EMA, Cuba’s premier conservatory. Today, the group is a hit in the U.S. and abroad, celebrated for its incendiary performances of tumbao, an irresistible, dance-inducing mix of Latin jazz and the seductive rhythms of son.

Pay-by-phone parking being tested

The UI parking department is offering a new option to pay for parking at metered spaces on campus. Approximately 200 meters in four high-traffic parking facilities on campus have been equipped with the Versus Pay By Phone service for a three-month pilot program.

To take advantage of the option, customers can create a free Versus account with their cell phone number, license plate number and a valid credit card. When ready to park at a designated pay-by-phone metered space, simply call the Versus system and enter the requested information, including how long you wish to park. Customers also may sign up to receive text message reminders before meter time expires and can extend the parking session by calling the system from anywhere.

When using the pay-by-phone service, customers will pay the normal parking fees (UI rate of 75 cents per hour) plus a 50-cents convenience fee paid per transaction. If time is added to a meter with pay-by-phone, the convenience fee is charged.

For locations, visit www.parking.illinois.edu.

Illinois Program for Research in the Humanities
Apply for funds for interdisciplinary research

The Illinois Program for Research in the Humanities invites interdisciplinary teams of faculty members to apply for grants to fund symposia, lectures and other scholarly initiatives through IPRH’s new Collaborative Research Projects program. IPRH will provide up to $5,000 in funding to three project teams.

“The projects will be IPRH events but they also are intended as a means for more humanities and arts faculty to contribute to our programming and to fund projects that their departments may not have the resources to support at this time,” said Dianne Harris, the director of IPRH.

The deadline for proposals is noon on Oct. 15, the events must be held or the projects completed before October 2011. Application guidelines are available on the IPRH website, www.iprh.illinois.edu.

Questions about the program may be directed to Christine Catanzarite, IPRH senior associate director, at 217-244-7913 or catanzar@illinois.edu.

Center for Latin American and Caribbean Studies
Latin American films featured Sept. 17-22

The Third Annual Latin American Film Festival take place at the Art Theatre, 126 W. Church St., Champaign, from Sept. 17-22. The festival will feature five films from Bolivia, Brazil, Chile, Cuba and Uruguay. All of the films have been awarded prestigious national and international prizes and have never been shown in commercial movie
Sept. 2, 2010

**BRIEFS, CONTINUED FROM PAGE 18**

Theaters in the United States.

The film festival is designed for UI faculty and students, as well as the local community, to provide information about the cultural diversity and creativity of the Latin American region by offering representations and portraits of different cultural, political and social phenomena in Latin America.

The film festival is organized by the Center for Latin American and Caribbean Studies with the support and collaboration of the Art Theatre and several departments at Illinois and Parkland College.

For more information visit www.clacs.illinois.edu or contact Angelina Cotler, associate director, 217-333-8419 or cotler@illinois.edu.

**Spurlock Museum Guild**

Dinner, auction will be Sept. 24

The Spurlock Museum Guild will host its annual dinner and auction Sept. 24. The theme is "When in Rome ..." The Spurlock Museum Guild, formed in 1969, is committed to the museum's educational role in the community by sponsoring cultural events and endowing the Educational Resource Center. Proceeds of the annual auction support these efforts.

The honorary hosts of the 2010 auction will be Allan C. and Marlene Campbell. The dinner and auction will take place at the I Hotel and Conference Center, 1900 S. First St., Champaign. There is an auction preview at 5:30 p.m., buffet dinner at 6:30 p.m. and live auction at 7:30 p.m.

Auction items include antiques, jewelry, fine art, culinary delights, wine events and travel opportunities. Tickets are $60 per person. For more information, contact Kathy Kinser, 217-607-1270, or Beth Felts, 217-367-4779.

**Illini-Alert Emergency System**

Emergency system to be tested Sept. 14

At 10 a.m. Sept. 14, the campus will conduct a test of the Illini-Alert system, which sends e-mail and text messages in the event of a campus emergency.

Those that are not registered to receive emergency messages are urged to register immediately. Those who have already registered, should verify their contact information.

To register or verify your information go to: http://emergency.illinois.edu.

For questions or problems concerning the Illini-Alert Emergency System, contact the CITES Help Desk at 217-244-7000 or e-mail consult@illinois.edu.

**Film series to portray contemporary life in Asia**

The AsiaLENS film series will open Sept. 7 with a documentary that follows the trek of a porter through Nepal’s stunning mountain landscapes and rough social terrain, in a four-day effort to deliver a large refrigerator.

"Journey of a Red Fridge," the first of four films in the monthly series, will be shown at 7 p.m. in the Knight Auditorium at the Spurlock Museum. Ritu Saksena, associate director of the Center for South Asian and Middle Eastern Studies, will lead the post-screening discussion. The film follows a 17-year-old student who has supported his education by working as a porter carrying heavy loads through the mountains.

Succeeding films, presented at 7 p.m. on the first Tuesday of each month at the Spurlock Museum, will include "1428," from China (Oct. 5); "Unmistaken Child," from Tibet (Nov. 2); and "Burma VI," from Myanmar (Dec. 7).

AsiaLENS is a series of free public screenings of recent documentary and independent films addressing issues of contemporary life in Asia, introduced by local experts who lead audiences in post-screening discussions.

The series is organized by the Asian Educational Media Service in collaboration with the Spurlock Museum. AEMS is a program of the Center for East Asian and Pacific Studies at UI.

Complete information on the film series can be found at the AEMS website. For more information call 217-333-9597 or e-mail aems@illinois.edu.

ON THE WEB: www.aems.illinois.edu

**Calendar of events**

Because of reduced staffing, Inside Illinois will no longer include a campus calendar. Detailed information about campus events is available online and is easy to browse or search by topic or date.

To view the online calendars: ON THE WEB: http://illinois.edu/find/calendars.html
"The School of Art + Design Faculty Exhibition" continues through Sept. 26 in the UI’s Krannert Art Museum. The show, one of the nation’s oldest continuing annual faculty shows, serves as a once-a-year opportunity to view what the school’s world-class artist-teachers have been creating in their studios and exhibiting in galleries and exhibitions beyond the campus borders. Included in the exhibition are new works by painters, sculptors, designers, photographers and multi-media, digital and installation artists.

photos by L. Brian Stauffer

Faculty art on display through Sept. 26

"Hammock," by Tim Van Laar, oil on canvas.

"Jester with an Owl, 2009," by Kevin Roeder, basswood (linden tree) with a walnut base.

"Elephant Poster," by Deke Weaver, paper poster.

"Small Tragedies (One Hand Clapping), 2009," by Melissa Pokorny, digital inkjet prints, aluminum, polyurethane resin, polystyrene and silicon.


"Hammock," by Tim Van Laar, oil on canvas.

"Small Tragedies (One Hand Clapping), 2009," by Melissa Pokorny, digital inkjet prints, aluminum, polyurethane resin, polystyrene and silicon.

photos by L. Brian Stauffer