Study of ribosome evolution challenges ‘RNA world’ hypothesis

By Diana Yates
Life Sciences Editor

In the beginning – of the ribosome, the cell’s protein-building workbench – there were ribonucleic acids, the molecules we call RNA that today perform a host of vital functions in cells. And according to a new analysis, even before the ribosome’s many working parts were recruited for protein synthesis, proteins also were on the scene and interacting with RNA. This finding challenges a long-held hypothesis about the early evolution of life.

The study appears in the journal PLoS ONE.

The “RNA world” hypothesis, first promoted in 1986 in a paper in the journal Nature, proposed RNA might have existed in forms of the molecular evolution involved RNA and not proteins, and that proteins (and DNA) emerged later, said UI crop sciences and Institute for Genomic Biology professor Gustavo Caetano-Anollés, who led the new study.

“I’m convinced that the RNA world (hypothesis) is not correct,” Caetano-Anollés said. “This world of molecules existed before RNA and proteins had even existed if not tethered to proteins.”

The ribosome is a “ribonucleoprotein machine,” a complex that can have as many as 80 proteins interacting with multiple RNA molecules, so it makes sense that this assemblage is the result of a long and complicated process of gradual co-evolution, Caetano-Anollés said. Furthermore, “you can’t get RNA to perform the most salient function of protein synthesis that is necessary for the cell by itself.”

Proponents of the RNA world hypothesis make basic assumptions about the evolutionary origins of the ribosome without proper scientific support, Caetano-Anollés said. The most fundamental of these assumptions is that the part of the ribosome that is responsible for protein synthesis, the peptidyl transferase center (PTC) active site, is the most ancient.

In the new analysis, Caetano-Anollés and graduate student Ajiit Harish (now a postdoctoral researcher at Lund University in Sweden) subjected the universal protein and RNA components of the ribosome to rigorous molecular analyses – mining them for evolutionary information embedded in their structures. (They also analyzed the thermodynamic properties of the ribosomal RNAs.) They used this information to generate timelines of the evolutionary history of the ribosomal RNAs and proteins.

These two, independently generated “family trees” of ribosomal proteins and ribosomal RNAs showed “great congruence” with each other. Furthermore, Proteins surrounding the PTC, for example, were used as the ribosomal RNAs that form that site. In fact, the PTC appeared in evolution just after the two primary subunits that make up the ribosome came together, with RNA bridges forming between them to stabilize the association.

New analysis. UI crop sciences and Institute for Genomic Biology professor Gustavo Caetano-Anollés led a study that used molecular analyses to determine the evolutionary histories of the proteins and the RNAs that make up the ribosome.

The timelines suggest that the PTC appeared well after other regions of the protein-RNA complex, Caetano-Anollés said. This strongly suggests, first, that proteins are the baby measurements,” she said. “I’ve always been interested in science and I’m getting the chance to actually do it.”

Schantz and Miller were teamed through the Osher Lifelong Learning Institute, a campus program that offers classes, study groups, lectures and other educational opportunities to area residents older than 50. Membership in OLLI enables the students to engage in learning for the joy of it—which can include anything from courses in the arts and humanities to explorations of science and technology.

“I was asked to speak about my research at one of the OLLI events and I was sincerely impressed,” Schantz said. “They were so interactive and full of good questions. I had the thought when I gave the lecture that I wished my undergrads could see how they take a class. It was evident these people were truly lifelong learners.”

Schantz learned of the Citizen Scientist volunteer program through her association with Gene Robinson, the director of the Institute for Genomic Biology. Robinson, who started out as a biologist and later chose a career in educational computing, is one of a growing number of retirees returning to campus to assist researchers in their work.

Volunteer scientist. In his spare time, Paul Tenczar, right, volunteers to further the bee research conducted by Gene Robinson, the director of the Institute for Genomic Biology. Tenczar, who started out as a biologist and later chose a career in educational computing, is one of a growing number of retirees returning to campus to assist researchers in their work.
Tag team The RFID tagging system that Paul Tenczar helped create through his work with Gene Robinson, the director of the Institute for Genomic Biology, is shown. The tag, smaller than a period at the end of a sentence, is glued on a bee’s back and tracks the frequency at which it enters and leaves the hive. Robinson said Tenczar’s contributions led to the idea of partnering with the Other Lifelong Learning Institute to create the Citizen Scientist program.

Preparing for a tornado

The simple act of listening could save your life. Emergency management officials say that when a dangerous storm is approaching, it’s important to listen for the network of tornado warning sirens located on campus and to know what to do when they sound.

When you hear the sirens, the general advice is to go to the basement or the interior hallway or other enclosed area. Avoid areas with windows and auditoriums, gymnasiaums, or other large rooms where roof collapse may be likely. Avoid using the elevator if possible. If you are outside when you hear the warning siren, seek shelter in the nearest building.

Your building’s emergency plan should provide details on shelter locations, emergency supplies and communication resources.

Emergency warning sirens will be sounded only if a tornado is sighted or if the university is in the path of an approaching tornado. Sirens will be activated for three minutes. If the danger is still present, or a continuing threat exists, the warning sirens will be repeated every 30 minutes for as long as the condition continues. (Sirens are tested at 10 a.m. on the first Tuesday of the month.)

Inside Illinois

Editor Doris K. Dahl 217-333-2895, dkdahl@illinois.edu Assistant Editor Mike Heintzthal 217-333-2895, mikeheintzthal@illinois.edu Student Interns Liza Ahlberg Craig Chamberlain Phil Ciciora Shanta Forrest Dusty Rhodes Diana Yates

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UI opposes legislation to eliminate employee tuition discount

The UI has formally registered its opposition to proposed state legislation that, if adopted, would eliminate discount tuition waivers for employees.

Employees at Illinois public universities who have held positions for at least seven years are eligible to receive half-price tuition for their children. Each year, more than 2,000 students statewide take advantage of the tuition discount—a combined cost to the state’s public universities of $8 million a year. For fiscal year 2011, more than 840 employees, received the discount at the UI at a total cost of $4 million.

“Most universities around the country provide tuition waivers, so eliminating them would impair our ability to recruit and retain top faculty and staff members,” said UI President Michael J. Hogan. “The waivers are a reasonable benefit for our hard-working faculty and staff members, who contribute greatly to the state’s well-being through their teaching and research. The waivers are part of what universities consider the normal compensation package when we recruit faculty members in a very competitive market.”

At a Feb. 29 hearing on the legislation (House Bill 5531), sponsored by Rep. Luis Arroyo, D-Chicago, the university filed a formal notice of opposition, according to DoShanna Forney, the associate director of university governmental relations. Illinois public universities and organized labor testified in opposition to the legislation, which advanced out of the House Executive Committee and will be considered next by the full House of Representatives. If passed by the House, it would require approval in the Senate before final consideration by the governor.

“We will continue to talk to legislators on both sides of the aisle and let them know how this legislation would put public universities in Illinois at a competitive disadvantage,” Forney said. “We will do everything we can to explain our position.”

Common at colleges and universities nationally, including UI peer institutions, the waivers are an incentive to retain high-quality faculty and staff members.

Arroyo says the state cannot afford the waivers. If passed, the new legislation would be effective immediately. Two other bills, HB 2959 and HB 3873, also have been introduced that repeal the tuition waivers. If passed, the new legislation would be effective immediately.

On the Job features UI staff members. To nominate a civil service employee, email insideil@illinois.edu.
Open-source textbook was a three-campus collaboration

By Mike Holenthal
Assistant Editor

A nyone, anywhere at any time can thumb through the pages of an open-source textbook developed by experts from the three campuses of the UI.

The introductory textbook, “Sustainability: A Comprehensive Foundation,” is free for anyone to download from the Internet, copy, distribute or transmit, and it is compatible with any electronic reader.

“Students from all over the world can access this book,” said Jonathan H. Tomkin, the associate director of the School of Earth, Society and Environment, and a co-editor of the textbook. “We think this can make an enormous impact.”

He said the textbook is a money-saver for students facing runaway costs and a harbinger for the world can access this book,” said

...on the web...
Irish immigrants helped shape America’s cities

By Craig Chamberlain

Immigrants arrived by the millions between 1890 and 1920, a surge mostly from Ireland and southeastern Europe. As they landed in American cities, Chicago and New York among them, they found the Irish – Irish cops, politicians, saloon-keepers, teachers, priests, union bosses, gangsters.

“They wanted to save their souls, get a drink, find a job or walk around the corner, the newcomers often had to deal with entrenched Irish Americans.”


For many of these newcomers, “Irish” meant “American,” according to Barrett. The Irish were the Americans they interacted with, and whose strategies they often sought to emulate. As a result, the Irish would play a vital role, for good and bad, in “Americanizing” the newer arrivals and shaping the multiracial city.

How that happened – in the street, the parish, the workplace, the theater and the urban political machine – is the focus of Barrett’s book.

The Irish were essentially America’s first ethnic group, according to Barrett.

First, they traveled to America as farm workers, and migrants inhabited in their own transient settlements that afforded them economic, social, and cultural power. In the process, they shaped a world that later immigrants from the Irish and developed their own network of churches, political organizations.

Through the influence of liberal priests, some churches tried to accommodate black and Italian Catholics. Organizations the Irish formed to fight anti-Irish discrimination later adapted to fight immigration restrictions, the Ku Klux Klan and intolerance against all immigrants.

Six BOOK CORNER, Page 7

Irish influence The early arriving Irish played a large part, for good and bad, in Americanizing the waves of immigrants who came after them, and in forming a multiracial urban culture, says James Barrett, a social and labor historian and the author of “The Irish Way: Becoming American in the Multiracial City.”

They also became experts at building kinship networks and the villages they came from, but then constructed a national identity as Irish, as well as American.

ON THE WEB
http://us.penguingroup.com
Excellence in public engagement recognized with awards

Understanding individual and group outreach efforts recently were recognized with the 2012 Campus Awards for Excellence in Public Engagement. Recipients were honored March 13 at the Beckman Institute at a reception hosted by Vice President and Chancellor Phyllis M. Wise and presented by the Office of Communications Research; Richard Jaehne, the director of the Illinois Fire Service Institute; Christian Sandvig, a professor of media and computational expression in the department of and Communications Research; and Aaron Silver, an undergraduate student in the department of molecular and cellular biology.

The award recognizes faculty members, academic professionals and students who have consistently applied their knowledge and expertise to issues of societal importance for the public good.

Each faculty member and academic professional receives $1,500 and a permanent $5,000 award and also is made to the unit honored. Students receive $1,500 to be used for professional development or other educational activities.

Ruth Nicole Brown is well known for her imaginative interdisciplinary approaches to research and teaching. Brown is the founder and director of the Illinois Saving our Lives Hear Our Truth program, an after-school program that uses art-based activities, such as photography, music, dance and theater to encourage self- and collective expression. The program has forged a dynamic, intergenerational framework of middle school, high school, undergraduate and graduate students to promote the exploration of African-American girls’ expression. Brown’s work with the program has been recognized and rewarded through a number of fellowships at the UI.

She has worked with African-American girls in the after-school program as well as community-based performances, museum and campus-based photography exhibits and campus-based public performances.

In addition to her work with SOLHOT, Brown is a key member of groups nationally and on the UI campus that work to promote educational opportunities for students from underrepresented racial minorities. She serves on the board of the ESSENCE program, which supports K-12 science systems with majority African American student populations. She also has been a member of the Empowering Black Youth Coalition and the Central High School Focus Group on Girls. Her work with SOLHOT and outreach work at the UI have forged strong and lasting connections with local organizations, including young African-American girls.

Richard Jaehne is a visionary consensus-builder and leader who has transformed the Illinois Fire Service Institute into a model public engagement unit that provides unparalleled leadership in protective services training in the state, nation and worldwide. Under his leadership, the institute provides classroom and hands-on training to firefighters and first responders, conducts important research on issues facing the fire service and educates the public through community outreach.

Jaehne has consistently sought to engage new groups who previously would not have had contact with the university, whether it is taking firefighting training to local fire departments, or bringing local children, prominent officials and firefighters from across the state, country and world to the institute. Because of his efforts to reach firefighters in previously underserved areas, the institute has expanded its outreach to new fire departments and provides instruction to more than 900 fire departments statewide in all Illinois counties.

In his 14 years leading the Illinois Fire Service Institute, he has served on a variety of boards and commissions on campus, in the state and internationally. He is a co-chair of the Illinois Terrorism Task Force Training Committee and a vice president of the National American Fire Training Directors. He is a board member on the Asia-Pacific Association for Public Safety Science and Technology and an advisory committee member to the Command, Control and Disarmament and International Security.

Communication professor Christian Sandvig focuses his public engagement work on understanding the development of new communication infrastructures and their implications on public policy. He has created a long-term, mutually beneficial collaboration with the Tribal Digital Village, an innovative philanthropic and government project to provide high-speed solar-powered Internet to Native American communities. His colleagues at the Tribal Digital Village describe his work as important, and his ability to have the participants “tell their story” has opened many doors for the Tribal Digital Village program.

Sandvig’s teaching also incorporates substantial public engagement components. His general education course on technology incorporates a partnership with the Illinois Amish Interpretive Center. His policy-related courses also incorporate a public engagement component by using a panel of people working for nonprofits, artists, reporters and government officials who agree to mentor students. His graduate students have participated in his Tribal Digital Village collaboration and have co-presented the work with him.

In addition to his teaching and outreach projects such as the Tribal Digital Village collaboration, he also has developed an international reputation in the media and in his research specialty. His research has appeared in The Economist, The New York Times, NPR, The Associated Press and other media outlets. His research on infrastructure has changed government policy in the United States and internationally. His work has culminated in the founding of a campus research center called the Center for People and Infrastructure.

Aaron Silver, a member of Sigma Phi Epsilon Fraternity, founded and is the director of the Leadership Academy at Edison Middle School in Champaign. The academy is designed to teach students at the school the importance of leadership, volunteering and service learning. Not only has he dedicated his time in the last four years to the academy, he also has trained incoming college leaders to ensure the program will be a positive experience for Edison students for many years to come.

Silver also finds the time to efficiently and conscientiously engage himself in a variety of other worthwhile enterprises, such as volunteering in hospitals and serving as the chaplain and moral compass of his social fraternity. In addition, he tutors students in subjects where he once might have struggled, helping them to overcome obstacles.

ON THE WEB
http://pa.illinois.edu/CAEPE_list

Ruth Nicole Brown

Christian Sandvig

Richard Jaehne


date: March 15, 2012
Each game in the tournament can be viewed as a random experiment, with a different probability for each game (or each pair of seeds pitted against each other). Our research suggests that in the Elite Eight and beyond, we can model the performance of how far seeds progress. An implication of such a model is that it is less important which teams are playing each other, but rather, which seeds are playing each other. How does the BracketOdds site help aspiring bracketologists?

The site translates our model into a Web tool for anyone interested in assessing the seed combinations for their brackets in the Elite Eight and beyond. Let’s take the Final Four, for example. The most likely Final Four seed combination is 1, 1, 2, 3. In other words, 3 is about as likely as the most likely Final Four seed combination, 1, 1, 2, 3. In fact, there have been three such times that a team seeded No. 10 or worse has reached the Final Four. The hard part is predicting when it will occur, and that boils down to old-fashioned luck, plain and simple.

Are there any other insights you can share with the millions of people who might still be filling out brackets?

To help people calibrate the right number of upsets and seeming unpredictability. Yet your research has found distinct patterns. How can that help people trying to make sense of it all?

The laws of probability can neither be ignored nor avoided. The odds against one or more No. 16 seeds reaching the Final Four are about 791-1. The odds against all four No. 16 seeds reaching the Final Four are about 18-1, which is almost as likely as the most likely Final Four seed combination, 1, 1, 2, 3. In fact, there have been three such times that a team seeded No. 10 or worse has reached the Final Four. The hard part is predicting when it will occur, and that boils down to old-fashioned luck, plain and simple. Are there any other insights you can share with the millions of people who might still be filling out brackets?

On our website, we have a section called “Help With Building Your Bracket” that highlights numerous observations to help people calibrate the right number of upsets in each round. For example, the 12-5 upset in the round of 64 is often discussed, yet the 11-6 upset is just as likely to occur. In all but three of the past 27 tournaments, an average of just over 3 teams seeded No. 7 or lower have reached the Sweet Sixteen. As for upsets, in 18 of the past 27 tournaments, eight or fewer teams seeded No. 1, 2 or 3 reached the Sweet Sixteen (in other words, four or more did not). On the other hand, for the risk averse, in 11 of the past 27 tournaments, only teams seeded No. 1 or 2 have reached the Final Four; the odds against this occurring are 6-1.

A Minute With …”™ Archives

Recent interviews with UI experts

• Jonathan Maleia, expert on "space weather": "Why can we expect to see more activity like the recent solar flares?"

March 8, 2012

• Behrooz Ghameri-Fabrizi, historian and expert on the Middle East, on interpreting Iran’s recent national elections.

March 9, 2012

BOOK CORNER, CONTINUED FROM PAGE 5

Some Irish American union organizers sought to create a progressive, interracial labor movement. Irish American women played important roles in labor and suffrage movements, bridging working-class immigrants and middle-class whites.

In some cases, Irish Americans were motivated to include others in their organizations or political coalitions by a desire to retain their own power and influence, Barrett writes. In other cases, however, they were following ideals derived from their religious and political culture, as well as from their own history and experience.

“A legacy of real and imagined slights shaped Irish Catholic consciousness and their defensive urban culture,” Barrett writes. “They told themselves and others that their success was hard-won, that they must stick together and take care of their own.”

At its worst, this mindset became “an excuse for racial and ethnic intolerance,” Barrett writes. At its best, it led Irish Americans to support ethnic and racial inclusiveness, and progressive political and social reform, aspects of which continue to today.
Professors, partners share passion for Argentine tango

By Dusty Rhodes
Arts and Humanities Editor

Ask Claire Barker how she became a tango dancer and she tells a story that begins when she became a nun. Barker—a professor of internal medicine at the UI—had a friend who was staging a production of “The Sound of Music” at a local theater and needed more holy sisters for the abbey scenes. Barker auditioned, and was cast not only as a nun but also as a dancer in the ballroom scene. Dance coaches for the production noticed Barker’s knack for the Viennese waltz and encouraged her to continue dancing. She enrolled at the Regent Ballroom in Savoy, and soon fell in love with the Argentine tango. For the past five years, she has been hosting monthly “milongas” (tango dance parties) at the Channing-Murray Foundation on the Illinois campus.

Barker, though, is just one of several leaders of a surprisingly large and diverse community of Argentine tango aficionados at the UI. Joe Grohens, an English instructor at the university, has been teaching tango at Channing-Murray and hosting milongas at area nightclubs since 1998. Ron Murray, a former keyboard player, likens tango to soloing with a jazz band—following a structure, but playing freely within the form. “It’s more than steps; it’s a language you learn, and then you and your partner end up having a conversation,” he said. “Not all dances have that much of an improvisatory aspect.”

The improvisation is led by the male partner, which Weigel believes explains why a certain type of man gravitates to this dance. “At least in the United States and Europe, there’s an over-representation of men from the sciences, mathematics and engineering,” he said. “The improvisational capacity as a leader is intellectually challenging.”

The female partner’s role is to follow the male’s cues—a task that is neither as passive nor as stereotypical as it sounds, Barker said. “I think a lot of really intelligent women take up tango, and they have to give up the idea that they’re going to predict what the leader’s going to do. It probably took me 18 months before I even started to be able to do that,” she said. “And you know, as the mother of three and a physician, I’m in charge of a lot of things. So if he wants to be in charge, that is OK with me.”

The dance itself isn’t the sole attraction; Weigel said he and Susana were drawn first to the passionate music. Tango is typically accompanied by music recorded in Buenos Aires during tango’s “golden era,” between 1930 and 1955. The Weigels make an almost annual pilgrimage to Argentina, where they spend up to a month at a stretch, dancing every night. They have brought teachers from Argentina to lead workshops in Savoy.
were around before ribosomal RNAs were recruited to help build them, and second, that the ribosomal RNAs were engaged in some other task before they picked up the role of aiding in protein synthesis, he said.

“This is the crucial piece of the puzzle,” Caetano-Anollés said. “If the evolutionary buildup of ribosomal proteins and RNA and the interactions between them occurred gradually, step-by-step, the origin of the ribosome cannot be the product of an RNA world. Instead, it must be the product of a ribonucleoprotein world, an ancient world that resembles our own. It appears the basic building blocks of the machinery of the cell have always been the same from the beginning of life to the present: evolving and interacting proteins and RNA molecules.”

“This is a very engaging and provocative article by one of the most innovative and productive researchers in the field of protein evolution,” said University of California at San Diego research professor Russell Doolittle, who was not involved in the study. Doolittle remains puzzled, however, by “the notion that some early proteins were made before the evolution of the ribosome as a protein-manufacturing system.”

Caetano-Anollés agreed that this is “a central, foundational question” that must be answered.

“It requires understanding the boundaries of emergent biological functions during the very early stages of protein evolution,” he said. However, he said, “the proteins that catalyze non-ribosomal protein synthesis – a complex and apparently universal assembly-line process of the cell that does not involve RNA molecules and can still retain high levels of specificity – are more ancient than ribosomal proteins. It is therefore likely that the ribosomes were not the first biological machines to synthesize proteins.”

Caetano-Anollés also noted that the specificity of the ribosomal system “depends on the supply of amino acids appropriately tagged with RNA for faithful translation of the genetic code. This tagging is solely based on proteins, not RNAs,” he said. This suggests, he said, that the RNA molecules began as co-factors that aided in protein synthesis and fine-tuned it, resulting in the elaborate machinery of the ribosome that exists today.

The National Science Foundation and the United Soybean Board supported this research.

Graduate school rankings released

The UI graduate program in civil engineering was ranked No. 1 in the nation in the most recent U.S. News & World Report graduate schools rankings, released March 13. Several other UI programs received high rankings as well. As is the magazine’s usual custom, many programs were not evaluated this year.

Within the 37th ranked College of Business (up five places from last year), accounting was ranked No. 4.

In the College of Education (No. 22, up one from last year), curriculum and instruction was ranked No. 6, educational psychology No. 4, elementary education tied for No. 10, secondary education tied for No. 10, special education No. 9.

In the College of Engineering, again ranked No. 5 nationally for its graduate programs: aeronautical/astronautical (7), biological/agricultural (2), computer engineering (5), electrical engineering (tied for 1), environmental engineering (3), materials (4), mechanical (7), nuclear (10).

Clinical psychology also achieved a top 10 ranking, moving up to No. 6 from No. 10 in last year’s rankings.

Industrial design, a program within the MFA program, was tied for No. 10.

Molecular analyses

The researchers constructed an evolutionary history of the RNA (left) and protein (right, added to the ribosomal RNA) components of the ribosome. Older components are shown in red; more recent ones are blue. The two timelines “shoed great congruence” and suggest that ribosomal proteins co-evolved with ribosomal RNAs.
‘Repetition-break’ plot structure makes effective TV ads

By Phil Ciciora
Business and Law Editor

B
cautiful people, scenic locations, cool music and ... the right plot structure? That’s a pattern that structure found in folktales is po-
tent in television advertisements, according to published research by Jeffrey Loewen-stein, a professor of business administration at the UI.

Advertisements that use a “repetition- break” plot structure - that is, a pattern of similar events that’s broken by a final event, which ultimately creates new meaning for the viewer - generate more favorable brand attitudes and greater purchase intentions from consumers, as well as more plaudits from industry peers, Loewenstein says.

“Advertisements use the repetition- break plot structure only account for 4 per-
cent of television advertisements, but they are more likely than others, even ads from the same campaign, to be singled out by industry judges, to be posted and viewed on YouTube, and to engage consumers and improve their opinion of a brand,” he said.

Loewenstein, a co-author of the research with Chip Heath, of Stanford University, and Raghunathan of the University of Texas at Austin, says the secret ingredient of “repetition-break” ads is the narrative structure.

“You’re using repetition to teach people an expectation and then you’re violating that expectation to generate surprise,” he said. “We see it in all kinds of narratives – jokes, folktales, political cartoons. It also happens to be a very effective narrative structure for advertisements. If an advertiser needs to get their message across to as many different audiences and demographics as possible, Loewenstein says the repetition-break structure allows a latter-day Don Draper to craft a message readily understandable to the masses.

“Because repetition-break ads teach the expectations they later break, they tell you everything you need to know, so anyone can understand it,” he said.

According to Loewenstein, the most popular example of the form is the MasterCard “Priceless” ad, which first ran dur-
ing the 1990 World Series and has since spawned similar campaigns in more than 90 countries.

“Priceless” campaign, MasterCard was perennially behind Visa,” he said. “After the campaign, MasterCard was actually able to match and even exceed Vi-
as’ growth.”

According to Loewenstein, the reason the campaign resonated is that it connected with new consumer focus.

“MasterCard recognized that people now wanted experiences,” he said. “That’s why they needed to do something a little differ-
ent to surprise and grab people.”

The repetition-break structure is one that’s ready-made for social media and viral marketing campaigns, not just traditional marketing efforts, Loewenstein says.

“The goal of this plot structure is to surprise the viewer, which makes the mes-
ger more likely to be interesting and memorable,” he said. “Stories that surprise people, stories that evoke emotion – those are the kinds of stories that people want to share with friends and family. That’s why we saw higher numbers of Google hits, and more views and multiple postings on YouTube for ads with the repetition-break structure.”

The repetition-break ad can be used by small or major brands, but it’s probably most useful if the company is generating a new branding strategy, Loewenstein says.

“It can help someone who doesn’t have a budget because it is more likely than other ads, all else being equal, to be passed along. It does not require having a huge mega-
phone,” he said.

While there’s a lot of freedom to the form, the main challenge in crafting an ad-
vertisement with a repetition-break struc-
ture may well be getting the creative people to think “inside the box,” Loewenstein said.

“People who are creative tend not to want to work within pre-existing structures,” he said. “So the challenge for someone at an advertising firm is exploring what you can do with the structure instead of re-creating the wheel, and focusing on how to adapt the structure to convey your core message.”

“Surprising and emotional stories are

Positive impressions

Advertisements that use a “repetition-break” plot structure generate more favorable brand attitudes and greater purchase intentions from consumers, as well as more plaudits from industry peers, says Jeffrey Loewenstein, a professor of business administration at the UI.

The paper was published last fall in the Journal of Marketing.

TANGO, CONTINUED FROM PAGE 8

Urbana, and they strive to re-create the atmosphere of a traditional Buenos Aires milonga in Urbana’s Phillips Recreation Center.

“We’re kind of purists,” Weigel said. “I feel that there’s something very precious about tango that comes from the culture of Argentine tango music, and from the way that people dance that’s uniquely Argentine tango. And we want to prevent that.”

Sener, similarly, was drawn to tango by the music, growing up listening to Astor Piazzolla, the legendary bandoneon star whose compositions melded tango with classical and jazz. When Sener realized that tango was also a dance, he was thrilled: “You mean I get to embrace somebody while I move to the music of Piazzolla?” Then came the disappointment,” Sener said, “which is that Piazzolla is not ever played in a milonga.”

According to Argentine tradition, the mu-
sic of Piazzolla is unsuitable for tango danc-
ing. A popular saying compares dancing to Piazzolla to “eating a rose,” Sener said. So in 2002, he started hosting milongas specifi-
cally to do the music of Piazzolla – and any other musical group that strikes his fan-
cy. Now, he and Chantelle Houghland host monthly milongas at Krannert Art Museum, on the UI campus, where they regularly fea-
ture tango music that’s that’s ready-made for social media and viral marketing campaigns, not just traditional marketing efforts, Loewenstein says.

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“Surprising and emotional stories are

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March 15, 2012

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PROFESSOR OF BUSINESS ADMINISTRATION AT THE UI

Medium of tango Professor Ron Weigel and his wife, Susana Vazquez Weigel, have been teaching Argentine tango since 1999, and hosting milongas for the Tango Society of Central Illinois, which contributed funds for the purchase of a sculpture titled “Tango” in Urbana’s Meadowbrook Park.

What he loves about the dance is that, even as a teacher, he’s still learning. ‘There is a depth to tango,’ Grohens said. ‘I could go on learning about it for the rest of my life. I like hobbies like that – where there’s so much to it, you can’t ever exhaust it.’

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Graduate College helps underrepresented students succeed

By Mike Helenthal
Assistant Editor

March 15, 2012

InsideIllinois

PAGE 11

Rayvon Fouché

F

March 15, 2012

the UI to pursue his doctoral work.

grams also affected his decision to return to

assist underrepresented students. The pro-

breadth of Graduate College programs that

come clearer in the years since.

decided to go for it,” he said.

what direction academia would lead him.

versity of Puerto Rico at Río Pedras, unsure

him to become an academic leader. He was

mentor he still communicates with, offered

support I needed to get me through the

program, it immersed me in an English-

research for the first time,” he said, “and I

needed to improve.”

“Without that support, it would have been

much harder to get through those years.”

“Not only did it give me the financial

support I needed to get me through the

program, it immersed me in an English-

speaking academic environment,” he said.

“If I ever need assistance or guidance, Ave (Alvarado,

the director of Educational

Equity Programs) knows ex-

actly who to refer me to,” he

said. “It has put me on a path

for a tenure-track position.”

Fouché said part of the Graduate

College’s revamped processes includes better

tracking of student outcomes, a develop-

ment that was started this year.

“IT'S A UNIQUE WAY OF THINKING ABOUT THE

pathway for underrepresented students,” he

said of the Graduate College’s programs.

“It’s a scholarly support pathway.”

Fouché said the program is in fact a

process of seven distinct methods that are

applied at different points throughout a stu-

dent’s academic career. The ultimate goal is
to target underrepresented students and set
them on the path toward professorship.

The processes involve identifying and

recruiting high-performing students, offer-
ing summer research experiences for un-
dergraduates, and continued networking for
students further along in doctorate studies.

“The goal is to reach out to them at spe-
cific, important moments,” he said. “We
want to recruit early on and give students a
sense of community,” he said.

The processes targeting underrepresented
students have been around the UI for at least
two decades, but Fouché said Graduate Col-
lege leaders have worked recently to bolster
them on the path toward professorship.

“Sometimes they struggle understand-
ing the transition from undergraduate to

graduate,” he said. “It’s a different way of
thinking; it’s a focus on creating innovative
research by finding a common thread amid
loose connections.”

Jamil D. Johnson, currently working to-
ward a doctorate in education, policy, orga-
nization and leadership, said the Graduate

College’s varied programs have been life-

lines for him.

“As a first-generation under-

represented status and being from one of

toughest neighborhoods in Chicago, I

never imagined I would be working toward my Ph.D.,” he

said. The Graduate College not only helped him imag-

ine it, but is helping make it happen.

“If I ever need assistance or guidance, Ave (Alvarado,

the director of Educational Equity Programs) knows ex-

actly who to refer me to,” he

said. “It has put me on a path

for a tenure-track position.”

Fouché said part of the Graduate

College’s revamped processes includes better

tracking of student outcomes, a develop-

ment that was started this year.

“It’s our first cohort and we’re going to

start tracking them much more closely,” he

said. “This will help us to take steps for-
ward and keep the focus on areas where we

need to improve.”

The effort is already paying off, as evi-
denced in the recent Award

for Excellence in Innova-
tion in Graduate Education

granted by the Midwestern

Association of Graduate

Schools and the Educa-
tional Testing Center. It’s
the first time the university

has earned the award, which
will be presented at an April
13 conference in Chicago.

“Not only will this award

allow you to enhance sup-
port systems and networks
designed to engage underrepresented stu-
dent populations,” said Samuel Attoh,

award committee chair, “it also reflects
your commitment and dedication toward
supporting quality programs that enhance
graduate student development.”

“It confirms we’re on the right track,”

Fouché said. “We’re changing the nature

of graduate education for underrepresented
students.”

Head of business administration appointed

By Phil Ciciora
Business and Law Editor

A

rtic Rindfleisch has been appointed

head of the department of business

administration and the J.M. Jones

Professor of Marketing at the UI, pending

approval by the UI Board of Trustees.

Rindfleisch will assume his new posi-
tion in August. He is the McManus-Bas-
com Professor and chair of the marketing
department of the University of Wiscon-
sin School of Business. Rindfleisch was

a research professor at Korea University

and previously served on the faculty of

the University of Arizona and Tilburg
University, in the Netherlands.

Rindfleisch’s research focuses on un-
derstanding inter-organizational relation-
ships, consumption values and new prod-
cut development. Prior to his academic

career, he worked for J. Walter Thomp-
son-Japan, Millward Brown and the U.S.
Army.

He earned a Ph.D. in marketing and

sociology at the University of Wisconsin

at Madison in 1998, and an MBA at Cor-
nell University in 1990.
Breastfed babies less likely to be picky eaters as toddlers

By Sharita Forrest

Breastfed babies are less likely to become picky eaters as toddlers, according to a recent study of 129 mothers and their children.

Juhee Kim, a researcher at the UI, analyzed baseline survey data from the Syn-ergistic Theory and Research on Obesity and Nutrition Group Kids (STRONG Kids) program to determine the implications of infant feeding practices on health behaviors and risks of obesity among 2- and 3-year-old preschool children.

Children breastfed exclusively for their first six months were 81 percent less likely to develop a preference for specific food-preparation methods, and 75 percent less likely to develop food neophobia – the fear of trying new foods, Kim found.

Even infants who were breastfed exclusively only for their first three months were 59 percent less likely to develop a preference for specific food-preparation methods and were less likely to develop picky eating behaviors, demonstrating that “any amount of breastfeeding was better than nothing,” said Kim, who is a professor in the department of kinesiology and community health.

Infants introduced to complementary foods before 4 months of age were 3.7 times more likely to eat a limited variety of foods later on. If introduced to complementary foods before 6 months, children were 2.5 times more likely to develop food neophobia as well.

Mothers were asked to report the age at which various foods – including breast milk, formula, and other milks, as well as baby cereal, pureed baby food and chopped or regular table foods – were introduced to the children. Mothers also were surveyed about their breastfeeding practices, including the duration, whether they breastfed exclusively and if complementary foods except formula were introduced before their infants were 4 months or 6 months old.

The American Academy of Pediatrics currently recommends six months of exclusive breastfeeding and delaying the introduction of complementary foods until infants are 4-6 months old. However, only 15 percent of mothers in the U.S. follow the exclusive breastfeeding recommendation, said Kim, who has led several studies that explored possible links between breastfeeding, day care usage and children’s weight problems.

The current study is believed to be the first of its kind to document an association between adherence to the academy’s infant feeding guidelines and the development of picky eating behaviors in preschool-aged children.

Picky eating behavior is a complex term with several dimensions, but includes consistent unwillingness to try new foods or rejection of particular food groups, and preferences for specific preparation methods, all of which can limit dietary variety.

“National dietary guidelines promote eating more fruits and vegetables, but oftentimes those are the foods least liked by children, especially young children,” Kim said. “If mothers breastfeed exclusively for the first six months, the children are less likely to reject fruits and vegetables (when they get older).”

Breast milk gives infants opportunities to sample the flavors of all the foods consumed by their mothers, broadening children’s palates so they appreciate a wider variety of flavors when they’re weaned and eating on their own.

Although researchers aren’t certain why children develop food neophobia and limited food preferences, Kim said it may be because their digestive systems aren’t developmentally ready when solids are introduced, causing gastrointestinal discomfort or food allergies. Early negative experiences may explain why children in the study who began ingesting solids at younger ages, before 4 or 6 months of age, were more likely to become picky eaters.

Besides being a source of constant frustration for their parents and other caregivers, picky eaters face higher risks of health problems as children and perhaps as adults. They tend to gain less weight during their first two years of life, and more than 11 percent of them fail to thrive. A few recent studies suggested that food neophobia is related to the onset of obesity. Unhealthy eating patterns persist through childhood, children may be at increased risks of health problems as adults.

“Kids with picky eating behaviors are more likely to have problems with weight gain, either underweight or obesity,” Kim said. “It has been proven that less breastfeeding and earlier weaning and introduction of solids are strong risk factors for later overweight/obesity.”

Co-authors on the study were Jae Eun Shim, a professor at Daejeon University, South Korea, and Rose Ann Mathai, a doctoral student in nutritional sciences at Illinois.

The study appeared in the September 2011 issue of the Journal of the American Dietetic Association.
University Ethics Office: Economic Interest forms due April 20

The Office of the Secretary of State is sending notification letters and forms to UI employees required to file a Statement of Economic Interests under the Illinois Governmental Ethics Act.

All completed forms must be submitted to the University Ethics Office by April 20 for review. The ethics officer will review and forward all completed forms to the Office of the Secretary of State.

Send forms through U.S. mail to University Ethics Office, Human Resources Building, Room 20, One University Plaza, HRB 20, Springfield, IL 62703-5407. Forms should not be sent through campus mail.

Employees with questions about the criteria for filing may call the Ethics Help Line at 866-758-2146 or visit the University Ethics Office website.

Questions about the Illinois Governmental Ethics Act should be directed to the Office of the Secretary of State at 217-782-7017.

ON THE WEB
www.ethics.illinois.edu/statements/

March 15, 2012
InsideIllinois PAGE 13

brief notes

Topeka, Kansas — The 14th annual Roger Ebert’s Film Festival, April 25-29 at the University of Illinois, will be March 30-April 1 at the Activities and Recreation Center.

The schedule of films for “Ebertfest” will be available from the lab’s website. A basic understanding of survey research methods is recommended as a prerequisite. A description of each seminar is available online.

Participants may register for more than one seminar. The seminars will each be from noon to 1 p.m. in Room 201 at 505 E. Green St., Champaign, and will be led by senior staff members.

Registration is online only at www.srl.uic.edu/seminars. The seminars will begin at 4 p.m. in the group discussion format. All MillerComm lectures are free and open to the public. For more information, visit cas.illinois.edu/economics.

Roger Ebert Film Festival
‘Ebertfest’ tickets go on sale April 2

Tickets for individual films will go on sale April 2 for the 14th annual Roger Ebert’s Film Festival, April 25-29 at the Virginia Theater in Champaign and at the UI.

The schedule of films for “Ebertfest” will be available in late March on the festival website (www.ebertfest.com), according to Mary Susan Britt, the festival’s assistant director.

Tickets will be available through the theater box office (phone: 217-356-9063; fax: 217-356-5729) and online through the theater website (www.thesvirginia.org). The price will be $13 each for regular admission and $11 for students and senior citizens. Sales will be limited and advance registration is required.

Walmart Ethics specialist Cindy Moehring and Ami Spivey, the vice president of innovations, engineering and global processes for Sam’s Club, has spent 18 years with Walmart leading both its distribution center and transport operations. As vice president of innovations, she leads a team that facilitates process and systems improvements for Sam’s Club.

Sterba, a regional compliance director, has held various positions in regulatory, structured products, risk consulting, operations and systems for the past 20 years. She has spent six years at BP beginning with her work in building BP’s trading compliance program. Previously a vice president of regulatory affairs, she is now responsible for ethics and compliance for integrated supply and trading global oil Americas.

College of Business
Lecture on ethics, leadership is April 2

The College of Business will host the Leighton Lecture on Ethics and Leadership at 4 p.m. April 2 in the Deloitte Auditorium of the Business Instructional Facility.

“Managing Organizational Integrity in an Age of Texts, Tweets and WikiLeaks” will be presented by Keith T. Darby, the executive director of the Ethics and Compliance Officer Association. The lecture is sponsored by the Center for Professional Responsibility in Business and Society.

For 40 years, Darby has been a leader in the financial services industry as well as a scholar of business ethics, corporate governance and organizational leadership. He was a senior executive at Marine Midland Bank for 15 years, heading consumer banking and corporate finance. He also served as executive vice president of IBJ Whitehall Bank and Trust, CEO of the insurance company IGM and CEO of a related derivatives trading company. He has extensive experience serving on numerous ethics-related boards.

He is chairman of the board of the Better Business Bureau Foundation, on the board of DebitNetworks and is a member of the Global Anti-Corruption Council of the World Economic Forum. He served on the boards of E*Trade Bank and New York National Bank.

Darcy is an executive fellow of the Ethics Resource Center at Washington, D.C., and teaches ethics and leadership at the Wharton School. He was an associate dean and Distinguished Professor of Business at Georgetown University.
21st century led, to a broad cultural, economic and political change in the 1980s and the Chinese economy in the first decades of the 21st century. The Chinese economy has experienced a surge in growth, leading to a perceived dominance of both the Japanese economy in the early 1980s and the American reactions to both. “The perceived risk to American culture and discourse of both eras,” Shao said.

Collectorium to focus on ‘Asian Invasions’

The UI will host an interdisciplinary colloquium April 5-6 that will explore the topic “A Cultural and Economic Understanding of ‘Asian Invasions’.” The U.S., Japan, and China, 1400-1940.”

The colloquium will be centered on the discussion of a set of readings and videos that represent and explore the experiences of the era under discussion, according to Shao Dan, a professor of East Asian languages and cultures, and Matthew Brown, the president of the Academy on Capitalism and Limited Government. Dan and Brown are co-organizers of the event.

Discussions will center on the ascendancy of Japan in the 1980s and the more recent upsurge of the Chinese economy and the American reactions to both. “The perceived potential dominance of both the Japanese economy in the 1980s and the Chinese economy in the first decades of the 21st century led, to a broad cultural, economic and political uneasiness and fear that was an important factor in American culture and discourse of both eras,” Shao said.

Thomas Easton, the Asia business editor of The Economist, will give the keynote address from 2-3 p.m. in Room 407 of the Levic Faculty Center. Easton joined the magazine in 2000, and was based in New York as the bureau chief before being appointed the Asia business editor in 2007. He covers business and finance throughout Asia with an emphasis on China.

Other sessions will continue on April 5, from 4:30 p.m. to 6 p.m. in Room 211 of the Illini Union and April 6 from 8 a.m. to 4 p.m. in Room 211 of the Illini Union. (Note: Discussion sections of the colloquium will begin at 4 p.m., April 5, and will be open only to invited participants.)

This event is co-sponsored by the Center for Advanced Study; the Academy on Capitalism and Limited Government; the School of Literatures, Cultures, and Linguistics; the Center for East Asian and Pacific Studies; and the de- partment of East Asian languages and cultures. For more information, contact Shao at danshao@illinois.edu.

By Dusty Rhodes

A ward-winning poet and memoirist Toi Derricotte will visit the UI campus to open the spring semester Carr Reading Series on April 4.

Derricotte’s 1997 memoir “The Black Notebooks” distilled 20 years of journal-keeping into a chronicle of the racism she experienced as a light-skinned black woman, often mistaken for white. The book won numerous awards and was a New York Times Notable Book of the Year. Derricotte is also the author of five books of poetry, most recently “The Undertaker’s Daughter,” which looks back on her childhood in an abusive home, but “is about how one re-gains the self,” she recently told Pittsburgh City Paper.

Derricotte’s long list of honors includes two Pushcart Prizes, a Barnes & Noble Writers for Writers Award, and fellowships from the Guggenheim Foundation, the Rockefeller Foundation and the National Endowment for the Arts. She co-founded Cave Canem, a workshop and retreat for African-American poets, and is a chancel-lor to the Academy of American Poets. She is an English professor at the University of Pittsburgh.

Joy Harjo, a member of the Muskgogee (Creek) Nation whose most-anthologized poem is “She Had Some Horses,” will read from her forthcoming memoir “Crazy Brave” on April 11. Her seven books of po-etry have won a variety of awards, includ-ing a Lila Wallace-Reader’s Digest Award, the William Carlos Williams Award from the Poetry Society of America, and the Lifetime Achievement Award from the Na- tive Writers Circle of the Americas. She’s the author of a young adult novel (“For a Girl Becoming”), and a collection of essays, interviews and newspaper columns called “Soul Talk, Song Language.” In addition to her books, Harjo has released four CDs of original music and won the Native American Music Award for female artist of the year in 2009. She has performed her one-woman play, “Wings of Night Sky, Wings of Morning Light,” at the Public Theater in New York City.

Amelia Gray will read from her first novel, “Threats,” on April 18. She was awarded the Ronald Sukenick/American Book Review Innovative Fiction Prize for her short-story collection “Museum of the Weird.” Her novel was recently the topic of Huffington Post’s “The Book We’re Talk- ing About This Week” feature.

All three readings begin at 4:30 p.m. in the Author’s Center on the second floor of the Illini Union Bookstore. The Carr Reading Series is made possible by a gift from Robert and Katherine Carr. The events are free and open to the public.

GSLIS

Research showcase is March 30

The Graduate School of Library and Information Science will host the 2012 GSLIS Research Showcase at 1:30 p.m. March 30. Chancellor Phyllis M. Wise will give opening remarks.

The event features faculty members and doctoral students from the school presenting short talks, a poster ses-sion and demonstrations highlighting their scholarly work. Topics include data curation, gender studies, natural-lang-uage processing, digital librarianship, history of informa-tion, community informatics, information retrieval, meta-data, children’s literature, cultural informatics, e-science and information behavior.

A reception and poster session follows the presentation session. Events are held in the East Foyer and Rooms 126 and 131, in the GSLIS Building. More information, including a list of topics and presenters of the short talks, can be found at www.lis.illinois.edu/research/showcase.
Jennifer Barnes, a doctoral student in the department of food science and human nutrition, received the 2012 Harry M. Vars Research Award from the American Society for Parenteral and Enteral Nutrition for her work in producing therapies for use in pediatric intestinal failure.

Barnes won the award for her work on the paper “Intestinal Adaptation is Stimulated by Partial Enteral Nutrition Supplemented With the Prebiotic Short-Chain Fucotriosegalactoarabiose in a Neonatal Intestinal Failure Piglet Model,” which will be published in the society’s Journal of Parenteral and Enteral Nutrition.

Founded in 1976, the society is dedicated to improving patient care through advancing the science and practice of clinical nutrition and metabolism.

Robert Easter, former dean of the College of Agricultural, Consumer and Environmental Sciences, received the 2012 Distinguished Service Award from the Illinois Pork Producers Association for his contributions to swine-related research projects and his leadership in the college.

“Dr. Easter’s illustrious career has included conducting leading-edge swine-related research projects and teaching students and others around the world about ways to improve pig production,” said Dereke Dunkirk, the association’s president. “He has made significant contributions to improving pig production throughout his career, including his work as an educator and swine farm manager at the UI.”

Fisher served on the Illinois Purebred Swine Council and was president for four years. His leadership and guidance in helping with the birthing center at the Illinois State Fair and his involvement in the National Pork Board’s Operation Main Street have helped thousands of people learn more about pork production.

Engineering

Iwona M. Jasiuk, a professor of mechanical science and engineering, has been elected a 2012 fellow of the Society of Engineering Science for her contributions to the field.

Jasiuk’s research focuses on models to explain the structure and behavior of man-made and biological materials.

The society is dedicated to promoting engineering science and providing a forum for discussion, education and recognition of the talents of the engineering science community.

Lane W. Martin, a professor of materials science and engineering, has received the National Science Foundation’s Faculty CAREER Award for his proposal “Enhanced Pyroelectric and Electrocaloric Effects in Complex Oxide Thin Film Heterostructures.”

Martin’s project includes research on creating new and complex materials, computational and theoretical approaches to materials design and optimization, and advanced characterization of materials properties.

The award honors the nation’s best young university faculty members for their commitment to integrate research and education in the nation’s universities and to make lifelong contributions to their disciplines.

Mosehe Matalou, a College of Engineering Caterpillar Professor of mechanical science and engineering, has been elected a fellow of the American Institute of Aeronautics and Astronautics for his contributions to the field.

Matalou’s research focuses on combustion and chemically reacting flows. He is internationally renowned for his numerous contributions to the development of combustion theory in the last three decades, including the structure and dynamics of premixed and diffusion flames, combustion instabilities, flame stabilization and dynamics of edge flames, wrinkled and turbulent flames, burning of condensed fuels and spray combustion.

The rank of fellow in the AIAA is for “persons of distinction who have made notable and valuable contributions to the arts, sciences, or technology of aeronautics or astronautics.”

C.K. Gunsalus, a professor in the Coordinated Science Laboratory and a professor emerita in the College of Business, has been appointed to the National Academies’ Committee on Responsible Science. Her one-year term began Jan. 1.

The committee will be responsible for preparing a second edition of the 1992 report “Responsible Science: Ensuring the Integrity of the Research Process.”

The report established definitions and standards that underlie current policies and practices, including the Office of Science and Technology Policy’s adoption of its definition of research misconduct as “fabrication, falsification or plagiarism” in 2000.

“It is an honor to be chosen for this committee and to work with a group of people who are committed to promoting and preserving responsible research conduct,” Gunsalus said.

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

Mara R. Wade, a professor of Germanic languages and literature, received a three-month fellowship as Senior Fellow of the Landes Niedersachsen for research at the Herzog August Bibliothek in Wolfenbüttel, Germany, the leading European research center for literature and culture before 1800.

This is a special initiative of the state of Lower Saxony to bring internationally recognized senior scholars in the humanities to the Duke August Library for periods of intense research and writing.

The highly competitive fellowships target scholars working in historical areas of cultural and knowledge transfer and the history of media and institutions of learning. Particular emphasis was placed on research investigating the reciprocal relationship between images and texts in the early modern period.

March 15, 2012

Inside Illinois

PAGE 15

ACES

Rob Olshansky, a professor and the acting head of the department of urban and regional planning, was named a 2012 fellow by the American Institute of Certified Planners. Olshansky will be inducted at the American Planners Association national conference on April 15 in Los Angeles.

Olshansky’s research focuses on recovery following large disasters, such as the 2008 earthquake in Sichuan Province, China; the 2010 earthquake in Haiti; and the 2011 earthquake and tsunami in northern Japan.

The College of Fellows is dedicated to mentoring and the future advancement of the profession of planning. As outstanding professionals in the field of planning, fellows of the institute address student organizations, state APA conferences and professional development programs.

LA5

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