Killeen picked to lead U. of I.

Timothy L. Killeen, the vice chancellor for research and the president of the Research Foundation of the State University of New York, was named the 20th president of the U. of I. on Nov. 19, pending formal approval by the U. of I. Board of Trustees at its Jan. 15 meeting in Chicago.

Killeen, 62, who would succeed retiring President Bob Easter, has more than three decades of experience as a teacher, researcher and administrator in public higher education and in top leadership positions with national scientific research agencies.

His work at SUNY mirror concerns of the U. of I. supporting pioneering research and scholarship across disciplines, and taking it to the marketplace to drive economic growth.

“Academic research institutions are the greatest renewable economic resource a country has ever had, and we are thrilled to have one of the greatest living researchers in the America to lead the University of Illinois,” Board Chairman Christopher G. Kennedy said.

Killeen spent more than 20 years on the faculty and in administration at the University of Michigan, and served as the interim director for geosciences at the National Science Foundation before joining SUNY in 2012.

A leading researcher in geophysics and space sciences, Killeen earned his Ph.D. in atomic and molecular physics from University College London at the age of 23. In 2007, he was elected to the National Academy of Engineering, which honors the world’s most accomplished engineers.

As the president of SUNY’s Research Foundation, Killeen is the chief executive officer of the largest, most comprehensive university-connected research foundation in the nation, administering about $900 million annually across SUNY’s statewide network of 29 state-supported research campuses. He also is the vice chancellor for research and chairs SUNY’s Patent and Inventions Policy Board.

He was selected from a field of 200 candidates during an eight-month search by a diverse board-appointed committee.

“Dr. Killeen’s passion for public higher education, coupled with an innovative and creative spirit, will propel our university into the future,” said Doug Beek, a professor of physics and co-chair of the presidential search committee.

Killeen said he was drawn to the U. of I.’s nearly 150-year legacy of excellence in education, research and service to the state and nation.

“I am thrilled and deeply honored to have been selected by the University of Illinois Board of Trustees to serve as the next president of this incredible university,” Killeen said. “The University of Illinois, with its three distinctive world-class campuses, stands poised to build on its tremendous and ongoing history of accomplishment to envision and define the future of public comprehensive higher education. I will devote myself to this noble enterprise with every ounce of my energy. I thank the board of trustees for their confidence in me.”

Team discovers how microbes build a powerful antibiotic

By Diana Yates

Life Sciences Editor

Researchers report in the journal Nature that they have made a breakthrough in understanding how a powerful antibiotic agent is made in nature. Their discovery solves a decades-old mystery.

The team focused on a class of compounds that includes doxycycline with antibiotic properties. The most famous of these is nisin, a natural product in milk that can be synthesized in the lab and is added to foods as a preservative. Nisin has been used to combat food-borne pathogens since the late 1960s.

Researchers have long known the sequence of the nisin gene, and they can assemble the chain of amino acids (called a peptide) that are encoded by this gene. But the peptide undergoes several modifications after it is made, changes that give it its final form and function. Researchers have tried for more than 60 years to understand how these changes occur.

“Peptides are a little bit like spaghetti: they’re too flexible to do their jobs,” said U. of I. chemist professor Wilfred van der Donk, who led the research with biochemistry professor Satish K. Nair. “So what nature does is it starts putting knobs in, or putting the peptide cyclical.”

Special enzymes do this work. For nisin, an enzyme called a dehydratase removes water to help give the antibiotic its final, three-dimensional shape. This is the first step in converting the spaghetti-like peptide into a five-ringed structure, van der Donk said.

“Think of it as a beautiful wheel with 11 spokes that then turns into a pentagon.”

“Peptide antibiotics and probiotics are in development and there is interest in developing new antibiotics,” said Michael Bass, the senior associate vice president and comptroller for the U. of I. Office of Business and Financial Services, has been tapped to serve on a transition subcommittee.

“I am excited and honored that the University of Illinois will be among the voices representing higher education and helping the new governor to ensure our state remains a national and global leader,” she said.

The state’s budget crisis directly affects the U. of I. on many levels.

Immediately, the loss of the temporary income tax increase would cost the state $2 billion this fiscal year and $4 billion the next year—a development that Walter Knorr, the university’s chief financial officer, has said could translate into a $70 million annual loss to the university. That would be at least a 10 percent drop, consider- ing the annual state appropriation to the university is around $650 million.

There also is the uncertainty of the unfunded pension liability and the fate of corrective pension legislation under review by Illinois courts; worries that state bond ratings will further drag down the university’s borrowing power; a backlog of bills that include late payments regularly affecting the state’s ability to pay vendors; and the possible transfer of pension and health benefit obligations to the university in the future.

“With all of the important issues being faced by this state, and with many of those affecting the university directly, it’s important to at least be at the table and to continue advocating for higher education as a part of the solution,” Wise said.
InsideIllinois

Nov. 20, 2014

PAGE 2

SEC reviews two new campus public communications

By Mike Holenthal

Assistant Editor

The Provost’s Office of the Provost reported on two new campus public communications projects at the Senate Executive Committee meeting Nov. 10 and to the Urbana-Champaign Senate Nov. 17. The first, Communication 26, outlines the long-standing promotion review process that has been found in Communications 19 and places the new stand-alone procedural document for special faculty professorial promotions. The change was announced in Communi- cation 25, released in April, and provides employment guidelines for specialized faculty in non-tenured positions.

Katherine Galvin, the associate provost for public affairs, said Communication 26 reiterates the long-standing pro- motion review process that has been found in Communications 19 and places the new stand-alone procedural document for special faculty professorial promotions. The change was announced in Communi- cation 25, released in April, and provides employment guidelines for specialized faculty in non-tenured positions. The time is now.”

Galvin said staff members in the Office of Public Affairs are working to help units walk through the process.

“The Provost’s Office is interested in helping anyone who wants to,” she said. Nicholas Galvin, the provost and vice chancellor for academic affairs, said the communications are reviewed every year and “everyone more time to put it all together.”

He was further instructed to specifically study the Urbana proposal, which, in partnership with Carle Health Care, would create the in the Illinois Bioengineering Institute and the Beckman Institute and to the top-ranked College of Engineering.

He said the proposal would “maximize the collective potential of the campuses, which will have joint departments, 260 active partnerships, including with the College of Engineering and throughout the Chicago health care industry.

“We can use what we already have to build on the existing structures in these ar- eas,” she said. “It’s important to identify ways that all campuses can work together. Our goal is to do what’s best for the entire university system.”

She cited faculty leaders said Eas- ter’s March deadline is a positive develop- ment for the Urbana Plan, which has gained preliminary approval at the campus level but needed for more detailed discus- sion before implementation.

“Means more time at the campus level to really vet this proposal,” said Nicholas Barbules, a senator and professor of educa- tion policy, organization and leadership, at the Nov. 10 Senate Executive Committee meeting. He said that time could be used to further buttress the positive aspects of the chan- nelling effort, such as to “shun broad-based support” behind it.

“Useful to have people discuss this more in Community 9 long days into SEC chair and a professor of computer science, at the same meeting. “I’ve pleased we have more time to give it everyone more time to put it all together.”

It includes input from guidelines developed by the senate’s General University Policy Committee and a campus survey that last year, was completed. It is a goal that the committee will provide access to the Institute for Genomic Biology and the Beckman Institute and to the top-ranked College of Engineering.

And those are things we already have,” he said. “Our goal is to do what’s best for the entire university system.”

The board approved $180,000 in incentive-based compensation for Easter. Last year, trustees approved a program that allows university presidents to pay to perform, rather than longevity.

The board also approved a 3.5 percent increase in Easter’s base salary, which, at $478,538, ranks ninth among presidents of the 14 universities in the Big Ten.

Board chairman Christopher Kennedy said Easter has helped maintain the U. of I. as a world leader.

“President Easter’s leadership has been instrumental in both maintaining our uni- versity’s excellence and charting a course for the future that will continue its long, rich legacy of service to our students, our state and our nation,” he said.

The board approved a $1.35 million to the $8.8 million contract to replace a gas boiler at Abbot Power Plant.

The board approved funding for the for $425,000 to house the offices of Grants and Contracts, Government Costing and Sponsored Programs.

The board approved a $900,000 to the $25.7 million project for the construction of a second phase of addition and renovation work at the Chemistry Annex.

The board approved several unfra- med contracts for the Urbana campus, including:

• Adding $900,000 to the $25.7 mil- lion project and approving a $9 million con- tract for the second phase of addition and renovation work at the Chemistry Annex.

• Awarding nearly $16 million in con- struction work for the $170 million State Farm Center project.

• Approving a $1.35 million to the $8.8 million contract to replace a gas boiler at Abbot Power Plant.

The board approved hiring a construc- tion manager for the $50 million renovation of Everlink Laboratory. The contract includes a fixed fee of $1.7 million and hourly staff costs to not exceed $100,000, plus reimburs- able expenses estimated to be $200,000.

The board approved leasing 25,000 square feet of office space for $425,000 to house the offices of Grants and Contracts, Government Costing and Sponsored Programs.

If implemented, discussions on senate business could continue after a meeting – but binding votes would not be allowed.

The policy is currently undergoing a re- view by the university’s legal department. The discussions on senate business could continue after a meeting – but binding votes would not be allowed.

The system the committee may propose at a fu- ture meeting.

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Discrimination, family sources of stress for Latina immigrants

By Sharita Forrest
Social Work Editor

Racial discrimination and family issues are key contributors to the acculturative stress experienced by Latina immigrant women in the U.S. — new research suggests.

While both the stress of adapting to a new culture and psychological distress in Latina immigrants depends on a variety of contextual factors, according to a study published in the Journal of Immigrant Minority Health.

Researchers Venera Bekteshi and Mary van Hook examined the impact of various contextual factors on the psychological distress and acculturative stress experienced by more than 630 Latina immigrant women who moved to the U.S. mainland from Cuba, Mexico or Puerto Rico.

"Using an ecological-based model called family stress management, we found that acculturative stress did not always lead to poor mental health," said Bekteshi, a professor of social work at the U of I. "It really depends on what is going on in the person's life."

When Latinas had many negative things going on, such as discrimination, poverty and family conflicts, the acculturative stress lost significance because there were still all these other issues that they were dealing with, when they had few positive elements in their lives, such as family support, the acculturative stress did lead to poor mental health.

Participants' length of residency on the U.S. mainland varied from less than five years to more than 20 years. Latinas who had lived on the U.S. mainland between five and 10 years experienced the highest levels of acculturative stress, the researchers found.

Recent immigrant men may not be as vulnerable to acculturative stress because they are focused on the potential opportunities that they foresee and are working hard to benefit their families after they relocate, Bekteshi said.

"But after a while, the excitement may wear off, and they've got issues with their children, because not everyone aculturates and learns English at the same pace," Bekteshi said. "This leads to depression and anxiety, since it's very important to Latina women to be good moms and to feel a connection with their children. Plus, these women also may be working multiple jobs, very difficult jobs, yet they have all these domestic tasks awaiting them at home, while their spouses may or may not help with the men believe in traditional gender roles."

Family support is a key source of identity for Latina women, familial issues -- including difficulties maintaining close ties with family living abroad and cultural conflicts within the immediate family -- were particularly stressful.

Family support, and the women's endorsement of the Latino cultural value "familismo," which promotes interconnectedness with family members, emerged as protective factors against psychological distress for all three groups of women.

The amount of racial discrimination that the women perceived in their communities and their families' economic constraints also were significant influences on the women's acculturative stress levels, according to the research.

While women who relocated from Puerto Rico were left as U.S. citizens, when they relocated to the mainland, they found themselves marginalized by current anti-immigrant sentiments and factions.

For all of the Latinas in the studies, the acculturative stress that peaked at five to 10 years in the U.S. declined the longer that they lived in the U.S.; however, an analysis showed that the women's acculturative stress levels, according to the research.

The researchers' data samples were drawn from the National Latino Asian American Survey, a mental health study that included more than 2,500 Latinas.

van Hook is a professor of social work at the University of Central Florida. 
NEW faces 2014

Tara Powell

assistant professor of social work in the School of Social Work

Education: Ph.D. (social work), University of Illinois at Urbana-Champaign; M.S.W. (family, child and adolescent), University of Chicago; B.A. (communication studies), University of Iowa

Courses teaching: She will teach SOCW 400, Generalist Social Work Practice Methods in the fall semester.

Research interests: Promoting children’s recovery after a natural disaster.

“Given our school’s commitment to strengthening vulnerable families, we are pleased to have Dr. Powell join our faculty,” said Wynne Korr, the dean of the School of Social Work. “It’s wonderful to know that someone who has been devastated by a hurricane or earthquake, the immediate crisis has passed, the debris is mostly cleared, but what about the children whose lives have been altered? Their homes and schools may be damaged or gone. Tara Powell saw this firsthand after hurricane Katrina in New Orleans. She responded by creating a program to support the long-term mental health needs of children who have experienced these traumas. She has conducted several studies of the effectiveness of a school-based mental health intervention for children who have experienced a natural disaster. Her research shows promising results. In partnership with Save the Children International, she has also studied the outcomes of their psychosocial and protection programs in 15 countries.”

Laurence Uphoff

senior associate director for building operations at the Illini Union

Education: M.S. (industrial/organizational psychology), B.S. (psychology), Illinois State University

“Laurence comes to us with extensive construction, facilities management and student development experience,” said C. Renée Romano, the vice chancellor for student affairs. “From the day he joined the Illini Union in mid-August, Laurence has worked diligently to streamline his department’s facilities management program, re-prioritize projects and address the most pressing maintenance issues first. He has an open-door policy, and students have been quick to find him to explore ideas for improving the quality of services in the Illini Union. Working closely with students is nothing new for Laurence, as he taught a freshman seminar for new students at Georgia State University in Atlanta. Laurence is very excited to work with students on campus and has been impressed by their commitment to sustainability, based on recommendations for improvements they have made to him.”

Why Illinois? “I chose Illinois because of its collaborative supportive environment, which fosters innovation and research,” Powell said. “The university also has a number of recognized scholars in child trauma and resilience who are leaders in the field. I feel Illinois is a place where I can accomplish my research goals through the support of the School of Social Work and interdisciplinary collaboration across campus. The campus also is strategically located, enabling my research to expand to rural settings and urban areas such as Chicago, St. Louis and Indianapolis.”

 deaths

Chester B. Baker, 96, died Oct. 30 in Albuquerque, New Mexico. He was a professor of agricultural economics for 32 years, retiring in 1988 as professor emeritus.

Beverly Blossom, 88, died Nov. 1 in Champaign-Urbana Regional Rehabilitation Center, Savoy. She was a research programmer at the U. of I. for 17 years.


Frederic E. Mansfield Jr., 85, died Nov. 14 at Heartland Health Care Center, Champaign. He was a librarian and professor for 25 years, retiring in 1992 as a law bibliographer and a professor of library administration. Memorials: Champaign County Humane Society, www.chuhumane.org.

Richard Marshall Sheets, 74, died Nov. 7 at his home in Dewey, Illinois. He was a scientific illustrator at the Illinois State Water Survey and worked in marketing at the Illini Union. Memorials: Red Cloud Indian School, 100 Mission Drive, Pine Ridge, SD 57779 (www.redcloudschool.org); the Wounded Warrior Project, P.O. Box 75851, Topeka, KS 66675 (www.WoundedWarriorProject.org); or Champaign County Humane Society, 1911 E. Main St., Urbana, IL 61802 (www.chuhumane.org).

Betty Carolyn Reid “Grannie” White, 91, died Nov. 25 at Champaign-Urbana Regional Rehabilitation Center, Savoy. She was secretary from 1975-1985. Memorials: First Baptist Church at Savoy, 1602 S. Prospect Ave., Savoy, IL 61874, www.fbc-savers.org; or Mackinaw Area Youth Club endowment, 601 E. Franklin St., Mahomet, IL 61853, www.mahometyouth.org.

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Ads removed for online version
Less-numerate investors swayed by style of reports

By Phil Ciciora
Business and Law Editor

Publicly traded corporations are increasingly publishing social responsibility reports for investors, who now consider such information alongside traditional financial data before investing in a company.

But according to new research from a U. of I. expert in financial reporting and financial statement analysis, less-numerate investors are more susceptible to style and presentation effects of the reports, potentially leading them to make unintended judgments about the company.

W. Brooke Elliott, a professor of accountancy, says although most companies use a mix of text and graphics in social responsibility reports to highlight accomplishments, they tend to emphasize one over the other.

“Corporate social responsibility reports typically frame a business’s strategy in local or global efforts, and the style used to depict that strategy can be shaped by favoring either pictures or words,” said Elliott, also the Roedgers Fellow in Accountancy and Professor Ken Perry Faculty Fellow at the College of Business.

“Corporations typically use both pictures and words to convey information and shape the narrative, but their decision about what to make more prominent can have a huge effect on less-numerate investors, who are more likely to rely on non-numerical information when making decisions.”

Elliott and her co-researchers found that a fit between the style and presentation of corporate social responsibility reports leads less-numerate investors to experience “subjective feelings of processing fluency and positive affect,” which serves as a cue that “the positive performance information from the corporate social responsibility reports can be relied upon,” according to the paper.

“By extension, that positively influences the willingness of the less-numerate to invest,” Elliott said. “Taken together, it suggests that less-numerate investors are more likely to be influenced by the positive associations generated by the presentation choices in CSR reports than more-numerate investors.”

Elliott cautions that “numeracy” – or the way an individual processes numerical information – is not the same as sophistication, investing skill or intelligence.

“Numeracy has been shown to be distinct from general intelligence, and less-numerate investors have been found to be more representative of the general investing population,” she said. “The participants in the study were our own graduate students, a very numerate group. But it’s the low-end of the numerate group within that sub-sample where these effects occur. So our results are generalizable to groups of investors who actually look at disclosures, process that information and then come up with some sort of investment judgment.”

According to Elliott, the key takeaway can definitely extend beyond CSR reports. We looked at CSR reports for our study simply because the use of pictures in them is so prevalent.

The research has implications for both corporate social responsibility reports as well as other types of investor reports and disclosures, Elliott said.

“If you look at other types of disclosures in annual reports or other corporate filings, you’ll see that they employ a mix of text, pictures and graphics to depict performance,” she said. “So the takeaways can definitely extend beyond CSR reports. We looked at CSR reports for our study simply because the use of pictures in them is so prevalent.”

“Investors should be aware that features of CSR reports can subconsciously influence their judgments, and that the style and presentation features can interact together to influence how they evaluate a company,” Elliott said.

“Corporations could likewise develop reports that could cause investors to feel more processing fluency when they study disclosures and thereby be more willing to invest in the firm. Investors should be aware of this and make their resource allocations accordingly.”

The paper was co-written by Stephanie M. Grant, of the U. of I., and Kristina M. Rennekamp, of the U. of Illinois College of Business.

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“The findings have implications for investors, too.”

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Some plants regenerate by duplicating their DNA

By Diana Yates

Life Sciences Editor

When munched by grazing animals (or mauled by scientists in the lab), some herbaceous plants overcompensate — producing more plant material and becoming more fertile than they otherwise would. Scientists say this phenomenon has been known for decades. But few have pondered its purpose, said U. of I. animal scientist Daniel Scholes.

“Most herbaceous plants — about 90 percent — duplicate their genomes,” said Paige. “We wanted to know what this process was for.”

In a 2011 study, Paige and Scholes demonstrated that plants that engage in rampant genome duplication also rebound more vigorously after being damaged. The researchers suspected that genome duplication was giving the plants the boost they needed to overcome adversity.

That study and the new one focused on Arabidopsis thaliana, a plant in the mustard-family that often is used as a laboratory subject. Some Arabidopsis plants engage in genome duplication and others don’t. Those that do can accumulate dozens of copies of all of their chromosomal genes in individual cells.

In the new study, Scholes crossed Arabidopsis plants that had the ability to duplicate their genomes with those that lacked this ability. Many of the women who maintained their weight after the program ended, Metzgar, a graduate research assistant at the U. of I. said being accountable to others — to control one’s weight, some women in a buddy system — was going through the same experience,” said one friend who has the same goals or can just hold you accountable, it is really helpful.”

“We were able to completely mitigate the otherwise detrimental effects of damage,” Scholes said. “There was no difference in fertility between damaged and undamaged plants.”

Genome duplication enlarges cells and provides more copies of individual genes, likely increasing the production of key proteins and other molecules that drive cell growth, Scholes said. Future studies will test these ideas, he said.

The National Science Foundation and U. of I. Research Board funded this research.

Social support critical to women’s weight-loss efforts

By Sharifa Forrest

Being accountable to another person and receiving social support can help some women to lose weight and keep it off, a new study says. Although a number of researchers have cited the importance of personal accountability — such as weighing oneself regularly — to control one’s weight, some women in a recent weight-loss study led by researchers at the U. of I. said being accountable to others was the critical factor in their success.

Researcher Catherine J. Metzgar conducted focus groups with 33 women about a year and a half after they completed a weight-loss program to determine which factors helped or hindered dieters’ success. The 18-week weight-loss program reduced participants’ food consumption by 500 calories a day, included two snacks and emphasized strategies such as portion control, eating more vegetables and planning ahead.

While all of the women who participated lost a significant amount of weight on the program, many were unsuccessful at maintaining it after the program ended, Metzgar said. The women who maintained their weight loss indicated that a high level of social support from many sectors was critical in their success.

“Our women didn’t find that accountability to themselves was so important, but having support from others was — just having that social support from someone who was going through the same experience,” said Metzgar, a graduate research assistant in human nutrition and Metzgar’s faculty adviser. “The women very clearly articulated their awareness of life transitions and their impact on food behaviors. Several women referred to it as a ‘weight-loss journey,’ indicating that they realized that they needed a total lifestyle change, rather than a temporary diet to achieve and maintain weight loss.”

Some women engaged in regular exercise and said they ‘listened to an inner voice’ that reminded them to control their portion sizes.

These dieters also adopted a ‘fresh-slate mentality,’ forgiving themselves for ‘slip-ups and bad days,’ and get back on track with their eating and exercise programs right away, rather than letting one lapse in judgment or willpower trigger a downward spiral, Metzgar said.

A. G. Preston and D. L. Miller, both of The Healthy Co., were co-authors of the study.

Genome duplication

Animal biology professor Ken Paige, left, and postdoctoral fellow Daniel Scholes found that a plant’s ability to duplicate its genome within individual cells influences its ability to regenerate.

"Our women didn't find that accountability to others was - just having that social support from someone who was going through the same experience," said Metzgar, a graduate research assistant at the U. of I. said being accountable to others - to control one's weight, some women in a buddy system - was going through the same experience," said one friend who has the same goals or can just hold you accountable, it is really helpful."

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By Sharifa Forrest

Being accountable to another person and receiving social support can help some women to lose weight and keep it off, a new study says. Although a number of researchers have cited the importance of personal accountability — such as weighing oneself regularly — to control one’s weight, some women in a recent weight-loss study led by researchers at the U. of I. said being accountable to others was the critical factor in their success.

Researcher Catherine J. Metzgar conducted focus groups with 33 women about a year and a half after they completed a weight-loss program to determine which factors helped or hindered dieters’ success. The 18-week weight-loss program reduced participants’ food consumption by 500 calories a day, included two snacks and emphasized strategies such as portion control, eating more vegetables and planning ahead.

While all of the women who participated lost a significant amount of weight on the program, many were unsuccessful at maintaining it after the program ended, Metzgar said. The women who maintained their weight loss indicated that a high level of social support from many sectors was critical in their success.

“Our women didn’t find that accountability to others was - just having that social support from someone who was going through the same experience,” said Metzgar, a graduate research assistant in human nutrition and Metzgar’s faculty adviser. “The women very clearly articulated their awareness of life transitions and their impact on food behaviors. Several women referred to it as a ‘weight-loss journey,’ indicating that they realized that they needed a total lifestyle change, rather than a temporary diet to achieve and maintain weight loss.”

Some women engaged in regular exercise and said they ‘listened to an inner voice’ that reminded them to control their portion sizes.

These dieters also adopted a ‘fresh-slate mentality,’ forgiving themselves for ‘slip-ups and bad days,’ and get back on track with their eating and exercise programs right away, rather than letting one lapse in judgment or willpower trigger a downward spiral, Metzgar said.

A. G. Preston and D. L. Miller, both of The Healthy Co., were co-authors of the study. —

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Missions, challenges of two-year community colleges explored

The history, challenges and controversies surrounding two-year colleges are explored in a new book co-edited by two faculty members at the U. of I.

“The ASHE Reader on Community Colleges” is the fourth volume in a series about two-year colleges published by the Association for Higher Education and Pearson Learning Solutions. The comprehensive collection of scholarly essays provides a wide range of perspectives on community colleges, which are often overlooked in discussions of higher education institutions.

The book was co-edited by Illinois faculty members Eboni M. Zamani-Gallaher, a faculty affiliate in the Office of Community College Research and Leadership, and a professor of education policy, organization and leadership; and Debra D. Bragg, director of OCCRL and a Guggeen Endowed Professor in the College of Education.

Linda Serra Hagedorn of Iowa State University and Jaime Lester of George Mason University also were co-editors.

“Microbes,” FROM PAGE 1

Amino acid glutamate was essential to nisin’s transformation.

“They discovered that the dehydratase did two things,” Nair said. “One is that it added glutamate to the nisin peptide, and the second thing it did was it eliminated glutamate. But how does one enzyme have two different activities?”

To help answer this question, Yue Hao, a graduate student in Nair’s lab, used X-ray crystallography to visualize how the dehydratase bound to the nisin peptide. She found that the enzyme interacted with the peptide in two ways. It grasped one part of the peptide and held it fast, while a different part of the dehydratase helped install the ring structures.

“There’s a part of the nisin precursor peptide that is held steady, and there’s a part that is flexible. And the flexible part is actually where the chemistry is carried out,” Nair said.

Ortega also made another surprising discovery: Transfer-RNA, a molecule best known for its role in protein production, supplies the glutamate that allows the dehydratase to help shape the nisin into its final, active form.

“In this study, we solve a lot of questions that people have had about how dehydration works on a chemical level,” van der Donk said. “And it turns out that in nature a fairly large number of natural products — many of them with therapeutic potential — are made in a similar fashion. This really is like turning on a light where it was dark before, and now we and other labs can do all kinds of things that we couldn’t do previously.”

Van der Donk is a Howard Hughes Medical Institute investigator. He and Nair also are faculty members in the Institute for Genomic Biology at Illinois.

The National Institute of General Medical Sciences at the National Institutes of Health and the Ford Foundation supported this work.

Natural antibiotic. U. of I. researchers solved a decades-old mystery into how a broad class of natural antibiotics are made. From left, graduate student Manuel A. Ortega, chemistry professor Wilfred van der Donk, graduate student Yue Hao, biochemistry professor Satish Nair and postdoctoral researcher Mark Walker.

ON THE WEB
www.pearsonstore.com
www.ashe.ws

Revised The newest edition of the ASHE Reader on Community Colleges is available in the recent studies on various issues related to two-year colleges.

In more than 50 wide-ranging articles, scholars explore the historical foundations and evolution of two-year colleges in America’s higher education system, along with the leadership styles of top administrators and issues such as institutional diversity and campus climate.

Zamani-Gallaher and co-author Steven R. Aragon of Texas State University discuss postsecondary access and the social missions of colleges that serve special populations in the article titled, “Promoting Access and Equity Through Minority-Serving and Women’s Institutions.”

Founded to promote the economic development and social mobility of people of color and women, minority-serving colleges better serve their target populations than mainstream colleges and universities because educational experiences are situated within students’ own social and cultural contexts, Zamani-Gallaher and Aragon write.

In other chapters, scholars examine the ongoing challenges that two-year colleges face, such as providing remediation and developmental education, workforce preparation and career-technical training, and the uncertainties of academic transfers to baccalaureate institutions.

In the book’s final section, contributors explore the impact of the global economy, which is fostering development of internationalized curricula and experiences for community college students. Among the other trends and controversies examined are the evolving uses of technology and student engagement in “high-risk” online courses, which have withdrawal or failure rates of 30 percent or greater.

“The body of research on community colleges contained in this volume is vast and rich, blending theory and practice,” Zamani-Gallaher said. “The fourth edition of the ASHE Reader on Community Colleges is a valuable resource for community college scholars, practitioners, policymakers and graduate students who study American higher education, especially two-year institutions of higher learning.”

Community colleges Two-year colleges are the focus of a new book. “The ASHE Reader on Community Colleges, Vol. 4” co-edited by Eboni M. Zamani-Gallaher, a faculty member in the College of Education and in the Office of Community College Research and Leadership.
Microtubes create cozy space for neurons to grow... fast

By Liz Ahlberg
Physical Sciences Editor

Tiny, thin microtubes could provide a scaffold for neuron cultures to grow so that researchers can study neural networks and their growth and repair, yielding insights into treatment for degenerative neurological conditions or restoring nerve connections after injury.

Researchers at the U. of I. and the University of Wisconsin at Madison created the microtube platform to study neuron growth. They posit that the microtubes could one day be implanted like stents to promote neuron regrowth at injury sites or to treat disease.

“This is a powerful three-dimensional platform for neuron culture,” said Xiuling Li, a U. of I. professor of electrical and computer engineering who co-led the study along with UW-Madison professor Justin Williams. “We can guide, accelerate and measure the process of neuron growth, all at once.”

The team published the results in the journal ACS Nano.

“There are a lot of diseases that are very difficult to figure out the mechanisms in the body, so people grow culturing in two-dimensional platforms so we can see the dynamics under a microscope,” said U. of I. graduate student Paul Froeter, the first author of the study. “If we can see what’s happening, hopefully we can figure out the cause of the deficiency and remedy it, and later see what’s happening, hopefully author of the study. “If we can

The biggest challenge facing researchers trying to culture neurons for study is that it’s very difficult to recreate the cozy, soft, three-dimensional environment of the brain. Other techniques have used glass plates or channels carved into hard slabs of material, but the nerve cells look and behave differently than they would in the body. The microtubes provide a three-dimensional, plant scaffolding, the way that the cellular matrix does in the body.

The team uses an array of microtubes, made with a technique pioneered in Li’s lab for electronics applications such as 3-D induction. Very thin membranes of silicon nitride roll themselves up into tubes of precise dimensions. The tubes are about as wide as the cells, as long as a human hair is wide, and spaced apart as far as they are long. The nerve cells grow along and through the microtubes, sending out exploratory arms across the gaps to find the next tube.

Froeter devised a way to mount the microtubes on glass slides, the standard for biological cultures. The thin silicon nitride tubes are transparent, so researchers can watch the live neuron cells as they grow using a conventional microscope.

“Having the ability to see through both the tube and the underlying substrate has been really enlightening,” said Williams, a professor of biomedical engineering at UW-Madison. “Without this we may have noticed an overall increase in growth rates, but we never would have observed the dramatic changes that occur as the cells transition from the flat regions to the tube inlets.”

The microtubes not only provide structure for the neural network, guiding connections, but also accelerate the nerve cell growth – and time is crucial for regrowth at injury sites.

Researchers found that the axons, the long branches the nerve cells send out to make connections, grow through the microtubes like a sheet – and up to 20 times the speed of growing across the gaps.

“It’s not surprising that the axons like to grow within the tubes,” Williams said. “These are exactly the types of spaces where they grow in vivo. What was really surprising was how much faster they grew. This now gives us a powerful investigative tool as we look to further optimize tube structure and geometry.”

The microtube arrays can be tuned to any dimensions needed, since nerve cells vary greatly in size from small brain cells to large muscle-controlling nerves. Li and Froeter have already sent microtube arrays of various dimensions to other research groups studying neural networks for diverse applications.

For Li’s group, the next step is to put electrodes in the microtubes so researchers can measure the electrical signals that the nerves conduct.

“If we place electrodes inside the tube, since they are directly in contact with the axon, we will be able to study signal conduction much better than conventional methods,” Li said.

They also are working to stack the microtubes in multiple layers so that bundles of nerves can grow in a 3-D network.

“If we can grow lines of neurons together in a bundle, we could simulate what’s going down your spine or going to your limbs,” Froeter said. “Then we can take mature cultures and sever them, then introduce the microtubes and see how they regrow.”

“Getting to the clinic will take a long time, but that is what keeps us motivated,” Li said.

The Andrew T. Yang Research Award, the National Science Foundation and the National Institutes of Health supported this work. Li also is affiliated with the Micro and Nanotechnology Laboratory, the Frederick Seitz Materials Research Laboratory, the department of mechanical science and engineering and the Beckman Institute at the U. of I. Other Illinois authors included bioengineering and cell and developmental biology professor Martha Gillette and graduate students Olivia Cangelaris and Wen Huang, Wisconsin postdoctoral researcher Yu Huang was a co-first author.

Neural networks Illinois researchers developed a platform to grow and study neuron cells using tiny rolled microtubes. Pictured, from left: graduate student Olivia Cangelaris, graduate student Paul Froeter, professor Xiuling Li, graduate student Wen Huang and professor Martha Gillette.

Investigative tool A microscope image of a neuron growing through a microtube. The tube is soft and flexible, wrapping around the axon and providing a cozy, 3-D scaffold.

PAGE 8
InsideIllinois
Nov. 20, 2014
Ads removed for online version
PARKING DEPARTMENT

EV charging stations now available

The U. of I. parking department now has charging spaces with Level 1 outlets for electric vehicles (EV) in several campus parking garages.

Charging spaces in metered spaces, requiring standard payment, can be found in parking garages B-4, C-7 and D-5. Garage-specific permits are necessary for the charging spaces available in lots B-4, C-10, D-5 and F-29. Standard parking permits, fees and regulations apply to these designated Level 1 charging spaces. The exact locations and a campus map are available at www.parking.illinois.edu/parking_items/electric-vehicle-charging.

Level 1 charging is recommended for light charging and for EV drivers who do not park in the charging spaces. And EV drivers should only use the charging stations when they need a charge and only occupy the spot while their car is being charged.

Users can review charging etiquette at http://go.illinois.edu/ev_chargingetiquette. (Rule 1: Standard cars are asked to not park in the charging spaces. And EV drivers should only use the charging stations when they need a charge and only occupy the spot while their car is being charged.)

For additional information on EV charging, as well as information on Level 2 stations coming in 2015, visit the parking department’s EV link at www.parking.illinois.edu.

Updated parking news is available through the department’s website, as well as Twitter (Twitter.com/IllinoisParkingDept) and Facebook (Facebook.com/ILParkingDept).

ONE BOOK ONE CAMPUS

‘Orange is the New Black’ book featured

The Illini Union has selected the book “Orange is the New Black: My Year in a Woman’s Prison,” by Piper Kerman, for this year’s One Book One Campus program. Kerman will also discuss the book in a free lecture at 7 p.m. Dec. 3 in the Illini Union I-Rooms.

Kerman graduated from Smith College, was briefly involved in the world of drug trafficking and then moved on with her life. Ten years later, federal agents showed up at her door and arrested her. She served 13 months in the women’s correctional facility in Danbury, Connecticut.

Kerman’s memoir explores issues such as relationships with friends and family, cliques and behavioral codes in prison, mental illness, religion and the strained relationships between prisoners and their jailors. She also discusses the lack of life guidance prisoners experience when they are released. In 2013, the book was adapted for the Netflix original series. Created in 2005, One Book One Campus promotes and encourages campuswide engagement with programs built around the chosen book.

The book is on sale at the Illini Union Bookstore.

NATIVE AMERICAN HERITAGE MONTH

Indian figures on display at city building

As part of Native American Heritage Month, staff members at the U. of I. Native American House and Matthew Gilbert, a U. of I. professor of American Indian Studies, researched and created a display of a collection of Hopi Indian kachina figures for an exhibit at the Champaign City Building, 102 N. Neil St.

The figures were collected in the 1980s by the late Charles Medrow, a 1952 graduate of University Laboratory High School. The collection was recently donated to Uni High by his widow, Irene Medrow. Uni High administrators are partnering with Native American House to bring this collection to the public during Native American Heritage Month.

The exhibition will be on display through Nov. 28. Building hours are 8 a.m. - 5 p.m., Monday through Friday.

INTENSIVE FOREIGN LANGUAGE INSTRUCTION PROGRAM

Foreign language classes begin Jan. 5

The School of Literatures, Cultures and Linguistics at the U. of I. will offer its Intensive Foreign Language Instruction Program Jan. 5-16.

Taught by advanced graduate students or faculty members, the classes meet for three hours every weekday for two weeks. Courses focus on conversational skills, travel preparation and language survival skills. There is minimal homework, no attendance policy and no academic credit. Each class must have a minimum of 10 participants.

Participants can place themselves in the appropriate skill level based on the following guidelines:

- Elementary-level courses are for those with no prior experience or formal training in the language.
- Intermediate-level courses are for those with the equivalent of one year of college-level instruction in the language.
- Advanced-level courses are for those with the equivalent of two or more years of college-level instruction in the language.

The deadline is Feb. 1 for pre-proposals (“white papers” of no more than three pages) outlining projects that address.

BRIEFS

INSTITUTE FOR SUSTAINABILITY, ENERGY AND ENVIRONMENT

RFPs sought, town hall scheduled

The Institute for Sustainability, Energy and Environment (iSEE) is making a Request for Proposals for 2015 seed grants to create interdisciplinary, thematic research projects.

The deadline is Feb. 1 for pre-proposals (“white papers” of no more than three pages) outlining projects that address.
Specialized faculty unionization and some FAQs

BRIEFS, CONTINUED FROM PAGE 10

a global problem within one of iSEE’s themes: climate solutions; energy transitions; sustainable infrastructure; water and land stewardship; and secure and sustainable agriculture. The pre-proposal should address the strengths of the proposed interdisciplinary research teams.

The institute, which will fund new research with up to $400,000 over a three-year span, encourages proposals in the climate solutions and sustainable infrastructure themes.

Interested applicants can learn more about the 2015 call for proposals from 4 to 5 p.m. Nov. 20 in Room 403 of the Illini Union, where iSEE is hosting a town hall meeting.

The institute funds what it calls “actionable research” – to find lasting solutions to urgent, real-world issues. In 2014, it funded three such projects: “Smart Water Disinfection,” “Woody Polyculture” and “Stored Solar Stove.” The proposal process, which opened Nov. 14, will result in two more seed grants to be announced in late spring 2015.

To download the RFP or read more about the 2014 projects, visit sustainability.illinois.edu/research.

13. The Campus Faculty Association is telling me that the university could give me a salary increase as part of the campus salary program. Is that true?

Applying the campus salary program to unionized employees would constitute a unilateral change to wages, which the university cannot do, now that the union has been recognized. Wage increases must be bargained together with all other terms and conditions of employment. However, right now there are potentially two different bargaining units that cover teaching associates (one for teachers at University Laboratory High School and one for all other teaching associates). Therefore, the union is appealing the recent certification and has asked the court to resolve this configuration issue as quickly as possible.

14. My department is pursuing a promotion for me into another specialized faculty position. Can my promotion be processed, and can I receive a salary increase associated with my new position?

Yes. The certification does not preclude the campus from continuing the status quo practice of promoting specialized faculty members into new positions, including providing a promotional increase associated with the higher-level duties. The campus will continue to do all it can to appropriately advance and reward hardworking employees.

15. How does being part of a collective bargaining unit impact the status quo of specialized faculty?

The university is appealing the certification, because the configuration of the bargaining unit is incorrect. It does not accurately reflect the presumptive bargaining unit of non-tenure track faculty at the Urbana campus as set forth in the state regulations. Specifically, the specialized faculty job title of teaching associate was improperly split into two different bargaining units.

BARGAINING UNIT

For example, under existing policy, departments will continue operations and departments will continue operations in progress during the period of negotiations. For example, under existing policy, units have the ability to continue providing competitive counter offers, promoting individuals and proceeding on the many items in Provost Communication No. 25 from spring 2014. Also, units should continue other practices and policies that are part of the status quo operations.

16. Will I have union dues/fair share fees deducted from my paycheck, and what amount will be deducted?

Union dues are set exclusively by the union. Whether the university withholds union dues, or their alternative fair-share fees, from employees’ paychecks will be determined in collective bargaining.

17. What is the university doing now to address the situation?

The university is appealing the certification, because the configuration of the bargaining unit is incorrect. It does not accurately reflect the presumptive bargaining unit of non-tenure track faculty at the Urbana campus as set forth in the state regulations. Specifically, the specialized faculty job title of teaching associate was improperly split into two different bargaining units represented by two different unions. The university had asked the court to help quickly resolve this issue by consolidating the two bargaining units, a request that is now pending.

The court has granted that request. The university’s goal is to ensure that there is a single bargaining unit that accurately reflects classifications that should be in the bargaining unit.

For more information, faculty can visit facultySept14FAQs.pdf on the AHR website or e-mail Heather Horn at hwilson@illinois.edu or 217-333-6747.
W
hen art historian Allen Stuart Weller died in 1997, he left behind a rough manuscript for a biography of Lorado Taft, the Illinois sculptor who helped the city of Chicago carve its reputation as a place of beauty and grandeur.

When historian Stephen Thomas and art historian Robert G. La France came across the unfinished manuscript among Weller’s papers in the U. of I. Archives, they found Weller’s story on Taft’s rise to prominence so compelling that they couldn’t let it go untold.

“I knew that if I didn’t finish it, perhaps no one else would,” said La France, then curator of pre-modern art at Krannert Art Museum, La France is director of the David Owsley Museum of Art at Ball State University; Thomas; and Henry Adams, professor of Hebrew Bible and the history of religions, will discuss Taft’s great American artistic and educational legacies of American sculptor and U. of I. alumnus Lorado Taft.

However, the artist’s greatest legacy may have been as an agent of social change, teaching and mentoring underserved students, who worked as equals in his studio. Taft’s studio “was a model of inclusiveness that gave women, immigrants and minorities the opportunity to realize their potential as sculptors,” La France said. “Taft’s affinity for the women’s movement and belief in the equal value of all Americans, makes him stand out from his peers.”


“The Chicago Years” begins with Taft’s return to the U.S. in 1886, when he settled in the Windy City, thus commencing his most productive and influential period, which continued until his death in 1936. Nearly all of Taft’s major works were produced during these years, and are lavishly illustrated in more than 200 color and black-and-white images throughout the book.

“The book explains Taft’s contributions as a teacher, writer and energetic member of the cultural elite during Chicago’s artistic and literary renaissance, from the end of the 19th century through the Great Depression,” La France said. “It also highlights the influential role that he played in establishing programs for studying the arts at the University of Chicago and the U. of I.”

The book concludes with Adams’ intellectual biography of Weller, which outlines Weller’s many accomplishments, including the series of Contemporary American Painting and Sculpture exhibitions that Weller inaugurated at the U. of I., bringing modern art to the prairie.

Weller joined the Illinois faculty as a professor of art history in 1947, served as head of the art department, then as the dean of the College of Fine and Applied Arts and the director of Krannert Art Museum.