Economic Effects of Warming May Be Worse Than Anticipated

With news from NASA that August was the hottest month ever recorded comes the realization that the economic impact of global warming may be worsening.

“The idea that labor productivity goes down as the temperature rises dates back hundreds of years,” says Ben Jones, strategy and faculty director of the Kellogg Innovation and Entrepreneurship Initiative. “What surprised many economists was our discovery that this goes beyond an agricultural phenomenon; there is just as big of an effect on industrial output.”

Jones recently published his fifth climate-related paper, “Opportunities for Advances in Climate Change Economics,” in Science. In 2009 he was part of a team of investigators who found that for every 1 degree Celsius (2.2 degrees Fahrenheit) a developing country warms, that nation’s economic growth rate will be 1 percentage point lower than it otherwise would have been.

Meanwhile, the past 11 months have each set new average high-temperature records, and the first six months of 2016 were the hottest on record — 1.3 degrees Celsius (2.4 degrees Fahrenheit) warmer than the average in 1880.

Redesigned Metrics Sites Provide Transparency on Research Enterprise

Dee Roe starts her day with a number. Today, it’s 43.

The figure is a snapshot — one of many — that provides Roe, executive director of Northwestern’s Institutional Review Board (IRB), and researchers alike an opportunity to appraise the office’s workflow.

Forty-three is the current median number of days between the date a human-research protocol is submitted to the full IRB board and the date a Final Determination letter is sent to a principal investigator.

Displayed on the IRB’s new metrics page, the statistic sits next to an even larger...
“This is not just a problem for the future,” says Jones, a development economist whose research aims to understand why countries are rich or poor. “We’re already experiencing a number of climatic changes and we need to better understand the consequences of warming so that we can determine what costs we’re willing to tolerate and how to intervene.”

Past research has noted that the closer a country is to the equator, the poorer it’s likely to be. Whether or not climate truly effects how the world’s economies have developed, however, has remained a subject of debate.

Considering that hotter countries are typically poorer than colder countries, Jones and colleagues decided, in one study, to examine regions within a nation. Using data from North American states and territories, researchers learned that hotter regions within countries are also poorer.

“This further suggests that hotter temperatures have a causative negative affect on economic development,” says Jones, an Institute for Public Research associate. “Another surprising aspect of our work was the discovery that political economy problems tend to be exacerbated by heat. We have found that there are more coups in hot years — not to mention more crime, riots, and group conflict, as has been shown by other researchers. The mechanisms behind these effects are not yet well understood, but it could be rooted in our own physiological response to heat or be a downstream effect of economic losses caused by warming.”

Of course, with air conditioning, some of the negative effects on industrial productivity can be mitigated.

“If societies are able to adapt appropriately, than studies based on the short-run effects of temperature shocks would be overstating the long-term effect of climate change,” says Jones. “But evidence in favor of substantial adaptation in agriculture and several other areas is currently weak. Moreover, if societies are too slow to react the effects can become increasingly destructive, possibly to the point where they are irreversible.”

One of the biggest considerations is whether the effect of global warming on economies is a level or growth effect. A level effect allows for a rebound to occur after adverse climatic events. Growth effects linger and continue to influence economic outcomes for a prolonged time.

To use farming as an example, a hot year might produce a level effect if production is down but is then offset by increased output the next year or two. But if it is a tough year and the lack of crops results in an inability to invest in tractors, or if the high heat stymies innovation, farmers may be permanently poorer than they otherwise would have been.

“If you think climate change causes a growth effect, the case for intervening to limit climatic change strengthens dramatically.”

At the extreme end of current models, economists using level-effect reasoning predict we might be 20 percent poorer in 2100 than we otherwise would have been. That may sound bad, but these models still predict a growing economy that would make up that loss after another a decade or so.

“Recent empirical studies run counter to many of these models, including the primary models used to guide global public policies,” says Jones. “If warming causes a growth effect, we might not make up those losses for a very long time. Overall, the recent research on economic damages of warming suggests much larger economic risks than policymakers have been considering.”
Northwestern’s high-impact discovery happens because the University has created a vibrant “ecosystem” to support knowledge creation. You likely know the components of that ecosystem well. Faculty thought leadership is foundational, and our students and post-doctoral fellows are here both to learn and to contribute to new knowledge. Then, too, there is strong administrative support. We also have a robust infrastructure, vital core facilities, and systems for fostering intra- and inter-institutional collaboration. And, of course, there is financial capital that enables us to invest strategically in ways that fulfill our mission.

For faculty and for many others in Northwestern’s research community, there is an additional component: service. One important example (among many) is the contribution that our researchers make in serving on committees that support Northwestern research. Such service is both a right and a responsibility for our faculty. Performing these service jobs well improves the ecosystem for all Northwestern researchers by elevating the quality and impact of our work.

These committees provide vital oversight and guidance for Northwestern researchers. For instance, the Institutional Animal Care and Use Committee (IACUC) draws on expert insights of scientists, nonscientists, and community members to help ensure the University’s investigations are conducted in full compliance with the regulatory structure and ethical standards. Similarly, the Institutional Review Board (IRB) has six panels that review biomedical studies as well as social behavioral research; as with the IACUC, the IRB panels review both new studies and those up for review so that these studies are done within the regulatory and ethical framework agreed upon for investigations involving human participants. Likewise, faculty from across the University serve on the Limited Submission Advisory Committee managed by the Office for Research Development (ORD). This committee provides peer review of research proposals and recommends the ones to be submitted to funding agencies that limit the number of applications they accept from an institution. These include very prestigious junior faculty awards. Faculty also contribute their time and expertise to the Laboratory and Chemical Safety Committee in the Office for Research Safety (ORS), working to ensure that Northwestern pursues pathbreaking research in a way that safeguards our community.

Northwestern hires faculty who not only are excellent researchers and teachers, but who also can contribute to the University’s ecosystem in other ways — including through committee service. In fact, our expectations are that faculty will balance all three responsibilities (teaching, research, and service). Our committees have a direct connection to the University’s governance framework. These committees play a crucial part in Northwestern’s research direction, including the institution’s ability to be nimble in responding to evolving research needs and opportunities. Having researchers on these committees is often a regulatory requirement, but this circumstance also enables evaluation of the proposed work based upon best practices known to world-renowned domain experts. These and our other committees help to protect and strengthen the entire research structure of academia itself. To ensure that Northwestern and all universities can continue to make progress in diverse research areas, it is absolutely necessary that we conduct our investigations with the greatest level of care and oversight. Anything less and we risk creating problems or distractions that hinder the mission of academic discovery.

In future editions of Research News, we will highlight some of the exceptional faculty who contribute their time and talents to committee service.

Vice President for Research

We’ve Moved!
The Office for Research Communications team has moved to 1801 Maple (Suite 5312).
Origins: Exploring the Journey of Discovery
How do stereotypes and gender issues impact women? Alice Eagly, psychology, has dedicated much of her research to finding the answers

Statistically, Alice Eagly should have been a housewife or an elementary school teacher. Instead, she became an eminent social psychologist whose discoveries at the intersection of gender, leadership, and stereotypes have advanced our understanding of the complexities and challenges facing women as more of them entered the workforce in recent decades.

Growing up on the West Coast during the mid-20th century, Eagly had few strong role models to encourage her professional path. Her mother was a traditional homemaker — “but not entirely content” — and only returned to a career after her daughter entered college. Her father was an academic in a male-dominated discipline, engineering. There were female teachers, of course, but few women in prominent roles, recalls Eagly. In her undergraduate work, she encountered only one female professor.

“My expectations were the same as for many women of that era: unclear,” she says, laughing. “It wasn’t clear how you could have a career and a family.”

During World War II, the modern field of social psychology began to flourish, in part because the US government needed experts to study propaganda techniques. As a bridge between two disciplines — sociology and psychology — this hybrid area addressed people’s attitudes, beliefs, and behaviors through an empirical lens. Eagly found such investigations compelling, leading her to pursue a PhD in social psychology at the University of Michigan (Ann Arbor). She obtained her degree in 1965, a time of political unrest and social transformation. She describes her own experiences in graduate school as “very mixed.” Some peers and faculty welcomed her, but many of them still expected even an intellectually talented female colleague to return to domestic life, not enter the academy.

“Some thought surely you were going to quit and have children and have to stay home,” says Eagly. “And quite a few women with PhDs had done that!”

Eagly chose a different path, one that by the late 1960s was affording women more professional opportunities. She became a professor of psychology at Michigan State and then the University of Massachusetts and Purdue University, before joining Northwestern in 1995. She is a professor of psychology; the James Padilla Chair of Arts and Sciences; a faculty fellow of the Institute for Policy Research; and (by courtesy) a professor of management and organizations. Her numerous publications include the books Through the Labyrinth: The Truth About How Women Become Leaders (2007) and The Psychology of Attitudes (1993). Research News spoke with Eagly about her professional journey.

Given your gender and leadership research, how do you assess this years’s presidential campaign, particularly the challenges facing Hillary Clinton?

There are a couple of germane questions that are relevant: Do men and women lead differently, and do they get different reactions in those leadership contexts? There are some average differences in leadership style. Women tend to be more democratic, relational, and consensus-oriented. Rather than go top-down and forcefully tell people what to do, they try to form good relationships and build consensus in the group, which can be a basis for leadership.

Against this background, women face what I call the role incongruity problem, in that expectations for them as women are largely different from expectations for leaders in general. Leaders are expected to take charge and be assertive; women are expected to be friendly and warm, so there is a mismatch that needs to be negotiated by women in leadership roles. One way women do that is by being relational and trying to bring people along in a friendly way. If a woman carries that approach to the extreme, she may be seen as nice but weak and can lack legitimacy as a leader. Women in high-level roles may not be accorded the same respect and credibility as men in those positions enjoy. So women may try to build positive relationships to overcome this.

How else do women leaders, such as Hillary Clinton, combat gender-related challenges?

It’s difficult to finesse the woman problem and I think Clinton is acutely aware of the issues I’ve raised. Whenever she uses a loud voice, she is accused of yelling or being shrill. That’s a problem, so she tries to exude warmth. If you watch her on the stage before and after her speeches, she often is smiling and waving at people. The fact that she has a daughter and now a grandchild gives her legitimacy as a woman for many people. But she can’t stand up there and talk in a soft voice with feminine intonation. She has to appear strong and competent and “act presidential.” She’s on the edge there.

On the other side, Donald Trump often represents a kind of caricature of masculinity.

That’s right. He’s bombastic and shouts and insults others. I don’t think that Hillary Clinton would want to do that, but if she did act that way, the public would reject her very quickly. When women appear as very strong and assertive, they can get negative “backlash reactions.” There are many studies demonstrating that women are disliked for such behavior but men “get away with” aggressive, even hostile behavior.

Clinton has to appear authoritative and competent without impressing people as overly assertive and tough. She does work
hard to seem competent — she’s known as a policy wonk. The way she dresses is interesting, too. She goes for the androgynous middle ground. It would be bad for her to dress in a very feminine way, as Sarah Palin did at times, and yet she can’t dress in a suit that makes her look too masculine.

Margaret Thatcher was famously dubbed the UK’s “Iron Lady” and employed a very different leadership style. How do you explain that?

Well, women leaders sometimes do take the hard top-down approach and succeed. Thatcher is definitely an example of that approach. Consider also that Germany’s Angela Merkel speaks in an understated, quietly assertive way and works to build consensus. Thatcher was able to be more autocratic, but then she came up through a parliamentary system, where you become the party leader and then the prime minister. You don’t stand for election in the same way in that system as you do in our political system. With our system — with the long primaries and campaign — and direct election of the president, the Thatcher approach would not work well for a woman.

What attracted you to the research you do?

I’m a social psychologist and study other topics beside what we’re talking about, but in terms of studying the psychology of gender, my interest was piqued by the women’s movement in the late 20th century. In the late 1960s and 1970s there was suddenly a lot of attention paid to women’s issues. It seemed that, although many books were written, they weren’t based on empirical research. They were written based on people’s observation, intuitions, and older theories. Very interesting books emerged from Betty Friedan and other feminist authors.

As a number of us decided to study gender as social scientists, we had to invent new concepts and research methods. In the first wave of the new research, much of it addressed “women’s problems,” such as sexual harassment and family violence. Leadership was “something that men did” and was neglected by researchers. Well, it didn’t make sense to me to ignore this area. If women want social change, they have to be well represented among leaders.

In my first efforts, I performed meta-analyses on existing literatures: a reviewer takes a large number of studies and integrates their findings quantitatively. I found that there was research on women and leadership, but the gender aspect had not been drawn out. It was, instead, latent in the past studies that had included leaders and managers of both sexes. I found answers to questions such as “If you have an initially leaderless group, are men more likely to emerge spontaneously as leaders?” (The answer is yes, but to a greater or lesser extent, depending on circumstances.)

So have we made progress on gender and race equality?

Obama’s presidency seems to have created the backlash you described. Can we expect a similar backlash if a woman becomes president?

Progress is slow but having a woman president would be an advance in gender equity, for sure. However, this outcome definitely could trigger resentments, especially among society’s more conservative elements. Racial difference and gender roles are profound human phenomena that deeply affect our everyday life, so these are not easily completely changed. Arriving at equal status and privilege for the sexes and the races is a long project, over generations.

Stereotypes seem to have such staying power too.

They do, but stereotypes are not invented from nothingness. The stereotypes are rooted in observation, so they won’t change until what we see in daily life changes. We still have a lot of gender segregation in the economy. Despite some shifts in traditional family roles, women still perform the majority of domestic work. We see these differences in what people do, and we use the information to build our ideas about the traits of different groups of people. However, these stereotypes take on a life of their own, and they coerce everyday behavior. But it isn’t as though they are myths.
**Brain Gain: CNADC Receives $8.6 Million Research Renewal**

The National Institute on Aging (NIA) has renewed funding for Northwestern’s Cognitive Neurology and Alzheimer’s Disease Center (CNADC), supporting an additional five years of research and marking 25 years of continuous grant support.

The $8.6 million grant continues CNADC’s status as one of the nation’s 31 Alzheimer’s Disease Centers, a program established by the NIA to enhance research on Alzheimer’s disease, seek a cure, and possibly prevent the disease.

**Marsel Mesulam**, neurology and CNADC director, sees cross-disciplinary discovery as key to the center’s success.

“We’ve been able to encourage collaborations across centers, departments, and campuses,” he says. “The CNADC is an umbrella for more than 50 multidisciplinary faculty.”

The grant helps sustain many of the research projects happening within the CNADC, and has supported several basic science accomplishments, including the work of William Klein, neurobiology; Robert Vassar, cell and molecular biology; Linda Van Eldik, former professor of cell and molecular biology; and the late Lester “Skip” Binder, cell and molecular biology.

Over the next five years, the CNADC plans to enlarge its research space and recruit new faculty members.

“Alzheimer’s disease is not only an area of tremendous need, but an area of tremendous opportunity for studying degenerative diseases and issues related to aging, in addition to understanding more about how the human brain works,” Mesulam says. Learn more.

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**Space Available in Research Admin Seminar**

Individuals interested in research administration can attend the Office for Research’s next training seminar, taking place October 4, 6, 11 and 13 on the Evanston campus.

This four-part series is geared toward research administrators, staff involved in research administration, or anyone interested in learning more about Northwestern’s research administration process, policies, and procedures.

The seminar is free and registration can be completed through the University’s new training management system, Learn@Northwestern. Simply login using your NetID and password, then search to find the Research Administration Training Seminar and enroll in all four sessions.

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**...continued from cover**

figure: 3,758. That’s the number of active studies currently being handled by the IRB.

“These raw data points provide an opportunity to evaluate our workflow while providing a new level of transparency,” says Roe. “The metrics page not only pulls the curtain back on our workflow, but also helps to illustrate the direct correlation between the volume of proposals and turnaround time.”

The IRB is one of three Office for Research units to feature recently redesigned metrics pages. The Office for Sponsored Research (OSR) and Institutional Animal Care and Use Committee (IACUC) Office offer access to in-depth reports on award, proposal, and contract data for the entire University, as well as information on animal research, respectively.

“In the past, the IACUC metrics were a manual process not available for consumption by the general research community,” says Mandy Kozlowski, IACUC Office director. “With help from the Office for Research Information Technology team, the new site provides researchers with a better understanding of our committee’s workload as well as data that can help them effectively plan submissions based on current turnaround times.”

OSR’s redesigned metrics interface provides big-picture data points that highlight the University’s robust sponsored research enterprise. The site features new graphics and easy-to-read information that compares fiscal year data year-over-year, access to current OSR workflow estimates, and more.

“We wanted to include more accessible content in a visually appealing way,” says Kim Griffin, director for Electronic Research Administration at OSR. “By providing investigators a look at the volume of proposals, awards, and contracts currently in workflow, we were able to embed data that is updated nightly.”

Through July — the most complete data available for last fiscal year — OSR has helped facilitate more than 3,300 research proposals totaling nearly $2.5 billion, and has processed nearly 2,500 awards.

“It’s an exciting time as we finalize last year’s funding totals, which are on track to surpass the University’s all-time high of $621.3 million in annual sponsored research,” says Jay Walsh, vice president of research. “The combination of these new metrics sites provides a level of transparency to reveal the tireless work needed before breakthrough science can transform the way we live.”
Collins, Durbin Tout Sustained NIH Growth During Northwestern Visit

Speaking to an overflow crowd of academic researchers, US Senator Dick Durbin (D-IL) made clear his thoughts on the National Institutes of Health (NIH).

It could be called the “National Institutes of Hope,” he said.

The nation’s primary source for biomedical research grants, the NIH awarded more than $314 million to Northwestern researchers in 2015. Following a $2 billion federal budget increase — thanks to the work of Durbin and his colleagues — NIH Director Francis Collins addressed the crowd with enthusiasm.

“I have a sense of optimism that I would not have been able to share with you three, four years ago,” said Collins. “Medical research right now is not limited by ideas. It’s not limited by research potential. It’s limited by resources.”

Championing a plan of continued and predictable funding growth for NIH, Durbin discussed the challenges in achieving the first of what he hopes are many annual 5 percent budget increases.

“This is why you run for office,” says Durbin. “To make an investment in something that’s going to pay off for generations.”

Durbin and Collins were joined on stage by a panel of esteemed university leaders that included Feinberg Vice President for Medical Affairs and Lewis Landsberg Dean Eric Neilson, University of Illinois at Chicago Vice Chancellor for Research Mitra Dutta, and University of Chicago Executive Vice President for Medical Affairs Dean Kenneth Polonsky.

“Nothing makes me prouder than the contributions we make to science and to medicine at Northwestern,” said University President Morton Schapiro. “The ongoing support from the National Institutes of Health and other funding agencies to keep our labs going — and not just going, but flourishing — is a tribute to certain people,” mentioning Collins and Durbin by name.

Currently, just one in six grant applications is funded by NIH. That’s a figure Collins would like to get to one in three.

“This is not an expenditure, this is an investment,” said Collins. “America continues to lead the world in biomedical research that advances the cause of human health, that advances our economy. We want to be sure that we don’t lose that momentum, and I’m glad to be here seeing how remarkable that momentum is in Chicago.” Learn more.

From left: Mitra Dutta, vice chancellor for research at the University of Illinois at Chicago; Francis Collins, director of the NIH; Senator Dick Durbin, Eric Neilson, Lewis Landsberg Dean at Feinberg; and Kenneth Polonsky, dean of the University of Chicago Pritzker School of Medicine.

NU-Q Professors Awarded UREP Grants

Two Northwestern University in Qatar (NU-Q) professors are launching a pair of research projects thanks to funding from the Qatar National Research Fund.

Hasan Mahmud, sociology, and Anto Mohsin, science and technology studies, received Undergraduate Research Experience Program (UREP) grants to study Qatar’s foreign aid to developing countries, as well as the nation’s culture of scientific inquiry.

The UREP grants foster and develop a culture of research as a method of enhancing undergraduate education.

“These grants reflect the creative work of our faculty and play an integral role in NU-Q’s development as a hub of research excellence and innovation in Education City,” says NU-Q Dean and CEO Everette E. Dennis. “NU-Q values and encourages scholarly activity and innovation, which allows our students to participate in undergraduate research that engages their intellectual curiosity.”

In the past 19 cycles of UREP funding, NU-Q has been awarded nine grants, which have offered students and faculty the opportunity to immerse in innovative pedagogical methods, and produce widely published journals and reports.

Learn more.
Mustanski Awarded $9.3 Million HIV Prevention Grant

Brian Mustanski, medical social sciences, psychiatry and behavioral sciences, and psychology, is turning to the Internet to save lives.

Recently awarded a five-year, $9.3 million grant from the National Institute on Minority Health and Health Disparities, Mustanski is embarking on an innovative study of eHealth interventions to prevent HIV among adolescent men who have sex with men (AMSM).

“Traditional modes of delivering interventions for gay and bisexual teens are insufficient,” says Mustanski, director of the Institute for Sexual and Gender Minority Health and Wellbeing and co-director of the Third Coast Center for AIDS Research. “This HIV prevention program will fill a gap in education and prevention efforts and be able to reach a relatively large number of adolescents, regardless of where they live. We will be able to target hard-to-reach teens who are at the highest risk for HIV and other sexually transmitted infections.”

Mustanski believes that leveraging the Internet and social media can help stem the rate of new HIV infections in 13- to 18-year old AMSM.

His new initiative called the Sexual Minority Adolescent Risk Taking (SMART) Program will evaluate a portfolio of eHealth interventions designed to serve the AMSM population with robust solutions targeted to individual needs. The program starts with online sex education delivered to all participants. Those who would benefit from more intensive intervention will be enrolled in more online interventions, using soap operas, interactive games, and personalized therapy via online videochat.

The project’s first two years will be dedicated to developing written content and producing videos, animations, and educational materials. By year three, the plan is to implement the program in English and Spanish, and to begin tracking any changes in AMSM behavior over time.

AMSM represent just 2 percent of young people but account for almost 80 percent of HIV diagnoses, according to the Centers for Disease Control and Prevention. Racial/ethnic minority AMSM are disproportionately affected by HIV: 55 percent of those diagnosed are black and 23 percent are Hispanic.

“Changing the modality of sex education and prevention means we can deliver interventions aimed at youth in their own spaces, where they feel most comfortable, and at a time in their lives when sexual identity and sexual experiences begin to solidify,” says Mustanski.

In addition to the multidisciplinary faculty at Northwestern, the study also involves researchers at the University of Puerto Rico; Hunter College, a City University of New York; and North Carolina State University.

Learn more (in Spanish).

Inaugural State of LGBT Health Symposium on August 18.

“OBVIOUSLY HIV/AIDS WORK IS EXTREMELY IMPORTANT, BUT THERE ARE SO MANY OTHER ISSUES AND DISEASES THAT WE REALLY NEED TO BE FOCUSING MORE ON,” SAYS KAREN PARKER, DIRECTOR OF THE NATIONAL INSTITUTES OF HEALTH (NIH) SEXUAL & GENDER MINORITY RESEARCH OFFICE, RIGHT. “WE HELD LISTENING SESSIONS WITH STAKEHOLDERS, REALLY LOOKED AT THE NEEDS OF THE COMMUNITY AND ASKED: WHAT ARE THE CRITICAL RESEARCH QUESTIONS THAT WE NEED TO BE PRIORITIZING?”
New Faculty Join Indigenous Studies Research Initiative

Northwestern’s Indigenous Studies Research Initiative has added three new members. The arrival of these colleagues helps realize Northwestern's goal of making the University, as well as greater Chicago, a center of research and learning in the important, emerging field of Native American and indigenous studies.

Welcome new research community members:

**Beth Red Bird**, sociology, Institute for Policy Research fellow. Her research leverages quantitative, econometric tools to study inequality within and across Native American tribes.

**Doug Kiel**, history, Kaplan Institute for the Humanities. Kiel's scholarship examines native struggles for economic and political sovereignty, with a focus on migrations between Oneida homelands and Chicago, including those of his own family.

**Hi’ilei Julia Kawehipua’akaha’opulani Hobart** is a postdoctoral fellow sponsored by the Kaplan Institute for Humanities, the Science in Human Culture Program, and the Asian American Studies Program. Hobart researches food studies, including the politics of ingestion, representation, and materiality in colonial Hawaii.

Read more about the Indigenous Studies Research Initiative.

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**Today’s IRB Brown Bag Spotlights Federal Site Visits**

Site visits, including those by the Association for the Accreditation of Human Research Protection Programs (AAHRPP) and federal Office for Human Research Protections, will be the focus of September’s Institutional Review Board (IRB) brown bag luncheon.

**Eileen Yates**, assistant director of IRB operations, will deliver her presentation at noon on September 21 in room 750 of the Rubloff Building on the Chicago campus.

The talk comes ahead of AAHRPP’s accreditation site visit, scheduled for October 5-7. The visit’s purpose is to evaluate the implementation of Northwestern’s policies and procedures. AAHRPP site visitors will interview institutional and organizational officials, IRB members, key research offices, and investigators and research study team members regarding the Human Research Protection Program at Northwestern.

Register here.

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**IIN Symposium October 6**

The International Institute for Nanotechnology (IIN) is hosting its annual symposium on October 6 at the Hilton Orrington Hotel in Evanston.

A global hub of excellence in the field of nanotechnology, the IIN is home to cutting-edge nanotechnology research, educational programs, and supporting infrastructure.

Each year the IIN organizes and sponsors an all-day symposium that brings together leading national and international researchers.

This year's event will feature presentations by **Kristi Anseth** of the University of Colorado-Boulder; **Harry Atwater** of the California Institute of Technology; **Jeffrey Hubbell** of the University of Chicago; **Stuart Parkin** of the Max Planck Institute of Microstructure Physics; **Sir John Pendry** of the Imperial College London; and **Buddy Ratner** of the University of Washington.

Register here.

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**Tonight’s Science Café Explores America’s Lost City**

Long before the United States was formed, Cahokia, in what is now southern Illinois, was the biggest city north of Mexico. In its prime, it rivaled London; by 1350 no one remained, and no one knows why.

Explore the story of “America’s lost city” with **James A. Brown**, emeritus professor of anthropology at tonight’s Science Café. Brown’s presentation will take place from 6:30 to 8 p.m. on at the Firehouse Grill, 750 Chicago Ave., Evanston.

Click here to learn more.
Northwestern Building Bridges With Open Access Initiative

Where most crystallographers see a tool to explore atoms in 3D, Bozhi Tian saw an open door.

Using the Northwestern University Center for Atom Probe Tomography (NUCAPT) to probe silicon-based materials, the University of Chicago chemist moved closer to publishing as a principal investigator.

APT, combined with other techniques, revealed to Tian how the expansion of silicon might increase its application in biomedical devices.

The research was completed thanks in part to the pioneering memorandum of understanding among Northwestern, the University of Chicago, and the University of Illinois at Chicago. That agreement allows researchers from the three institutions access to a partner’s instrumentation and expertise at no additional charge for being an external user. Essentially, researchers can save up to 60 percent of their research dollars when using a partner’s facility.

“The long-term strength of this pact is to give researchers more facility choices throughout Chicago,” says Phil Hockberger, assistant vice president for research and executive director of Northwestern’s research facilities. “This cooperation leads to collaboration, which ultimately results in additional research funding.”

Tian’s findings, published in *Nature Materials*, included Northwestern coauthors Dieter Isheim and David Seidman, both materials science and engineering.

“A large component of our experiments involve the characterization of materials structures at the nano scale and so far we have used the APT, scanning transmission electron microscopy, focused ion beam system, and cryoEM at Northwestern,” says Tian. “APT is particularly critical for us as it helps us reveal the 3D chemical information in our samples quantitatively and with sub-nanometer resolution.”

Tian’s collaborations with Isheim and Seidman began in 2013 and have resulted in two finished projects and numerous ongoing academic pursuits.

“I’ve had a truly great experience working with the research community at Northwestern and, in some sense, I consider Professor Seidman a mentor,” says Tian. “It’s not just a service that has been provided; many of the people we have worked with have indeed contributed scientifically to our success, sharing their knowledge and skillset along the way.”

Revealing Texts from 2,000 Years Ago

Vito Mocella of the National Council of Research (Italy) delivers a keynote address on September 6 at the SR2A (Synchrotron Radiation and Neutrons in Art and Archaeology) Conference at the Art Institute of Chicago. Mocella employs a non-destructive technique using X-ray tomography to read fragile papyri from Herculaneum, buried in the eruption of Mt. Vesuvius in 79 AD. The ability to read these texts represents a turning point for the study of literature and ancient philosophy. SR2A was organized and sponsored by NU-ACCESS: Northwestern University/Art Institute of Chicago Center for Scientific Studies in the Arts.
Honors

Social intelligence and advertising platform 4C, founded by Alok Choudhary, and Narrative Science, an advanced language generation software founded by Kristian Hammond and Larry Birnbaum, were ranked 6 and 14, respectively, of top Chicago startups by Symmetry 50. All three start-up founders are electrical engineering and computer science faculty.

Omar Farha, chemistry, has won the 2016 Satinder Ahuja Award for Young Investigators in Separation Science. The award is sponsored by the Analytical Division of the American Chemical Society (ACS) and recognizes outstanding scientific contributions in the area of chemical separations based on metal-organic framework materials.

Lam-Kiu Fong, a Northwestern graduate student in the Mirkin and Schatz research groups, has been awarded an ACS Women Chemists Committee (WCC) Merck Research Award. The honor recognizes excellence in third- and fourth-year female graduate students whose research focus is in organic, medicinal, analytical, biological, computational, or structural chemistry.

Robert Gordon, economics, is cited by Federal Reserve Chair Janet Yellen more often than any other economist outside of the Federal system, according to a recent Bloomberg study.

Aleksandar Kuzmanovic, electrical engineering and computer science, earned more than $500,000 in National Science Foundation funding from Networking Technology and Systems (NeTS) to pursue research that leverages existing user-tracking infrastructure to prevent online trolling.

Frederick Lewis, professor emeritus of chemistry, received the Porter Medal for 2016 from the Inter-American Photochemistry Society, European Photochemistry Association, and the Asian and Oceanian Photochemistry Association for a lifetime of significant contributions to photochemistry. Lewis was recognized for his leadership in advancing photochemistry techniques during his nearly five-decade career. The award is widely considered the highest global honor in photochemistry.

Manijeh Razeghi, electrical engineering and computer science, has received the Jan Czochralski Gold Medal from the European Materials Research Society. The award, named in honor of the eminent Polish chemist, recognizes her life achievements in the field of advanced materials science.

Goce Trajcevski, electrical engineering and computer science, in collaboration with researchers from University of Illinois at Chicago and Brown University, has received an $800,000 award from the highly competitive National Science Foundation Cyber-Physical Systems program. The three-year interdisciplinary project will develop models and methods to generate, analyze, and share data on underground infrastructure systems, such as water, gas, electricity, and sewer networks.

The Northwestern chapter of the Society of Women Engineers (SWE) received the 2015-2016 Best Collegiate Section Award for the Chicago regional section. The award honors a university chapter that best exemplifies SWE’s goals of professional excellence, globalization, and advocacy.

A team of Northwestern doctoral students won a nationwide science competition hosted by BASF, the world’s largest chemical producer. The competition challenged young researchers to answer a major global issue in a novel way. Northwestern’s team, comprised of students from mechanical engineering and chemistry, developed a method for improving the performance of base oil in synthetic lubricants for high-efficiency vehicles.

The Net Impact Chapter of Northwestern’s Kellogg School of Management has been named 2016 Graduate Chapter of the Year. Net Impact is a global organization that aims to empower social and environmental change on campuses. Out of 250 chapters worldwide, Kellogg received this distinction based on students’ commitment to social impact.

Northwestern Medicine’s Bluhm Cardiovascular Institute has performed 500 transcatheter aortic valve replacements (TAVR) since the program’s inception in 2008 — the first hospital in Illinois to reach this milestone. Northwestern is a leader in implementing the pioneering technology that replaces or repairs leaky heart valves without requiring patient exposure to the complications of open-heart surgery.

Northwestern Medicine scientists received a five-year $7.5 million award from the National Institute on Minority Health and Health Disparities to study how genetic information from African American patients can predict their responses to medications. The funding will support two main projects: the first is concerned with discovering genetic variation specific to African Americans that can foretell how individuals will react to the three common cardiovascular drugs; the second will translate those findings to patient care.

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Spotlight: Research in the News

A self-driving wheelchair may soon be available to consumers, according to research led by Brenna Argall, electrical engineering and computer science. Over the next five years, Argall and colleagues are developing a commercially feasible model of an autonomous wheelchair — a vehicle that leaves the user in control but learns from instruction, resulting in simpler control and faster reaction time. 

Crain’s Chicago Business reported on the research. A significant portion of potential voters whose opinions are not captured in the polls may play an important role in the 2016 election’s outcome, suggests new research by Northwestern’s Medill School of Journalism, Media, Integrated Marketing Communications. The study’s authors, Martin Block and Don Schultz, both integrated marketing communications, found that a bloc of potential voters — representing 30 percent of the population — may not have been previously analyzed, since this segment does not express any party affiliation and appear largely uninterested in election-related issues. Forbes reported on the research.

Women who suffered childhood physical and mental abuse may be less likely to survive into middle age compared with their peers who did not endure maltreatment, according to a new Northwestern study led by Edith Chen, psychology. The longitudinal research revealed that there are both psychiatric consequences of childhood abuse in girls and persistent physical consequences that impact survival rate. The research findings were featured on FOX News and Reuters. 

A Northwestern Medicine study reveals an increase in Illinois hospital emergency department visits under the Affordable Care Act, contrary to the landmark health care law’s objective. The research, led by Scott Dresden, emergency medicine, found that while the number of visits by uninsured people has decreased since the law took effect, the decline has not offset the greater numbers of people seeking emergency room care. The Chicago Tribune reported on the research. The controversial conviction of Brendan Dassy, whose case was made famous through the Netflix docuseries “Making a Murderer,” has been overturned by a federal court in Wisconsin. Steve Drizin, clinical law and affiliated with Northwestern’s Center for Wrongful Convictions of Youth, accepted Dassy’s case in 2014 and continued to support his defense, which resulted in the recent decision. The court’s decision was widely publicized on NBC5 Chicago, Associated Press, The Guardian, and the Huffington Post, among other sources. Whether your football team wins or loses may influence your perception of sitting politicians, according to new Northwestern research led by James Druckman, political science. Druckman’s research revealed that the euphoria linked to one’s team winning a big game translated into higher approval ratings for the president; conversely, when one’s team loses a game, an individual tends to evaluate the president less favorably. The Washington Post showcased the research findings. 

A transformative Northwestern study has shown that inflammation and scarring of the ovaries — rather than a decline in egg quality — may be the reason women struggle to conceive as they age. The study, led by Francesca Duncan, obstetrics and gynecology, suggests that older and younger eggs are relatively the same, but damage to the ovaries that produce them may be the cause of age-related infertility. The research was featured in the Telegraph, the Daily Mail, and Science Daily. 

A report coauthored by Northwestern’s Kirabo Jackson, human development and social policy, revealed that students educated in resource-rich school districts completed more years of school, were less likely to live in poverty as adults, and made 7.25 percent more in wages compared to their peers in underfunded districts. The research, conducted for the National Bureau of Economic Research, tracked students enrolled in districts that saw a prolonged increase in school funding. The report was featured in the Associated Press, Washington Post, Crain’s Chicago Business, and Chicago Tribune, among other media outlets.

A study by Northwestern’s Joint Center for Poverty Research was cited in a new McKinsey & Company report that examined the wage gap between men and women in the United States. Northwestern’s research identified violence against women as a major contributor to the gap, with as many as 25 to 50 percent of domestic violence survivors reporting job loss related to their abuse. After losing one job, the study found that many survivors fell into a persistent cycle of unemployment. The Huffington Post and New York Magazine were among the publications that featured the research.
Discoveries

Northwestern scientists have developed a new way to help heal chronic wounds — such as those caused by diabetes — that promises to be safer and more cost effective than existing treatments. The researchers, including Guillermo Ameer, biomedical engineering and surgery, Hao F. Zhang, biomedical engineering, and Robert Galliano, surgery, created a “regenerative bandage.” The novel material promotes the healing of wounds four times faster than a standard bandage without side effects. Learn more.

A study led by Inger Burnett-Zeigler, psychiatry and behavioral sciences, revealed that African-American women of lower socioeconomic status can enjoy an effective alternative to conventional mental health treatments by practicing mindfulness to alleviate depressive symptoms. The study led participants through a 16-week training program in mind-body approaches to combatting symptoms of depression and stress, resulting in enhanced coping strategies and improved mental health. Learn more.

On August 25, University archivist Kevin Leonard unearthed the contents of a time capsule placed inside the Kresge Centennial Hall cornerstone in 1954. The collection of documents were inside helium-filled glass tubes used to preserve the items. The mysterious metal box where the capsule was hidden was found thanks to the renovation of Kresge’s Hall. Learn more.

Northwestern research led by David Rapp, psychology, has shown that people often rely on inaccurate or misleading statements they have heard to make decisions even when presented with the correct information. Rather than exert the energy to critically evaluate information, our brains revert to a simpler solution: recall whatever information is available first. “If it’s available, people tend to think they can rely on it. But just because you can remember what someone said, doesn’t make it true,” said Rapp. Learn more.

A research team led by Ilya Ruvinsky, molecular biosciences, has discovered that even the minute presence of male pheromones is enough to alter the physiology of female animals, a process that primes them for reproduction while also speeding up the body’s aging as an unfortunate side effect. The scientists identified two distinct signals produced by males that affect female reproduction — one that causes an earlier onset of puberty and another that slows aging of the reproductive system in mature females, keeping them fertile longer. Learn more.

Northwestern scientists Vadim Backman, Hao Zhang, both biomedical engineering, and Cheng Sun, mechanical engineering, have discovered that DNA naturally fluoresces. This finding is contrary to conventional understanding, which held that macromolecule structures in living cells must be treated to enhance contrast for imaging. The research could yield label-free, super-resolution nanoscopic imaging and expand the understanding of biological processes. Learn more.

Female patients prefer female urologists, but there are not enough of them to meet demand, reported a new Northwestern Medicine study. The research, led by chief urology resident Daniel Oberlin, found that female certified urologists, who are a minority within the field, perform a significantly higher percentage of surgery on women relative to their male colleagues. Although the total number of female urologists is growing, they still represent a small portion of the field. Learn more.
Proposal and Award Report: Through July 2016

Northwestern has received a total of $477.3 million in award funding this fiscal year, through July. This figure reflects a 1 percent increase ($2.5 million) compared with July 2015. The number of awards to date (2,467) is slightly higher than this time last year.

The dollar volume of awards from federal agencies increased 6 percent ($21 million). Awards from industrial sponsors declined about 4 percent ($3.4 million). Foundation funding is down 32 percent ($8.4 million), while voluntary health organization funding decreased 25 percent ($3.9 million).

The dollar volume of proposals submitted through July is $2.4 billion, an increase of 1 percent compared to last year. The number of proposals submitted (3,208) is a 2 percent increase.

The dollar volume of proposals submitted to federal agencies increased 4 percent ($89.6 million), while proposals to industrial sponsors was down 18 percent ($17.5 million). Proposal activity to voluntary health organizations is up 10 percent ($6.9 million) and foundation proposals declined by 40 percent ($31.9 million).

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