Finding climate solutions in an age of polarized politics
Human life in the virtual world: from cyberbullying to community-building
Lewis College faculty hires and retirements
I’ve gained a greater appreciation for architecture during my time at Illinois Institute of Technology. I work on a campus designed by Ludwig Mies van der Rohe, I live in a city dominated by the buildings of great architects, and I look out my window at the new John Ronan-designed Ed Kaplan Family Institute for Innovation and Tech Entrepreneurship. Immersed in this architectural landscape, I can’t help but think about the way our built environment influences our behavior. The open concept and flexible seating of new spaces on campus encourage collaboration, teamwork, and creativity. In these spaces, instructors find new ways to teach and students find new ways to learn.

As a sociologist, I recognize that we also are influenced by the social environments in which we are located, the spaces and places we occupy on a daily basis. Our social interactions create an environment that can be supportive or damaging. As Assistant Professor of Psychology Nicole Legate notes in her article in this issue of Big Picture, the increased ability to connect and communicate with digital technologies can broaden our networks in harmful ways. But, as psychology Ph.D. student Sean Rafajko later describes, virtual interactions can also boost one’s sense of community and well-being—and could prove helpful as an element of treatment for people with autism.

Thinking on a bigger scale, it is evident that the effects of climate change are shaping the natural, built, and social environments of the world. Driving along Lake Shore Drive in Chicago, I see the waves cresting over the roadway and the beach eroding. At Pretty Lake Camp in Michigan, the beach used for our boat building contest during the Sophomore Leadership Retreat is gone. These broad changes in our natural environment affect not only beaches and landscapes, but people, towns, and wildlife. Understanding our attempts to influence and contend with changes in the natural environment are topics of interest for many Lewis College of Human Sciences faculty. As you will read in this issue, hurricanes in the Caribbean, tsunamis in Japan, and rising ocean levels are a few of the issues they are examining. Our profile of Associate Professor of Political Science Matt Shapiro highlights the difficulty in studying policies related to environmental protection and the global nature of the problem.

Across our disciplines, faculty and students are engaged in exploring and examining the many natural, social, and built environments that we occupy and influence. I hope you enjoy reading about their work.

Christine L. Himes
Dean, Lewis College of Human Sciences
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Solving the Climate Crisis
ONE CONVERSATION AT A TIME
by Linsey Maughan

A longtime expert on transboundary air pollution problems in Northeast Asia, Associate Professor of Political Science Matt Shapiro is zeroing in on the power of data and communication to influence environmental policy, both domestically and abroad.
TRANSBORDATORY AIR POLLUTION IN NORTHEAST ASIA HAS LONG BEEN A TOPIC OF CONCERN TO RESIDENTS OF THE REGION, BUT TO DATE THERE HAS BEEN LITTLE AGREEMENT ON WHAT TO DO ABOUT IT. THE CHALLENGES OF COORDINATION LIE PREDOMINANTLY IN COMMUNICATION PROBLEMS BETWEEN NATIONS, ASSOCIATE PROFESSOR OF POLITICAL SCIENCE MATT SHAPIRO SAYS, AND AS CHINA, JAPAN, AND SOUTH KOREA POINT FINGERS AT ONE ANOTHER, POOR AIR QUALITY CONTINUES TO RAVAGE THE HEALTH AND LIFESTYLES OF THEIR CITIZENS.

In late September, Shapiro presented at the 2019 Clean Air International Forum in Suwon City, South Korea. He shared lessons from the United States that might help Northeast Asia address its air pollution problem, and is now drafting an article on the same topic for the winter issue of Global Asia, a prominent international-affairs publication.

“Our research could eventually show that attribution of blame for transboundary air pollution in Northeast Asia must be distributed to countries beyond China—beyond the region in fact.”

—Matt Shapiro
The 60616 zip code is home to the Illinois Tech community and the historic neighborhood of Bronzeville. In each issue of Big Picture, we select one unifying theme and present six distinct perspectives from our community. The 606-1-6 theme highlights the common spaces we inhabit and the different perspectives with which we view the world.

This issue focuses on members of the Lewis College community whose work engages with our natural, virtual, and political environments.

**PUERTO RICO, POST HURRICANE**

Two years after Hurricane Maria devastated Puerto Rico, the United States territory struggles to recover from both hurricane damage and the preexisting and ongoing economic crisis. Big Picture spoke with Margaret Power, a professor of history and expert on Puerto Rico, regarding the situation there.

You estimate the true death toll of Hurricane Maria to be nearly 3,000 people—notably higher than the media’s initial reports of approximately 30 deaths. Why such a big difference in the figures?

For months after the hurricane, there wasn’t electricity on much of the island. A huge number of diabetic Puerto Ricans had no access to dialysis, and they died. Many could not get to a hospital, and many hospitals were not functioning. You can go down the list of all of these different diseases—there was a multiplier effect. People were also ingesting water that wasn’t clean, which also led to death.

**What have been the obstacles to recovery?**

Puerto Rico has been in financial crisis since 2006. Due to governmental corruption, indifference, and incompetence, a tremendous amount of resources that were sent to Puerto Rico were never distributed to the population. The secretary of education closed 283 schools, which meant further isolation for communities. Many doctors fled, forcing some of the hospitals to shut down.

**What does Puerto Rico need in order to recover?**

People are trying to figure out how to rebuild in a way that will be able to withstand the next hurricane that comes. The grids need to be rebuilt. Puerto Rico is an ideal place for solar power, but this is a massive financial undertaking. Meanwhile, U.S. developers have also been pouring into Puerto Rico and buying up the land at cheap rates. They want to turn a lot of the coast into all-inclusive resorts. The Puerto Rican debt needs to be forgiven, and capital needs to pour into building and rebuilding sustainable infrastructure.

**How can people help?**

Puerto Rico needs a massive influx of capital. If people want to help, they need to pressure their elected officials to pass the aid bills to Puerto Rico.

**STUDYING CLIMATE CHANGE IN THE CARIBBEAN**

For the past 20 years Jonathan Rosenberg, a professor of political science and chair of the Department of Social Sciences, has studied how effectively the providers of international development aid account for the environmental impacts of the projects they fund. He is especially interested in how this work affects the small island developing states of the Caribbean.

“Small island developing states in the Caribbean (and elsewhere) are extremely vulnerable to the effects of global environmental change,” Rosenberg says. “As small, poor countries, they have economic activities that usually contribute very little to the global challenges we all face; but as island and coastal countries, they can bear the brunt of such problems as sea-level rise, coastal zone erosion, increased frequency and intensity of storms, coral bleaching, deforestation, and other kinds of habitat loss.”
Since graduating with a Bachelor of Science in Social and Economic Development Policy in 2018, alumnus Brian Gomez, a passionate environmental advocate, has become finance and operations manager of Sunrise Movement, a nonprofit organization mobilizing young activists to work to address climate change. But Gomez’s work does not end there. He was also a member of the Obama Foundation’s 2019 Chicago cohort of the Community Leadership Corps, and continues to serve as an adviser to the Chicago Youth Alliance for Climate Action, which he co-founded in 2015.

“I got involved with the Sunrise Movement because they are changing the debate on climate change and inspiring young people around the country to act,” Gomez says. “Sunrise is putting the Green New Deal on the map and increasing the perception on the connection between jobs and environmental policy.”

With the Obama Foundation, Gomez worked to connect young, technologically skilled people and local business owners on the southwest side of Chicago in order to share skills and modernize local businesses—namely, growing the stores’ internet footprints to help draw new customers. Part of the project involved building an app to “start a conversation around the ways different generations can interact with each other to better a community,” Gomez says.

Together with the Chicago Youth Alliance for Climate Action, Gomez has been working on a solar campaign for Chicago Public Schools and working to increase the youth voice on environmental issues within CPS.

“First, it’s about educating students on the energy their school uses and how they can become active in deciding how their energy is sourced,” Gomez says of the campaign. “Second, it helps reduce carbon emissions and meet Chicago’s goal of making all public buildings sourced by renewables by 2035.”

This past summer Rosenberg traveled to Belize for research at the Caribbean Community Climate Change Centre, which oversees a number of small-scale projects in the Caribbean aimed at addressing sea-level rise, drought, and greenhouse gas reduction. The center, Rosenberg says, is studying the diverse impacts of climate change, providing climate change models for use by regional governments and agencies, and working to assist clients in seeking and managing international aid for development projects.

Rosenberg interviewed directors and staff of the center, and examined documents to understand how it assists small-island developing states in the Caribbean. He also studied the center’s relationship to its funders, as well as its long-term strategies for securing funding from sources other than foreign aid. Going forward, Rosenberg will continue to study the work of the center, looking at how and why aid-funded development projects succeed or fail to take the environment into account.

“Economically, small-island developing states face the difficult challenge of bringing in more aid and investment, and creating more opportunities in a highly competitive global economy,” Rosenberg says, “while [at the same time] trying to protect precious ecosystems from profitable but destructive forms of development.”
Gerard Jumanan poses for a photo during his internship at the Japan America Society of Chicago.

**AUTISM, WELLNESS, AND THE VIRTUAL WORLD**

Sean Rafajko is a graduate student enrolled in the rehabilitation track of the Ph.D. program in clinical psychology. Here he discusses his exploration of how online environments might benefit people with autism.

**What is the focus of your graduate research?**

My dissertation focuses on the impact of community on the overall well-being of adults on the autism spectrum. I am examining not only traditional communities—neighborhood, city, clubs, etc.—but also virtual communities, including those on social networks such as Facebook and Reddit, and on the internet broadly.

**How did this project come about?**

There is a sizable amount of research literature that links a sense of community to positive psychological outcomes across several groups, including the general population and various disability groups. However, this connection has not been examined for individuals with autism.

This is a major gap in the literature, because one of the core difficulties present in people with autism is social communication, which may hinder community connectedness.

**What problem are you hoping to solve?**

First, I want to identify the impact of the traditional sense of community. However, there is also research suggesting that individuals with autism prefer online and computer-based communication because of its ability to circumvent some of the communication difficulties in autism. People with autism have different ways of interacting with the world, and it is important to understand how a sense of community looks different for the population, and if online communities provide a separate way for people with autism to connect with others, resulting in positive impacts on quality of life.

**What might the outcome of this research be?**

This research can inform autism treatment and tsunami studies that have affected Japan, and also about solutions and steps for people to prepare for a natural disaster. By visiting these museums, people can learn about the natural environment and how natural disasters come about.

Studies show that the number of tourists in Osaka—and all of Japan, for that matter—is only increasing year by year. We wanted to educate the tourist population, but also learn more about how people in Japan optimally prepare for natural disasters. In the end, my team gave a presentation to representatives of the Osaka Prefectural Government. Our major conclusion was that more

**PREVENTING TEENAGE CYBERBULLYING**

Cyberbullying is increasingly prevalent among teens. The consequences for both victims and perpetrators of bullying and cyberbullying include increased risk of depression, anxiety, and suicide even decades later. Finding factors in the social environment that can help curb different forms of bullying is therefore really important.

One recent study I did with collaborators looked at how parenting styles impacted kids’ cyberbullying behavior. for example, spreading a rumor about a classmate on social media. We found that parents who use strategies such as shame and guilt to pressure their kids to behave better had kids who cyberbully more than kids whose parents use supportive strategies, like understanding why their kid misbehaved in the first place and providing them a rationale to be kinder to others in the future.

Even though parents may feel like they should control and clamp down on their kids when they engage in harmful behavior, our data show that this can backfire and kids may engage in those harmful behaviors even more. Instead, it’s important that parents support the autonomy of their kids and help them decide for themselves how they want to treat others. Because in the end, kids, especially teens, are going to do what they want! And this approach is encouraging: by helping kids better understand their own values and beliefs, versus imposing those beliefs on them, kids do the right thing and tend to be a lot more inclusive.

Nicole Legate
Assistant Professor of Psychology
The Bachelor of Science in Science, Technology and Society (STS) is a new, interdisciplinary degree program that combines coursework in the social sciences, humanities, and selected fields in science and technology. This customizable program offers students the opportunity to explore how political, economic, cultural, and social forces influence science and technology, and the ways that science and technology impact society.

STS majors focus on the aspects and approaches that are of greatest interest to them, while also gaining a strong foundation in core topics in the field. These include sustainability, the ethical aspects of science and technology, medicine and health, the history and sociology of science, human interaction with technologies and technological systems, the economics of innovation, and science and technology policy.

Students are also trained in qualitative and quantitative research methods, such as geographic information systems, computational analysis, and intercultural communication, putting these skills to use in academically supervised professional internships or academic capstone projects geared toward policy or program evaluation and analysis—meaning they can graduate with practical experience on their résumés.

Learn more about the Bachelor of Science in Science, Technology, and Society program as well as our other undergraduate programs in humanities, psychology, and social sciences online at humansciences.iit.edu.

This fall Mitchell Golbus (PSYC ’60) received the 2019 International Award of Merit from Illinois Institute of Technology. The award recognizes alumni whose career contributions help enhance the international reputation of Illinois Tech.

After graduating from Illinois Tech, Golbus went on to earn an M.D from the University of Illinois at Urbana-Champaign in 1963, later becoming a research fellow and professor at the University of California, San Francisco. An early pioneer of prenatal diagnosis and intervention, he is known internationally for his work in genetics and fetal therapy.

Golbus played a key role in the formation of medical subspecialties in obstetrical genetics and maternal-fetal medicine. He also co-founded the first fetal surgical program, which has since been emulated globally, and has founded several diagnostic companies focused on genetic karyotyping. He has published more than 240 peer-reviewed articles, written 60 book chapters, and has had more than 120 abstracts accepted and published.

Golbus made further international impact through his roles as a founder and executive director of Casa De Angeles Foundation. In the early 2000s the organization raised $2.5 million to significantly expand an orphanage in Guatemala, transforming a single small building into a facility that now houses 125 students and provides educational opportunities from kindergarten through the university level.
FACULTY UPDATES

Rachael Ellison Joins Psychology

The Department of Psychology welcomed a new faculty hire this fall: Assistant Professor of Psychology Rachael Ellison, who came to Illinois Tech following a two-year clinical fellowship in neuropsychology at the Edward Hines Jr. Veterans Administration Hospital in Hines, Illinois.

“I was excited about the job, but as I’m settling in I’m even more excited about this— it feels like a dream job,” Ellison says.

One of the key selling points of Illinois Tech, Ellison says, was the opportunity for interdisciplinary collaboration.

“I think that’s where a lot of really cool ideas and research happens,” she says. “Within this department and even outside the psychology department across other disciplines, there are a lot of faculty with overlapping research interests and a lot of opportunities for collaboration.”

Prior to her clinical fellowship, Ellison had completed a one-year clinical psychology residency at the VA San Diego Healthcare System that focused on neuropsychology, cognitive rehabilitation, traumatic brain injury, and post-traumatic stress disorder. She grew up in Deerfield, Illinois, earned an undergraduate degree in human development and psychological services and psychology at Northwestern University, and subsequently participated in the Northwestern Public Interest Program Fellowship, followed by a clinical psychology Ph.D. from DePaul University, where she focused on clinical-community psychology. She is now a licensed clinical neuropsychologist.

In graduate school, Ellison geared her studies toward social justice and clinical neuropsychology.

“I was interested in exploring more systemic issues related to social justice, such as racial stress,” she says. “My initial line of research was focused on racial privilege. Chicago is a very segregated city, and we have unequal resources allocated both in the city and throughout the country, and those things impact educational opportunities, health outcomes, and mental health outcomes. I was also really interested in how to get people of privilege more open to diversity, more culturally competent, and engaged in social justice work.”

Ellison’s primary focus now includes research that overlaps social justice and cognitive neuroscience, including the impact of racial stress on cognitive outcomes. She is also preparing to launch a study on the relationship between executive functioning and the ability to self-regulate during challenging social/political conversations.

Frank Lane Appointed Psychology Chair

Associate Professor of Psychology Frank Lane has stepped into the role of chair of the Department of Psychology as of June 2019 after serving as associate chair and director of the department’s rehabilitation psychology programs.

Lane was hired in 2006 as an assistant professor in rehabilitation psychology, relocating from Gainesville, Florida, where he had earned both a master’s in rehabilitation and mental health counseling and a Ph.D. in rehabilitation science at the University of Florida. He’d previously earned a B.A. in psychology from Saint Leo University in St. Leo, Florida.

“Moving to a technology university where I had the opportunity to collaborate with engineers and other scientists was very attractive to me,” Lane says. “I very quickly became involved in rehabilitation technology; I took over a training grant on rehabilitation engineering technologies.”

Since 2008 Lane has worked on assistive technology research, collaborating with Philip Troyk, a professor of biomedical engineering at Illinois Tech, and several external partners to study the human response to neural implants. Their current project, funded by the National Institutes of Health, involves education, recruitment, and follow-up with up to five research participants who would be implanted with neural implants at the University of Chicago.

“It’s a chip that’s installed into the visual cortex of people who are blind,” Lane says. “It will create dots of light in their visual field that we believe will form an outline around an object to allow these individuals to ambulate independently and safely. And it will also teach us about vision.”

“Oftentimes technology is built and then it’s presented to the people it’s intended for; and it works for them or it doesn’t. We interview the people who the technology is intended for first, so that we’re building technology that meets their needs. We also look at the ethical implications of restoring someone’s vision.”

As department chair, Lane is leading the faculty in developing a five-year strategic plan by 2020.

“What does it mean to be a psychology department at a tech university, and what are the opportunities that exist?” he says. “The world is changing, technology is becoming an important part of people’s lives, and so it makes sense that psychology would play an important role in that.”

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Michael Davis, Professor of Philosophy

When Michael Davis showed up at what was then Western Reserve University as a freshman in 1961, just two miles from where he grew up in suburban Cleveland, he immediately declared his major in philosophy. He had taken a course that incorporated philosophy during his senior year in high school, and knew he was hooked. “First, I liked the big ideas,” he says. “As I took more courses, I came to also like breaking down arguments into parts and criticizing them, and I liked Aristotle and others like him who would take a single question and break it down into 10 smaller questions that were easier to answer. I liked big ideas and the work of defending them, especially criticizing other philosophers’ work. This was me at 18.”

Davis spent seven years in graduate school at the University of Michigan, earning a Ph.D. in philosophy. He was then hired as an assistant professor of philosophy at Illinois State University, where he taught from 1977 to 1984, at which point he was offered a position at Illinois Institute of Technology to work as a senior research associate at the Center for the Study of Ethics in the Professions. Davis delayed starting for a year in order to complete work tied to a grant he had received from the National Endowment for the Humanities. In 1986 he joined the ethics center, where he wrote grants, researched engineering ethics, and published his work, also teaching part-time in the humanities department. In 1997 he was promoted to full professor in humanities, where he continued to focus his research on engineering ethics, conflict of interest, and whistleblowing.

In retirement, Davis plans to publish a book on engineering as a global profession. He is also considering writing a few more papers on what makes engineering’s global reach possible. In his free time, he enjoys walking around the city and walking his dog in the woods. He listens to a lot of audiobooks, mostly fiction. This academic year, he remains on staff at the ethics center, wrapping up some projects. He hasn’t started missing his students yet, but he thinks by December he will.

“The students at Illinois Tech are wonderful—the ones who take philosophy anyway,” he says. “Most of them don’t know what they’re getting into, but they’re very bright. Teaching is an intimate thing actually, because most people don’t let you into their minds. When you teach, people have to let you into their minds. You get to see them the way you don’t anywhere else, and you see them change.”

Michael Young, Professor of Psychology

As he reaches the end of a 23-year career at Illinois Institute of Technology, retiring Professor of Psychology Michael Young recalls what first brought him to the university: the desire to teach and mentor. Looking back now, it’s clear his instincts proved correct.

“The thing that has been most rewarding over these years is working with the graduate students, both as their adviser and as director of the clinical program for 17 of those 23 years,” Young says. “I’ve also had very good colleagues in the Department of Psychology, and that makes coming to work good and rewarding in and of itself.”

Prior to being hired by Illinois Tech in 1996, Young spent 16 years at Rush University Medical Center researching depression and seasonal affective disorder. He still researches those same subjects.

“Seasonal affective disorder is a very interesting combination of biological, psychological, and environmental factors,” Young says. “I had been interested in studying how people transition from being well to being depressed, and people with seasonal affective disorder get depressed every winter, so it provides a good opportunity for studying that—as opposed to people who might get depressed every four or five years.”

Young grew up in the Chicago area, attended the University of Chicago for his undergraduate degree, and went to graduate school at Adelphi University in New York. “When I started out in college, I was a physics and math person, and definitely a science person. But then I got interested in understanding human behavior, and so I think of myself as a scientist just the same,” Young says.

During the spring 2019 semester, his last teaching courses, Young received the John W. Rowe Excellence in Teaching Award. He is now wrapping up advising graduate students while also researching the application of network theory to seasonal affective disorder.

“Normally we think of disorders as having a single underlying cause, just like you have symptoms of tuberculous because you have an infection,” he says. “But an alternative is that what depression consists of is this network of interacting symptoms. I’m the only one studying seasonal affective disorder as a network, so I think there is a lot of potential to learn new things, which could also have applications for treatment.”

Looking ahead, Young has plans for how he’ll occupy his time beyond his research. “I’m definitely ready to slow down and maybe do some more informal things: tend to my vegetable garden, brew more beer, go to more concerts, read more—things I enjoy doing that have been more limited when I’m busy at work,” he says.
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