



Research and Graduate Studies

Annual Report 2021



ILLINOIS STATE
UNIVERSITY

Illinois' first public university

Message from the associate vice president

I am pleased to present the annual report for FY2021 for the Office of Research and Graduate Studies. This marks one year for me in my role, and I am happy to share this year's update. This has certainly been a difficult year—and past 20 months. We continue to have many challenges. This report then is an attempt to capture some of the wonderful work that continued at Illinois State despite the COVID-19 global pandemic that impacted the way we participated in our scholarship and creative activities. Certain types of scholarship and work were suspended given public health guidelines. The experiences of faculty, staff, and students certainly shifted. Great work continued in many areas in spite of it all. Beyond the facts and figures, we also highlight some of the great work we have showcased elsewhere.



After an “unusual” FY21, I am grateful and appreciative for all that my ISU colleagues have been able to accomplish and to many on our team from the unit and beyond in helping to make that great work possible. Several activities and points of pride from the previous year include:

- continued supplemental funding for university research grants (URGs), the main source of internal support for faculty research;
- participation in helping secure approximately \$90M in external funding to projects for FY21 and beyond, including more than \$52M in CARES/HEERF funding for emergency relief;
- increased efforts in engaging corporate partners to support and license our work and increase interaction with our faculty and graduate students;
- finalized (with several other key units) the process to streamline the hiring of post-doctoral researchers;
- sponsored the inaugural research seminar series around the theme of water research;
- the Office of Student Research continued to promote and celebrate student research on campus, continuing the new student research support fellowships and an Image of Research competition; and
- began a monthly *Bulletin* with pertinent information to increase communication with stakeholders.

As we begin FY22, we remain in the midst of the pandemic. Although many mitigation steps remain in place, many colleagues have returned to campus for the first time in a long time. There is a buzz in the air with students on the Quad, in the Bone Student Center, and in their places of scholarship and creativity. I am excited to assist our new president, Dr. Terri Goss Kinzy, and our Vice President for Academic Affairs and Provost Dr. Aondover Tarhule, with leading the University forward. Both are accomplished scholars with big hopes for ISU's future.

Stay tuned for future initiatives and directions in the coming months, as efforts already underway continue. These include:

- continued development of the Illinois State University Hub of the Illinois Innovation Network, a group of public universities working together to improve the state's economy through innovation, research, and education;
- a search for a director of the Graduate School;
- improved coordination of services in grant support and administration;
- greater efforts to highlight and promote the excellent work going on with ISU scholars; and
- working with other campus units toward the creation of the Faculty Success Center in Milner Library.

Finally, I will repeat the same statement I made when I began in this role and the words I placed in the FY20 Annual Report: As an experimentalist, I believe in asking many questions as well as continuous improvement in processes. I welcome your feedback along with ideas and suggestions. Together, we can continue to make progress.

Craig C. McLauchlan

Associate Vice President for Research and Graduate Studies
Professor of Chemistry
McLauchlan@IllinoisState.edu

Research and Graduate Studies

Departments

Research and Sponsored Programs

Jason Wagoner, Senior Director

Research Ethics and Compliance

Kathy Spence, Director

Graduate School

Dr. Noelle Selkow, Interim Director

Centers

Center for Mathematics, Science, and

Technology (CeMaST) Dr. Rebekka Darner,
Director

Cross Chair in the Scholarship of Teaching

and Learning Dr. Jen Friberg, Director

Center for Collaborative Studies in

Mathematical Biology Dr. Olcay Akman, Director

Center for a Sustainable Water Future

Dr. Joan Brehm and Dr. Noha Shawki, Directors

Office of Student Research

Dr. Gina Hunter, Director

Stevenson Center for Community and Economic Development

Dr. Frank Beck, Director

Research Center Updates

Adlai Stevenson II Center for Community and Economic Development

As we train undergraduate and graduate students in data management, the Stevenson Center has continued its work with McLean County's Criminal Justice Coordinating Council (CJCC). In addition to tracking the jail population by severity of charge, race, and sex, we embarked on a large study of juveniles in the court system and the Juvenile Detention Center. The CJCC hopes we can identify patterns among juveniles and common precursors to adult involvement with the courts. The goal is to lessen that involvement by interceding before someone is 18. For Bloomington-Normal, this is especially an issue when it comes to gun violence. Other CJCC projects had to do with mental health patterns among juveniles and adults and the length of stay in the jail for adults, by race.

Stevenson Center students also engaged in two projects through their graduate applied methods course. To best understand the extent to which religious and spiritual organizations were open and welcoming to LGBTQIA+ persons, the students gathered and analyzed survey data from McLean County. This led to a set of data points that Prairie Pride Coalition can use to best inform its members and new residents. The other project was for the local branch of the NAACP. The students gathered data on disparities in health care access by African Americans and interviewed persons about their experience of Covid-19 and vaccination.

In addition, throughout the 2020-21 academic year, students completed six capstone papers of use to their professional practice organizations and three theses. The latter covered topics that included voluntourism and development in Guatemala, urban planning in the U.S. as millennials move into the home market, and City Year alumni view of their own work.

Center for Mathematics, Science, and Technology

CeMaST launched a national study of college/university students' social distancing behaviors during the pandemic in FY2021, in collaboration with ISU Psychology Professor Matthew Hesson-McInnis. This project provided research experience to a master's student and three undergraduate students. A manuscript from this project is in preparation. CeMaST also continued its work within Project EDDIE, studying the impacts on students' quantitative reasoning; and the Smart Grid for All energy literacy curricular ecosystem, adding several web-based components to replicate hands-on materials. CeMaST partnered with mathematics professors Dr. Jeff Barrett and Dr. Ed Mooney and two math graduate students to conduct research on how Smart Grid components support students developing understanding of angles and

measurement. This research will be continued into FY2022, pending funding. Finally, CeMaST continued conducting SoTL research with Dr. Guang Jin and Dr. Alicia Wodika in the Health Sciences Department on how students develop accuracy-oriented reasoning about controversial socio-scientific issues.

Center for a Sustainable Water Future

In January 2021, the Center for a Sustainable Water Future received a grant from the Illinois Innovation Network, Sustaining Illinois Project to support a small pilot research project titled "Mitigating Future Threats to Biodiversity: The Role of Headwater Streams and Land Management Practices in the Kaskaskia River Watershed." This project is led by primary investigator Dr. Joan M. Brehm, co-director of the Center for a Sustainable Water Future. Co-investigators from the University of Illinois include Dr. William Stewart, Dr. Cory Suski, and Dr. Maria Librada Chu. This study focuses on a place-based examination of select low-order streams and associated landowners in the Lake Shelbyville/Kaskaskia River reach of the Upper Kaskaskia River Watershed that have been identified in an ongoing USDA funded project as being at greatest risk of loss of biodiversity due to climate change. Key informant interviews will be conducted with landowners to gather a more in-depth understanding of how they view these streams, their identity as a "good farmer," and how they view/willingness to engage in conservation practices that extend beyond water quality protection to include promotion of biodiversity and ecological resilience in the low order streams that dissect much of the large swaths of agricultural land in the Kaskaskia River.

The center also co-sponsored a 2021 summer student research project with the Office of Student Research that was conducted by Joseph Hoberg in geology. He was mentored by Dr. Eric Peterson for the project titled "Utilizing a TRAC and a tracer test to better quantify the dynamic movement of shallow groundwater."

Center for Collaborative Studies in Mathematical Biology

The Center for Collaborative Studies in Mathematical Biology (CCSMB) accomplished many successful activities during this past year, such as:

- sponsored an extensive webinar series titled "Battling Emerging & Re-emerging Epidemics & Designing Mitigating Strategies." This series covered a wide spectrum of COVID-19 research and education activities worldwide;
- hosted an international symposium on biomathematics research and education in November 2020. (<https://about.IllinoisState.edu/beer>). The Virtual Symposium on Biomathematics and Ecology Education and Research featuring research and education in mathematical biology had nearly 800 participants and included various short courses, workshops, and presentations;

- hosted an international undergraduate research workshop called Cross-Institutional Undergraduate Research Experience (CURE) was attended by 30 students and 12 faculty mentors;
- contributed in development of mRNA-based COVID-19 vaccine by participating in the “Folding@Home” project (<https://foldingathome.org/?lng=en-US>) via its high performance computing cluster called CLOUD for Layering, Organizing, and Utilizing Data” (IBA-CLOUD); and
- sponsored a special volume in its sponsored journal *Letters in Biomathematics* for COVID research.

Scholarship of Teaching and Learning

The Office of the Cross Endowed Chair in SoTL sponsored several programs this year in support of faculty engaged in this type of scholarly activity. An Introduction to SoTL cohort

was established, providing mentorship for “new to SoTL” faculty from across campus. This year-long program yielded four projects with work ongoing on others. The Office of the Cross Chair funded seven projects through the University Research Grant program and provided support for faculty through other grant programs, including the SoTL Seed Grant program and the Small SoTL Grant program. Work began to re-vision *Gauisus*, the internal-to-ISU SoTL journal as the *Journal for Scholarly Teaching in Higher Education*, which will be an open-access journal accepting submission from scholars from around the world. Finally, the Office of the Cross Chair partnered with the Center for Teaching, Learning, and Technology to create the Teaching Scholars-in-Residence Program. It identifies expert teachers from across ISU’s faculty and supports their work with peers to pursue scholarly teaching, professional development, and study.

Research and Service Centers

Illinois State University operates 10 research and service centers that have been authorized by the Illinois Board of Higher Education (IBHE). The 10 centers are recognized by IBHE for their contributions regionally, statewide, and nationally through research, support for public policy development and evaluation, or direct service to the constituents each has been organized to serve. Each center is briefly described below. For more complete information about each center, including its purpose and initiatives, visit the center website.

Adlai Stevenson II Center for Community and Economic Development

AKA: Stevenson Center
 Approved by IBHE: October 2, 2001
 Contact: Dr. Frank Beck, Faculty Director
 Location: Stevenson Hall 435
 Reports to: Office of the Vice President for Academic Affairs and Provost
StevensonCenter.org

Center for Child Welfare and Adoption Studies

Approved by IBHE: June 7, 2005
 Contact: Dr. Doris Houston, Director
 Location: Rachel Cooper 203
 Reports to: School of Social Work
AdoptionResearch.IllinoisState.edu

Center for Collaborative Studies in Mathematical Biology

Intercollegiate Biomathematics Alliance
 AKA: IBA
 Approved by IBHE: June 6, 2017 (temporary status through June 30, 2022)
 Contact: Dr. Olcay Akman, Executive Director
 Location: Stevenson Hall 313 (Department of Mathematics)
 Reports to: Office of the Vice President for Academic Affairs and Provost
about.IllinoisState.edu/iba/pages/default.aspx

Center for Insurance and Risk Management

AKA: Katie School
 Approved by IBHE: January 5, 1993
 Contact: James Jones, Director
 Location: State Farm Hall of Business 432
 Reports to: College of Business
Business.IllinoisState.edu/katie

Center for Mathematics, Science, and Technology

AKA: CeMaST
 Approved by IBHE: July 1, 1997
 Contact: Dr. Rebekka Darner, Director
 Location: Campus Religious Center
 Reports to: Office of the Vice President for Academic Affairs and Provost
Cemast.IllinoisState.edu

Center for the Study of Education Policy

AKA: CSEP
 Approved by IBHE: February 8, 1995



Contact: Dr. Erika Hunt and Lisa Hood, Co-directors
 Location: Degarmo Hall, Third Floor
 Reports to: Department of Educational Administration and Foundations
Education.IllinoisState.edu/csep

Center for Teaching, Learning, and Technology

AKA: CTLT
 Approved by IBHE: January 7, 1997
 Contact: Dr. Jennifer Friberg, Director
 Location: Instructional Technology and Development Center
 Reports to: Office of the Vice President for Academic Affairs and Provost
ctl.t.IllinoisState.edu

Mary and Jean Borg Center for Reading and Literacy

AKA: Borg Center
 Approved by IBHE: October 2, 2001
 Contact: Dr. Deborah MacPhee, Interim Director
 Location: DeGarmo Hall, Third Floor
 Reports to: School of Teaching and Learning
Education.IllinoisState.edu/borg

National Center for Urban Education

AKA: Chicago Teacher Education Pipeline
 Approved by IBHE: August 31, 2016 (temporary status through September 30, 2021)
 Contact: Dr. Maria Luisa Zamudio-Mainou, Executive Director
 Location: 2934 West Lake Street, 3rd Floor, Chicago
 Reports to: College of Education
ncue.IllinoisState.edu

Radio Station WGLT

AKA: WGLT
 Contact: R.C. McBride, General Manager
 Location: Old Union Building 301
 Reports to: School of Communication
Wglt.org

Illinois State University also operates numerous centers and institutes not officially recognized by IBHE. These additional centers primarily support academic programs or student services at the University or provide services locally or regionally. Information regarding those additional centers and institutes can be found on websites of the College of Applied Science and Technology, College of Arts and Sciences, College of Business, and College of Education.

Applied Social Research Unit
 Carson and Iris Varner International Business Institute
 Center for the Advancement and Support of Educational Initiatives
 Center for Civic Engagement
 Center for the Study of Crime and Justice
 Center for a Sustainable Water Future
 Eckelmann-Taylor Speech and Hearing Clinic
 George R. and Martha Means Center for Entrepreneurial Studies
 Illinois Center for Specialized Professional Support
 Illinois Geographic Alliance
 Institute for Corruption Studies
 Institute for Financial Planning and Analysis
 Institute for Geospatial Analysis and Mapping (GEOMAP)
 Institute for Regulatory Policy Studies
 Mind Project
 Organizational Leadership Institute
 Professional Sales Institute
 Stanley S. Marzolf Center for the Psychological Assessment and Treatment of Children and Adolescents (The Psychological Services Center)

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POWERFUL PENNYCRESS

Dr. Sedbrook's research team is transforming a weed into a crop

Though farmers consider pennycress (*Thlaspi arvense*) nothing more than a weed, Professor of Genetics Dr. John Sedbrook is working to change their perspective—and the plant itself. Sedbrook and his student researchers in the School of Biological Sciences are genetically modifying pennycress as part of a multi-state, multi-institutional effort funded by a five-year, \$10 million USDA grant and a \$13 million Department of Energy grant.

The researchers are attempting to transform the plant into a commercially grown cover crop that would be a boon to farmers and the environment. The harvested plant would be processed into biofuel, jet fuel, animal feed, and other products.

“This would not only help the environment, but also produce oilseeds that farmers can sell in these economically challenging times,” Sedbrook said. “Plants like pennycress take carbon dioxide out of the atmosphere to grow. Instead of adding to carbon in the atmosphere by digging for fossil fuels, you’re taking carbon that’s already there. So it’s a zero-sum game.”

Domesticated pennycress could be grown as a cold-resistant, high-yield oilseed crop across the central United States,

where nearly 80 million acres of land devoted to corn and soybeans sit dormant in the winter months. Sedbrook said the same process was used in the 1960s to convert rapeseed into canola oil, a relative of pennycress that is in widespread use today.

Professor of Water Ecology Dr. Bill Perry, Assistant Professor of Crop Science Dr. Nicholas Heller, and Professor of Soil Science Dr. Rob Rhykerd are investigating how planting pennycress on otherwise fallow fields could also help farmers reduce soil erosion and nutrient loss. Both are factors that are imperiling water quality and aquatic life locally and as far downstream as the Gulf of Mexico.

This research has been ongoing for 10 years, with the latest grant awarded in 2020. Illinois State researchers are currently working under the umbrella of the Integrated Pennycress Research Enabling Farm and Energy Resilience (IPREFER) program with colleagues at Western Illinois University, the University of Minnesota, The Ohio State University, the University of Wisconsin-Platteville, and the St. Louis-based crop development company CoverCress Inc.

Domesticating a weed

Researchers are using plant breeding and the CRISPR gene-editing tool to modify pennycress seeds to make them edible, more nutritious, and resilient to climate change. Sedbrook's team has also worked to improve seed germination and crop establishment, as well as genetically fix pennycress' "pod shatter" problem that resulted in about 20 percent of the seeds falling to the ground before they could be harvested.

Scaling up and spreading the word

Researchers plan to move from research trials to field trials over the next couple of years. Grant funds are also supporting outreach to farmers and the agricultural community to educate them on the plant's commercial and environmental benefits.

Building infrastructure

IPREFER members are planning to establish an infrastructure within five years that will enable farmers to not only plant and harvest domesticated pennycress, but also deliver the seeds to processing plants that will convert them to fuel and feed. Companies will need to be identified to crush and process the crop.

Nothing wasted

Studies suggest that pennycress could produce 2,000 pounds of seeds per acre and yield 80 gallons of oil per acre. That oil has the potential to produce 3 billion gallons of biodiesel and jet fuel per year, helping to offset a reliance on fossil fuels. The seeds could also be converted into industrial products such as soaps and cosmetics. Domesticated pennycress seed remnants can be added to meal to feed animals.

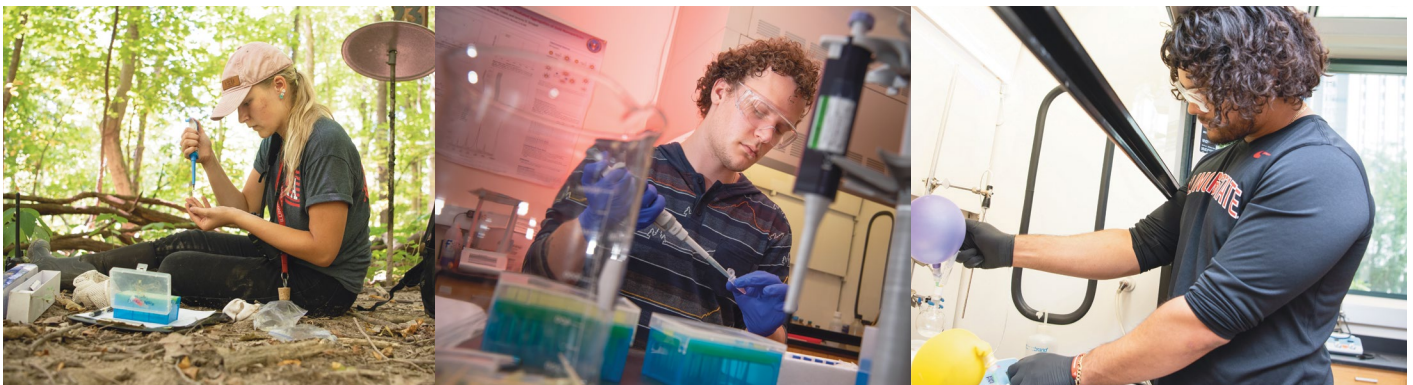
#RedbirdScholar students use grants to spend summer researching

Research rarely rests. All year long, ISU student and faculty delve into their research with passion. Despite many Redbirds being away from campus over the summer, research at Illinois State continues to thrive—even during the pandemic.

During the 2020 summer, 27 students received the new Undergraduate Research Support Program grant provided by the Office of Student Research. "Essentially, this is a grant program that encourages undergraduate student research-

"This summer has been very unusual," Hunter said. "In many cases, we've had to make and allow for adjustments." The accommodations have included remote research, special approval to travel, and delaying research until Illinois reopened and students could return to a laboratory while physical distancing.

Hunter said summer provides unique advantages for many student researchers. "A lot of students don't have time in



ers to propose a research project under the supervision of a faculty mentor," said Dr. Gina Hunter, director of the Office of Student Research. "It allows students to use the grant to fund their hourly wage, for research supplies or research incentives, and for travel to do research."

This is the first year that the grant has been offered over the summer. As many research plans were in place before COVID-19, students and faculty became creative to continue their research.

the academic year to really immerse themselves in a research project that might be very time consuming," Hunter said.

"Summer can give them an opportunity to work more intensely on a project. Their faculty mentor may have more time for them in the summer. It's a time when faculty themselves are often working more intensely on their own research projects, and they can involve students in that process."

Awards

Outstanding University Researchers

The Outstanding University Researcher Award recognizes faculty whose research is acknowledged at the national or international level for its quality and contribution to the profession or discipline.

Lara J. Handsfield, School of Teaching and Learning

Lara J. Handsfield completed her Ph.D. in language and literacy education in 2005 at the University of Illinois in Urbana-Champaign. She is professor of elementary, literacy, and bilingual education in the School of Teaching and Learning at Illinois State. She teaches literacy methods and bilingual education courses for teacher candidates, and graduate courses in curriculum theory and theoretical foundations of literacy teaching and learning. A former bilingual fourth grade teacher in Providence, Rhode Island, Handsfield's scholarship focuses broadly on teacher development and teaching in multilingual classrooms and schools. During her tenure at ISU, she has conducted research on reading comprehension instruction in culturally and linguistically diverse elementary classrooms; students' and teachers' language, positioning, and identity construction; teachers' negotiations of multiple political and pedagogical demands in their teaching; and implications of post-foundational theories for classroom-based qualitative research. Her research has been funded by the Spencer Foundation and published in an array of academic and professional journals, including *Reading Research Quarterly*, *Research in the Teaching of English*, the *Journal of Literacy Research*, *The Reading Teacher*, *Language Arts*, *Harvard Educational Review*, and *Linguistics in Education*. She served for six years as co-editor of the journal *Action in Teacher Education*, which publishes peer-reviewed research bridging research, theory, and practice in teacher education and development. She published her book, *Literacy Theory as Practice: Connecting Theory and Instruction in K-12 Classrooms* (Teachers College Press, 2016), which has been widely adopted for use in graduate courses in literacy education across the country. She also co-authored the book *The Complex Development of Preservice and Inservice Teacher Identities Across Space and Time* (Peter Lang, 2020). It was written with her colleague, Professor Emeritus Thomas Tom Crumpler. She was named the ISU College of Education Outstanding Researcher in 2018.

Aslihan Demiralay Spaulding, Department of Agriculture

Dr. Aslihan D. Spaulding is a professor of agribusiness and food industry management. She also serves as the Study Abroad coordinator and the Graduate Program coordinator in the Department of Agriculture. She received her bachelor's degree in economics at Bogazici University in Istanbul, Turkey. Spaulding later earned two master's degrees and her doctorate in agricultural economics from the University of Kentucky. She teaches courses in strategic agribusiness sales, food industry marketing and strategic management, computer applications in agriculture, and agriculture and the environment.

Spaulding's research examines consumer, farmer, and student behavior. Her topics include big data technology use in agriculture, personality traits, learning styles, cybersecurity training needs of farmers, nutrient management, crop insurance, risk management, new product development, and marketing.

The agribusiness area focuses on the application of business concepts to interactions between members of the food supply chain starting from raw material inputs into farms and continuing to household food consumption. Spaulding's work has extended the body of knowledge across this chain, with work that contributes to our understanding of how farmers make decisions about what to plant, how to communicate, how to manage risk, and where to sell their products. Much of Spaulding's work utilizes survey methodology. One of the reasons that her impact is so pronounced is that she not only does the research but uses the findings to help professionals improve in their careers.

An effective communicator, Spaulding's presentations at meetings within the academy and with highly discerning professional audiences have as much impact as her extensive published works. She can talk about complex ideas in terms that make solid research accessible to non-academic audiences. She has the ability to nurture a passion for inquiry in others, which accounts for the variety of research topics within her record. Perhaps just as importantly, she is able to publish with graduate students, guiding a student's master's thesis and Ph.D. dissertation work into multiple publications.

University Research Initiative Awards

The University Research Initiative Awards are presented to faculty who, within their first five years at Illinois State University, have initiated a promising research agenda early in their academic careers.

Susana J. Calderon, Mennonite College of Nursing

Courtney Hattan, School of Teaching and Learning

Joseph Hilgard, Department of Psychology

Uttam Manna, Department of Physics

Ryan Paitz, School of Biological Sciences

Ela Przybylo, Department of English

Sercan Sengün, Wonsook Kim School of Art

Wondwosen Seyoum, Department of Geography, Geology, and the Environment

Outstanding University Creative Activity Awards

This award is given for outstanding creative work. Creative contributions include, but are not limited to, the following: painting, sculpture, film, drama, musical composition, choreography of a dance, poetry, a novel, creative nonfiction, and creative media programming. The contribution(s) must have been recognized in the field as having national and/or international significance. This award is not designed to recognize a single major work, but consistent and sustained contributions to the profession, discipline, and field.

Ama Oforiwa Aduonum, School of Music

Ama Oforiwa Aduonum is a professor of music, and an award-winning, nationally-recognized playwright and performer. She teaches courses in Black music and ethnomusicology, and also directs the ISU drumming and dance ensemble. Aduonum's research interests include African American music, music in captivity, music of African Diaspora, sensory studies, practice-led research, and music in slave dungeons.

Tyler Lotz, Wonsook Kim School of Art

Tyler Lotz was recently named the Harold Boyd Endowed Professor of Art in the Wonsook Kim School of Art. His sculptures and vessels have been shown in solo and group exhibitions at venues that include the Elmhurst Art Museum (Elmhurst); Harvey/Meadows Gallery (Aspen, Colorado); Dubhe Carreño Gallery (Chicago); Cervini Haas Gallery/Gallery Materia (Scottsdale, Arizona); Cross-Mackenzie Gallery (Washington, D.C.); Franklin Parrasch Gallery (New York City, New York); Santa Fe Clay (New Mexico); The Clay Studio (Philadelphia, Pennsylvania); and SOFA (Chicago). His work has been presented abroad at The First World Ceramic Biennale Korea and 2010 Vallauris Biennale Internationale in Vallauris, France. Lotz's work has been acquired by collections including the Daum Museum of Contemporary Art in Missouri and the Icheon World Ceramic Center in Korea. Publications that have featured his art *Ceramics Monthly*, *American Craft*, *Studio Potter*, and the *Clay In Art International Yearbook*. He has been an artist in residence at the Archie Bray Foundation and the Red Lodge Clay Center in Montana, as well as the Guldagergaard International Ceramic Research Center in Denmark. He was one of 12 international artists invited to make and exhibit work in 2010 at Walbrzych, Poland, as a member of the XXXIV International Ceramics Symposium "Porcelain Another Way." Lotz has taught workshops at renowned art centers including Haystack Mountain School of Craft in Deer Isle, Maine; and Anderson Ranch Art Center in Snowmass, Colorado.

Creative Activity Initiative Award

This award shall be given to recognize faculty members who have initiated promising creative productivity early in their academic careers. Creative contributions include but are not limited to the following: painting, sculpture, film, drama, musical composition, choreography of a dance, poetry, a novel, creative nonfiction, and creative media programming.

Nathania Rubin, Wonsook Kim School of Art

University Award Winners

2021 Million Dollar Club Inductees

The Million Dollar Club was established in 1990 by President Thomas Wallace and Provost David Strand “to recognize grant/contract productivity by members of the ISU community.” For a list of all previous inductees, visit the ISU Research page at Research.Illinois-State.edu/about/awards-recognition/million-club.

Jana Albrecht, Enrollment Management

Sandra Cavi, Budgeting and Planning

Bridget Curl, Financial Aid

Jeremy Driskell, Department of Chemistry

Mary Dyck, Mennonite College of Nursing

Thomas Hammond, School of Biological Sciences

Kenton Machina, Department of Philosophy

Kris Mason, National Board Resource Center

Alysia Mortimer, School of Biological Sciences

Judy Neubrandner, Mennonite College of Nursing

Benjamin Sadd, School of Biological Sciences

Wolfgang Stein, School of Biological Sciences

Dan Stephens, Finance and Planning

Jessica Sullivan, Mennonite College of Nursing

Andres Vidal Gadea, School of Biological Sciences

State Farm Endowed Chair of Cybersecurity

Dr. Shaoen Wu was named the State Farm Endowed Chair of Cybersecurity within the School of Information Technology. The prestigious position was established by State Farm Insurance Companies as part of a \$3 million investment committed in 2016.

Wu earned his bachelor’s and master’s degrees in China and completed his Ph.D. in computer science and software engineering at Auburn University. He arrived at Illinois State in July 2020 after serving as the director of the Security and Software Engineering Research Center at Ball State University.

He has published more than 80 peer-reviewed papers in wireless, Internet of Things (IoT), smart health, and robotics. His research has been supported by the National Science Foundation, the National Aeronautics and Space Administration, Intel, Dell, and others.

“I am so humbled by this incredible opportunity and wish to thank State Farm for this endowment,” said Wu, who is currently researching the relationship between cybersecurity and artificial intelligence.

Wu is dedicated to bettering ISU’s cybersecurity program by offering specializations within the major, developing graduate programs, and increasing the University’s research productivity within the field. He

hopes to create on campus a cybersecurity research center that emphasizes inter-disciplinary collaboration.

“Dr. Wu has been incredibly collaborative, and I am nothing but optimistic about how successful this is going to be,” said School of Information Technology Director Dr. Traci Carte. She is grateful for State Farm’s generous support.

“This gift just gives the program a boost. This gift is going to improve the program, it’s going to improve the student experience,” Carte said, “and it’s going to improve our existing faculty in their ability to be successful as researchers.”



Cheung, Brown, Phi Sigma Award for Student Publications

Dr. H. Tak Cheung began his Illinois State career in 1979 as an assistant professor of microbiology in the area of immunology. He became a full professor in 1989 and department chair in 1997. Cheung became the executive director of the School of Biological Sciences in 2008.

Cheung created the Dr. H. Tak Cheung Endowment Fund for the Student Publication Award to acknowledge the success of undergraduate and graduate students in scientific literature based on their published work. Establishing the endowment was a way for him to promote the work of budding scholars.

“Receiving an award early on in your career can motivate you to keep researching and pursuing career enhancing opportunities,” said Cheung, who is grateful for matching contributions made by Dr. Lauren Brown and Phi Sigma in 2010. The endowment fund is now named the Cheung, Brown, Phi Sigma Award for Student Publications.

The endowment is awarded to a student who is academic good standing and the first author on their publication. Recipients’ research must be the main focus of their thesis or dissertation, and the publication can be made prior to graduation or 12 months following.

Tony Breitenbach is a graduate student in biology and the 2021 recipient. He researches how natural, fluctuating temperatures affect sex determination in freshwater turtles. Environmental temperatures during embryonic development can determine whether the animal develops into a male or female.



Tony Breitenbach, 2021 recipient

Breitenbach received the award for his article titled “Using naturalistic incubation temperatures to demonstrate how variation in the timing and continuity of heat wave exposure influences phenotype.” It was published in the journal *Proceedings of the Royal Society B* in August 2020. The article investigated how the timing and continuity of heat wave exposure affects sexual development and underlying gene expression in a turtle with temperature-dependent sex determination (TSD).

“I was proud to have this publication, my very first publication, recognized for this scholarship,” said Breitenbach, who wants to continue studying TSD. Research started in 1966 upon accidental discovery, and there are still many unanswered questions.

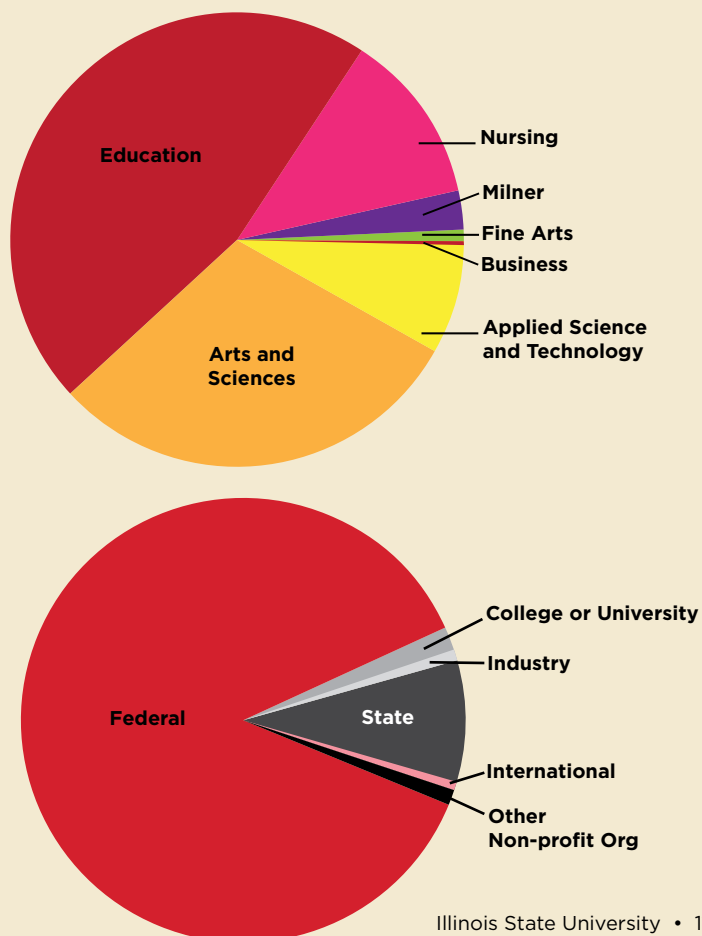
Awards

Total amount awarded by college

College of Applied Science and Technology	20 awards; \$1,486,303
College of Arts and Sciences	39 awards; \$5,326,895
College of Business	1 award; \$4,350
College of Education	31 awards; \$8,259,756
Mennonite College of Nursing	9 awards; \$2,205,150
Milner Library	2 awards; \$502,313
Wonsook Kim College of Fine Arts	9 awards; \$103,600
Total	\$17,688,367

Total amount awarded by sponsor

College or University	\$1,044,486
Federal	\$78,302,180
Industry	\$35,252
International	\$94,226
Other Non-Profit Org	\$2,228,687
State	\$8,334,418
Total	\$90,039,249



Graduate School

Even though the pandemic took the world for a turn, the Graduate School had much to celebrate in 2020. We honored graduate student education by celebrating our 75th anniversary of the first conferred graduate degree and told stories of students old and new. We learned a great deal about the history of graduate education at Illinois State.

Here were a few highlights:

- We honored Charlotte Elizabeth Wilcox, the first graduate student to receive a master's degree on June 4, 1945.
- First graduate programs: Biological Sciences, Education and Psychology, English, Geography, Foreign Languages, and Mathematics
- The Graduate School was created in 1959, and C. W. Sorensen was chosen as the first dean.
- The first doctoral program was established in 1962. A doctor of education in art was awarded to Herschel C. Fried in 1965.

In fall 2020, there were 2,733 registered graduate students, our highest enrollment since 2006. The Graduate School has shifted its focus over the last few years. Gone are the days when we take out the ruler and measure a margin on a thesis. Our services are comprehensive, offering professional development workshops like How to Navigate Writing a Thesis or Dissertation, signature events such as Three Minute Thesis and the University Research Symposium, and more. We're also proud to celebrate continuing success with our GradBird Scholar Program, where we highlight current graduate student scholarly research or creative works monthly. Upcoming this year, we're responding to a student-initiated need for writing support and are developing a new writing fellows program in partnership with the Julia N. Visor Center.

We've made strides on communication in 2020. We piloted student-run virtual affinity communities to keep students connected during the pandemic. In addition to communicating with each other, the Graduate School stays in touch with students by sending weekly newsletters on topics that are relevant. Communication is consistent and students have come to expect this newsletter each week. We engage with about 1,500 graduate students weekly.

By far, 2020 was one of the most challenging years to date. But many of us have come out stronger, learned new skills, focused on the important aspects of life, and are ready for investing in the future ahead. As for the Graduate School, we have a number of goals set for 2021. Our five-year strategic plan is coming to a close. As we develop what the next five years look like, we always come back to the same guiding principle: How can we best advocate for graduate students. We will continue this year finding better ways to partner with campus units, enhance student experiences, coordinate with departments, problem-solve student issues, and recruit a well-balanced incoming student body. Illinois State is a special place, and having interactions with students is one of the reasons that drew me in to working here. Whether you're a student, alum, campus partner, prospective student, or friend of the University, I hope you take some time to see all the hidden gems this university has to offer.

Noelle Selkow
Interim Director, Graduate School
Professor in Athletic Training
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Three Minute Thesis

Psychology student Amani Wise wins Three Minute Thesis competition

In less than three minutes, Amani Wise distilled her thesis research on how white individuals' awareness of their racial privilege impacted their perception of microaggressions. Many white people identify as being colorblind, meaning they do not see the color of people. "Although sometimes well-intentioned, this discredits people of color's identities and their experiences," Wise said.



Amani Wise

Wise collected data from 400 white participants and found how colorblindness relates to microaggressions.

"White people who are colorblind are less likely to notice microaggressions because they don't think they are privileged," Wise said. On the other hand, white people who are aware that they hold a racial privilege are more likely to notice these microaggressions.

Wise explained that her research can be deployed to inform methods used in microaggression awareness training to reduce microaggressions and to improve the responses when they do occur.

The fifth annual event featured nine graduate students competing against each other to determine who could best explain their research to a general audience in three minutes or less. The competition, usually held before an audience in the Normal Theater, was presented the night of February 25 via Zoom due to the pandemic. The students were limited to a single static slide and livestreamed their presentations from the location of their choice.

"We thought the event ran very smoothly, as if we were in the theater," said Interim Director of Graduate Studies Noelle Selkow. "I think more than ever, our students are really persevering. What a way to have a positive experience, a celebration so to speak of research and for our students to really showcase the hard work they are doing."

For winning first place, Wise received \$750 and moved on to compete in the Midwestern Association of Graduate Schools' contest that was held online March 26. Wise said there were some really good presentations and that she was surprised by winning. Department of Psychology doctoral student Megan Donnelly won second place and received \$500 for her master's thesis about right-wing authoritarianism and bullying. School of Kinesiology and Recreation master's student Jessica Barrack earned \$750 for the People's Choice award. Barrack presented on concussions and their relationships with long-term mental health and sleep quality.

Office of Student Research

Image of Research Competition

The second annual Image of Research Competition was held virtually. Submissions were evaluated by an external jury of three professional artists.

- 22 entries from graduate and undergraduate students across four colleges (CAS, CAST, COE, WKCF)
- 12 students presented awards
- Awardees were featured online at www.StudentResearch.IllinoisState.edu.
Total student awards: \$1,300

Undergraduate Research Support Program (URSP)

The Undergraduate Research Support Program (URSP) was established for faculty-mentored student research projects from any discipline. All URSP grantees were invited to participate in an online student research community and professional development workshop series.

Summer 2021 Competition

- 28 applicants from four colleges (CAS, CAST, COE, WKCF)
- 19 awards made. Total support for student research grants awarded: \$73,800

Academic year 2021-2022 Competition

- 14 applicants from four colleges (CAS, CAST, COE, WKCF)
- 6 awards made. Total support for student research grants awarded: \$27,700

Faculty Development

The Office of Student Research offered the following programs via the Center for Teaching, Learning, and Technology:

- Fall 2020 Teaching and Learning Community (TLC) on Course Based Undergraduate Research in the Humanities and Social Sciences
- Spring '21 TLC Best Practices in Mentoring Student Research
- Hunter offered Professional Development Workshops on an off campus:
- CAST Professional Development Series: Opportunities for Student Researcher
- CeMaST's Early Career Learning Community
- Presentation for CARLI Library Consortium Professional Series on Undergraduate Research "Equity and Inclusion through Course Based Undergraduate Research"
- Keynote Speaker for University of Louisiana's Professional Development Series: "Advancing Equity and Inclusion through Course Based Undergraduate Research (CUREs) and Research Mentorship"

Submissions and Awards

Fiscal Year 2021

by College and Department/School

	No. of Proposals	Amount Requested	No. of Awards	Amount Received
College of Applied Science and Technology				
Agriculture	9	\$752,583	7	\$294,136
Criminal Justice Sciences	4	\$242,821	2	\$21,688
Family & Consumer Sciences	3	\$81,000	3	\$81,000
Health Sciences	5	\$615,982	1	\$1,915
Information Technology	10	\$818,696	3	\$352,711
Kinesiology & Recreation	3	\$35,829	1	\$2,828
Technology	5	\$9,886,586	3	\$732,024
College of Appl. Sci. & Tech. Total	39	\$12,433,497	20	\$1,486,303
College of Arts and Sciences				
Applied Social Research Unit	1	\$99,981	1	\$120,000
Biological Sciences	26	\$10,374,339	12	\$3,815,857
Chemistry	17	\$4,153,847	1	\$5,347
Comm. Sciences & Disorders	1	\$417,217	0	-
Communication	11	\$562,475	5	\$398,235
English	6	\$113,977	6	\$123,000
Geography, Geology & Environ.	9	\$677,273	5	\$88,125
Mathematics	7	\$501,777	2	\$40,000
Physics	5	\$1,279,888	1	\$24,837
Psychology	3	\$596,474	2	\$405,494
Social Work	2	\$1,194,805	4	\$306,000
Sociology & Anthropology	1	\$200,000	0	-
College of Arts & Sciences Total	89	\$20,172,053	39	\$5,326,895
College of Business				
Marketing	1	\$4,350	1	\$4,350
College of Business Total	1	\$4,350	1	\$4,350

	No. of Proposals	Amount Requested	No. of Awards	Amount Received
College of Education				
College of Education	3	\$2,548,692	0	-
Ed. Admin. & Foundations	16	\$3,713,043	19	\$6,909,265
Special Education	7	\$3,693,720	3	\$862,205
Supt of Lab Schools	2	\$104,615	2	\$104,615
Teaching & Learning	12	\$1,123,110	3	\$375,750
Thomas Metcalf School	1	\$750	2	\$1,520
University High School	1	\$4,900	2	\$6,400
College of Education Total	42	\$11,188,830	31	\$8,259,756
Wonsook Kim College of Fine Arts				
Wonsook Kim School of Art	4	\$118,199	2	\$11,200
Music	2	\$6,000	2	\$6,000
Theatre	1	\$7,000	2	\$21,000
University Galleries	1	\$3,000	3	\$65,400
Wonsook Kim College of Fine Arts Total	8	\$134,199	9	\$103,600
Mennonite College of Nursing				
Mennonite College of Nursing	12	\$1,341,270	9	\$2,205,150
Mennonite College of Nursing Total	12	\$1,341,270	9	\$2,205,150
Milner Library				
Milner Library	1	\$1,660	2	\$502,313
Milner Library Total	1	\$1,660	2	\$502,313
University Administration				
University Administration*	36	\$26,000,843	21	\$72,150,882
Grand Total	228	\$71,276,702	132	\$90,039,249

*Non-academic offices within the VP for Academic Affairs and Provost, VP for Finance and Planning, and VP for Student Affairs.



OFFICE OF
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