

Fall 2022

Research & Creative Activities



**SOUTHERN ILLINOIS UNIVERSITY
EDWARDSVILLE**

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Giving Opportunities

Scholarship and Research Endowment

The SIUE Graduate School provides educational opportunities to nearly 2,500 students annually. Gifts to support student scholarship and research allow students of exceptional acumen with limited means the opportunity to make a difference in life.

Rosemarie Archangel, Ellen Sappington, and Stephen L. and Julia Y. Hansen Innovation and Excellence in Graduate Education Endowment

Faculty scholarship and teaching determine the quality of the education students receive. Gifts to support this endowment will build on SIUE's culture of scholarship and research by supporting innovative activities and progressive changes in existing and new graduate programs, as well as graduate faculty development related to the strengthening of graduate studies.

Give today: siue.edu/graduate/giving



Dean's Message

The Only Constant is Change: Preparing our graduates for change



Heraclitus, Greek philosopher circa 500 B.C.E., held that the world is in constant flux – “no man can step in the same river twice” – the Doctrine of Flux [1]. In modern times, his writing is expressed as, “**the only constant is change.**” While his writings referred to our existential experience, in the limited knowledge of 500 B.C.E., Heraclitus could not even imagine the immense changes of the world we live – global climate change, worldwide pandemics, accelerating urban sprawl, expanding political polarization, global markets, speed of light communication, and more. Changes that impact the nature of how we relate and interact interpersonally and as a society. Changes that continually impact our careers and professions, our bonds to one another, and our individual being.

The University's mission states “develop professionals, scholars and leaders who shape a changing world” [2]. Another way to express this - prepare graduates who can manage change in their profession and in their environment. How do we embed this preparation in every degree program? By our commitment to be teacher-scholars [3]. Being active scholars keeps us current in our disciplines and brings relevance to the materials we teach in our classrooms. It also critically benefits students “by directly involving them in research or creative activities, whether as partners or as apprentices” [3]

“Teacher-scholars do not only demonstrate knowledge; they teach and demonstrate the activity of inquiry itself. Because the teacher-scholar is constantly thinking about problems they are uniquely qualified to inspire established methodological approaches for others. By actively engaging the scholarship in their fields, teacher-scholars are able to introduce students to new developments in their disciplines and to ensure that students are exposed to current thinking. This active scholarly engagement creates a learning environment that gives students a deeper and more challenging perspective on the fields they are studying, both by showing them how knowledge is constructed, scrutinized, and contested and by involving students actively in the process of producing, not merely receiving, knowledge. Teacher-scholars thereby take the intellectual values and habits of inquiry necessary for independent, lifelong learning.” [4]

This issue of *Research and Creative Magazine* includes articles on the impacts of our changing world. Our students are integral to each of the projects presented. They are engaged in the scholarly activities of their disciplines, through which they are learning methods of systematic inquiry that will provide them the knowledge and skill to manage future changes. Changes that, like Heraclitus, we may not even be able to imagine today.

Jerry B. Weinberg, PhD
Associate Provost for Research and Dean of the Graduate School

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Research Spotlights and News



Music Faculty Recognized

Two SIUE faculty were recognized in 2022 for their achievements.

- Jazz St. Louis presented Prince Wells, associate professor in the Department of Music, with the inaugural 2022 Clark Terry Jazz Ambassador Award. The award celebrates the legacy of St. Louis' own jazz legend Clark Terry and underscores Wells' distinction as a mainstay of the St. Louis jazz community through his life's work as a musician, band leader, activist, community leader and professor.
- One of the most celebrated Chopin interpreters of her time, professor emerita and pianist Ruth Slenczynska signed a landmark record deal in January 2022 after celebrating her 97th birthday. She is the last surviving pupil of composer-pianist Sergei Rachmaninov. Slenczynska's album, "My Life in Music," explores the music of Chopin, a composer who had a heavy influence on the young pianist's childhood.



Field-Based Experiences in STEM

Thirty SIUE Upward Bound Math and Science students participated in field-based scientific research at a Native American archaeological site located on SIUE's campus. The project, "Creating a Community Partnership to Introduce Local High School Students to Field-Based Majors in Careers in STEM," was hosted by the Department of Anthropology, in collaboration with the Departments of Environmental Sciences and Geography and Geographic Informations Sciences and the SIUE Center for STEM Research, Education and Outreach. According to Carol Colaninno-Meeks, PhD, research associate professor in the STEM Center, the project introduced local youth to technology and practical experiences within field-based sciences in order for students to pursue majors, research opportunities and careers in regional, field-based jobs.



Faculty Address Events in Ukraine

Sophia Wilson, PhD, associate professor of political science, shared her personal connections and professional expertise about the war between Russia and Ukraine through local news agencies. In addition, faculty from across SIUE led and participated in events addressing the situation.

- **Events in and around Ukraine:** "What is Happening and Why It Matters" was a panel discussion moderated by Kenneth Moffett, PhD, chair and professor in the Department of Political Science. The panel included Olga Bezhanova, PhD, chair and professor in the Department of Foreign Languages and Literature; Sorin Nastasia, PhD, director of the International Studies Program and associate professor in the Department of Applied Communication Studies; John Shimkus, former Congressman and faculty member in the Department of Political Science; and Suranjan Weeraratne, PhD, lecturer in the Department of Political Science.
- **International Studies Days:** The series of events included, senior assignment presentations, panel discussions on organizations with an international focus regionally, and international education opportunities available to students, as well as a lecture aimed at educating the public on current developments in Ukraine. The keynote presentation, "Continuing Academic Practices Virtually during the Challenging Times of the Ukraine War," featured Tetyana Mayboroda, PhD, associate professor in the Department of Management at Sumy State University in Ukraine.



School of Pharmacy Diversity, Equity and Inclusion Initiatives

An SIUE Innovation and Excellence in Graduate Education grant focused on diversity, equity and inclusion (DEI) was awarded to the School of Pharmacy for the creation of a two-month financial literacy program comprising 15 first-generation and underrepresented student pharmacists. Lakesha Butler, PharmD, former clinical professor and director of DEI, developed and executed the financial literacy program alongside Jessica Kerr, PharmD, professor and associate dean of Professional and Student Affairs; Jennifer Arnoldi, PharmD, clinical associate professor and assistant director of Experiential Education; and Joe Southerland, MEd, director of Student Services. The grant also resulted in the School hosting an HBCU (Historically Black Colleges and Universities) Pharmacy Careers Retreat. The one-day retreat focused on the School's dedication to providing care for the needs of a diverse world by inviting students from HBCUs to consider a career in pharmacy.



Dedicated Teacher-Scholar Recognized as Difference Maker

Susanne DiSalvo, PhD, associate professor in the Department of Biological Sciences, is among numerous SIUE faculty, staff and students who were nominated via social media to the University's Difference Makers campaign for the inspiration and support they offer others. DiSalvo is a nationally-recognized researcher having earned the National Science Foundation's (NSF) most prestigious award a faculty member can receive in their early career — a CAREER Award — totaling more than \$460,000. An exemplary teacher-scholar, DiSalvo has used her NSF funding to train several students in hands-on inquiry-based research. SIUE's emphasis on the teacher-scholar model, she says, was a major reason she was attracted to the University.



Faculty Member's Research Gains International Attention

Approximately one centimeter in length, Pumpkin Toadlets' tiny nature, notably their semicircular canals, is making them clumsy when they jump with the inability to land gracefully, according to Richard Essner, PhD, professor in the Department of Biological Sciences, and collaborators from Edge Hill University in England, Universidade Federal do Paraná in Brazil, and the Florida Museum of Natural History at the University of Florida in Gainesville. Their work was recently published in the prestigious, open-access scholarly journal *Science Advances* which is published by the American Association for the Advancement of Science. It showcases innovative, original research and reviews across a broad range of scientific disciplines. The study has received national attention, including articles published in *The Atlantic*, *Science News*, *Defector*, *Gizmodo* and *The Florida Museum of Natural History*. Additionally, *Science Advances'* metric measuring attention on research places the scholarship among the top 5% ever, with related headlines spanning more than nine countries.



IRIS Center Focused on Closing the Digital Divide

SIUE's Interdisciplinary Research and Informatics (IRIS) Center is collaborating to broaden the impact of digital humanities.

- With a goal of addressing the digital divide of people of color and the digital humanities, Realizing Inclusive Student Engagement in the Digital Humanities is a new experiential learning and training program for 150 Black students at SIUE. Led by principal investigator (PI) Jessica DeSpain, PhD, co-director of the IRIS Center, the innovative programming has received a \$100,000 grant supported by the National Endowment for the Humanities and the Social Science Research Council. Project co-PIs include Howard Rambsy II, PhD, distinguished research professor in the Department of English Language and Literature; Meg Smith, PhD, research assistant professor of digital humanities in the IRIS Center; and Kristine Hildebrandt, PhD, professor in the Department of English Language and Literature and co-director of the IRIS Center.
- SIUE, in partnership with Lindenwood University, received a Digital Humanities Advancement Grant totaling more than \$49,000 from the National Endowment for the Humanities. The grant covers the first phase of an effort to build a regional digital humanities network linking faculty, students and community members across the St. Louis region's educational and cultural institutions. Meg Smith, PhD, project co-director and research assistant professor of digital humanities in the IRIS Center, and Project Director Jeremy Carnes, PhD, associate professor of English at Lindenwood University, will work with higher education and secondary education faculty from across the region to identify the resources, processes and best practices needed in order to facilitate collaborative, inter-institutional programs and support digital humanities pedagogy across all regional institutions. The project is supported by an advisory board of higher education and secondary education faculty, including Bridget Nelson, language arts teacher at SIUE East St. Louis Charter High School.



Promoting Inclusivity, Equity and Success in Nursing

The School of Nursing has long been committed to diversity within the School to both enhance learning and produce a more diverse nursing workforce. Pathway programs to recruit and retain underrepresented minority (URM) students have been in place for 35 years.

Through a \$97,000 grant from the Illinois Board of Higher Education, the School is now developing a mission-aligned admissions process that looks at an applicant as a whole, taking into consideration experiences and attributes in addition to academic metrics such as GPA and standardized exam scores.

“Our goal is to educate and graduate nurses into the nursing workforce who represent the region’s population. Holistic admission is one way to help us achieve this.”

Ann Popkess, PhD, RN, Assistant Dean,
Undergraduate Programs

“Holistic admission is an effective strategy in diversifying the nursing workforce,” said Co-Principal Investigator (PI) Ann Popkess, PhD, RN, assistant dean of undergraduate programs. “This can additionally address disparities in healthcare access, given that a high percentage of graduates return to provide care in their communities.”

“Holistic admission avoids looking only at academic metrics, which is what we have been doing for a long time,” said Co-PI Amelia Perez, PhD, RN, associate professor and chair, Department of Family Health and Community Health Nursing. “This will lead to a more equitable admission process that broadens opportunities for potential students to be evaluated beyond a GPA.”

To begin the process, Co-PI Jerrica Ampadu, PhD, RN, associate professor and coordinator for diversity, conducted a retrospective study of 660 graduates of SIUE’s nursing program to identify predictors of successful first-time pass rates on the National Council Licensure Examination (NCLEX). Her team evaluated 41 predictors, including prerequisite grades, nursing grades and demographic data.



Of those, the most compelling predictors correlated to success in specific nursing courses rather than current admission criteria. Students were 4.5 times more likely to pass the NCLEX on the first attempt if they received a higher grade in the foundations course. They were 3.9 times more likely to pass on the first attempt if they had a higher grade in mental health courses.

The next step was to develop a process and instruments to implement holistic admissions, employing a toolkit from the American Association of Colleges of Nursing and evaluating strategies reported in the literature and from other nursing schools.

“We then established outcome measures, including the admission, retention and graduation of URM students, as well as ways to measure their performance within the nursing program,” Popkess said.

The School will also continue to emphasize pathways into the program as a means of increasing the number of URMs. A new pathway initiative, the Summer Success Program, launched in 2022.

“The summer success program is designed to introduce students to the School of Nursing and provide educational resources to be successful in their courses as incoming first-year students at SIUE,” Ampadu said.

Southern Illinois Professional Development Center Expanding Adult Education

SIUE is home to the Southern Illinois Professional Development Center (SIPDC), which supports and enriches adult education and literacy programs throughout Illinois. Completely funded by grants from the Illinois Community College Board (ICCB) and the Illinois Center for Specialized Professional Support (ICSPS), the dedicated SIPDC team builds and provides the tools Illinois teachers, administrators and career navigators/counselors need to effectively address the needs of Illinois adult learners as they work hard to build better lives for themselves and their families.

As part of the ICCB’s Adult Education Professional Development Network, the SIPDC focuses on:

- transitioning adult learners into the workforce with use of SIPDC-designed tools and programs
- building and supporting diversity, equity, inclusion and access initiatives (DEIA)
- overseeing and supporting ADA coordinators in adult education
- developing and implementing effective data and hybrid communication practices.

A few specific examples of their important work include:

- the Illinois training “Designing for Equity and Access for ALL Learners,” co-created by Sarah Goldammer, Director of the SIPDC, and Tara Schwab, an SIPDC Educational Training Specialist
- the creation of the statewide contextualized curricula in the health sciences; manufacturing; transportation, distribution and logistics IT; and entrepreneurial and career pathways career clusters spearheaded by Goldammer
- development of a Bridge Development Basics Training, and implementation of Integrated Education and Training models, developed in part by Goldammer and Schwab
- a series of educational videos created in collaboration with ICSPS that introduce concepts of DEIA and universal design for learning that are used throughout Illinois and across the country.

“SIPDC leadership often consults with other adult education programs across the country in the areas of professional development, DEIA, transitional programs and most recently in how to provide a hybrid conference with integrated virtual and in-person options,” Goldammer said.

SIUE’s SIPDC serves all 78 adult education programs in Illinois. The thousands of teachers and learners impacted through these services provide a platform for SIPDC to improve lives every day throughout the state.



International Workshop Examines Migration Processes' Effect on Human Securities

Human migration has played a key role in history, from the earliest dispersals out of Africa to the millions of people forcibly or willingly leaving their homes today. With increasing migration in response to political upheaval and climate change, there is a growing need to address how migrants may successfully integrate into host societies.

Contemporary social science research has focused on short-term interactions between migrants and hosts, but successful integration must also be assessed over the long term. Archeology is capable of bringing together contemporary migration dynamics with the long-term processes of interaction between migrants and hosts by using the common language of material culture to bridge temporal and population scales.

Through funding from the Wenner-Gren Foundation for Anthropological Research, Principal Investigator (PI) Corey Ragsdale, PhD, assistant professor in the Department of Anthropology, led a workshop in April at Félix Houphouët-Boigny University in Abidjan, Côte d'Ivoire (Ivory Coast). The workshop was organized in collaboration with the Coalition for Archaeological Synthesis (CfAS) and the Doctoral School (SCALL) at Félix Houphouët-Boigny. Timpoko Keinon-Kabore, professor at the Research of Human Society and Science Unit at the University Felix Houphouët-Boign, served as co-PI.

The workshop brought together archaeologists who have studied migration from diverse perspectives to collaborate and synthesize their data and expertise around migration processes' effects on human security. The seven dimensions of human security are defined by the United Nations as economic, food, environmental, health, personal, political and community.

"The workshop was a tremendous success with more than 50 people in attendance each day," Ragsdale said. "The first two days were long, intensive days of presenting case studies related to migration. Half of the presentations were from coalition members from around the world while the other half were local Ivorian scholars."

Participants spent the next two days traveling the country visiting sites important to migration and cultural heritage, as well as meeting with numerous provincial government leaders and village chiefs. The workshop ended with a discussion that produced four policy recommendations for migration based on cumulative knowledge and research.

"We are in the process of writing for publication the results of the workshop, as well as formalizing our recommendations," Ragsdale said. "We made great colleagues, had a positive impact on the community and established a meaningful collaboration that will last a long time."

"Cote d'Ivoire has never hosted such an event," Ragsdale said. "This was a huge honor for them to do so and show West Africa as well as the world that they are leading the way when it comes to scientific, evidence-based policy making."

"The policy recommendations were met with a standing ovation and marked the true success of our trip."

Corey Ragsdale, PhD

Assistant Professor

Department of Anthropology



Enhancing Student International Business Capacities

"Passport to Success: Enhancing Student International Business Capacities to Assist Rural and Minority Owned Businesses with South American Trade*" is a new program that will allow SIUE to produce graduates who have critically needed global business, international relations and foreign language skills.

"This initiative will allow faculty development to increase the trade skills of SIUE students while expanding exports from our region for businesses that are often under-resourced," said Laura Wolff, project director, instructor in the Department of Economics and Finance. "International programs at SIUE in both the School of Business and the College of Arts and Sciences currently are under-resourced and directly serve only a relatively small number of majors."

Funding from the U.S. Department of Education Business and International Education Program allows the School and College to collaborate in order to:

- deepen the exchange relationship with La Universidad de Lima in Peru
- add a course that would cross programs and address curricular gaps
- create for-credit internship opportunities for students in business and international studies programs.

"Additionally, our AACSB-accredited School of Business will use grant funding to review our international business curriculum and infuse existing courses with the knowledge and skills necessary for international trade, especially with the Andean community," Wolff said.

SIUE's International Trade Center is beginning programs and outreach specific to rural and minority businesses in our region to highlight the Andean community as a yet untapped potential market for their products. Partnering international programs with this initiative will not only help expand exports but will lead to graduates who have more exposure to international business, trade assistance and policy.

"Students will solve real-world problems for rural and minority-owned businesses as they engage in research to identify potential markets and partners for expansion," Wolff said. "It will offer a great benefit to students as they engage with new learning and authentic assessment opportunities."

Wolff and a group of faculty members will travel to La Universidad de Lima in May 2023 to further collaborate on a faculty exchange program and begin discussing future student exchange opportunities.

*This project is supported by the U.S. Department of Education Business and International Education Program as part of an award totaling \$315,278, of which \$157,639 are federal funds with 0% financed with nongovernmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by, the U.S. Department of Education Business and International Education Program or the U.S. Government.





Predicting the Persistence of Salamanders

In the springtime, plants put on flowers and leaves, birds migrate, and frogs begin calling in wetlands. These seasonal biological activities, or phenology, are important to understand because, when the timing of certain processes is altered, it can affect an organism's ability to persist in its habitat.

Studying phenology is especially pertinent in recent years — many organisms worldwide have experienced shifts in the timing of different activities in response to climatic change. Yet, scientists do not fully understand the intricacies of how climate-induced shifts in phenology will ultimately affect organisms.

Thomas Anderson, PhD, assistant professor in the Department of Biological Sciences, is examining changes in the timing of breeding and impacts on the persistence of four species of pond-breeding salamanders found in Florida and Missouri. Anderson, along with collaborators at Virginia Tech University, Appalachian State University and the U.S. Geological Survey, are in the final year of the study that began in 2017.

“My role was to examine how changes in the timing of breeding impacted the larval stage, the equivalent to a frog tadpole,” Anderson said. “We completed several experimental studies where we manipulated the timing of salamander eggs hatching into larvae in the laboratory, and then reared the larval salamanders, following them for up to one year in large outdoor enclosures.”

Anderson also monitored natural populations of salamanders at Fort Leonard Wood, Mo. to understand what weather cues would initiate movement by salamanders back to their home pond to breed and how differences between years in those movements would affect larval salamander abundance and body size. This work was an extension of a previously funded project at Fort Leonard Wood, culminating in 11 continuous years of work at the base.

Funding from the Department of Defense Strategic Environmental Resource Defense Program* allowed the team to uncover several interesting findings.

“Unlike some systems or studies, variation in phenology had minimal impacts on salamander traits such as body size or survival,” Anderson said. “This occurred largely because other factors, like climate variation itself, overwhelmed our experimental manipulations of phenology.”

For example, winter severity and substantial drought had a bigger impact on salamanders than variation in phenology.

“Salamanders have some capacity to deal with variation in phenology in their growth rates,” Anderson continued. “If salamander larvae get off to a late start because of delayed breeding phenology, they could accelerate their growth rates to complete their life cycle on a typical schedule.”

**This project is supported by the U.S. Geological Survey as part of an award totaling \$406,250, of which 100% are federal funds and 0% is financed with nongovernmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by, the U.S. Geological Survey or the U.S. Government.*

“This is promising news, as it suggests that some organisms will be able to adapt to at least some climatic change.”

Thomas Anderson, PhD
Assistant Professor
Department of
Biological Sciences

Conserving the Illinois Chorus Frog

Approximately 43% of amphibians are currently experiencing some form of population decline. This global decline has largely been attributed to the combined effects of habitat loss, over-utilization, invasive species and disease, with habitat loss being the single most important contributor. Even when habitat remains physically intact, it can become unsuitable due to anthropogenic factors such as light, noise, pollution and vibration.

Conservation of amphibian populations is an area of major research for Rick Essner, PhD, professor in the Department of Biological Sciences, particularly a local population of a state-threatened species, the Illinois chorus frog (ICF). While much more abundant in the past, the only remaining ICF population in the region is near and on the SIUE campus.

“Trying to conserve a species that's poorly understood first requires researching the biology of that species, and we do that in a number of different ways,” Essner said. “We have been studying their movement patterns, breeding and feeding habits, population and demographic fluctuations over time.”

This species has a highly disjunct distribution and occurs in association with sand prairie habitat in scattered populations throughout Illinois, Missouri and Arkansas. ICFs spend the majority of their lives below ground and are the only anuran species documented to engage in subterranean feeding, where they presumably use vibration from invertebrate movements as a predatory cue.

Despite nearly ubiquitous presence in the environment, vibration is one anthropogenic factor that has received remarkably little attention. The impact of vibration is the most recent interest in Essner's ICF research.

“Frogs are sensitive to vibrational noise and use that information for an array of different behaviors they engage in,” Essner said.

The rapid growth of wind energy in Illinois has resulted in the placement of wind farms within sand prairie habitat that supports ICF. Through funding from the Illinois Department of Natural Resources (DNR), Essner collaborated with Albert Luo, PhD, distinguished research professor in the Department of Mechanical and Mechatronics Engineering, to examine the effects of vibration on feeding habits.

Using a shaker table in the School of Engineering's lab, researchers observed the ICFs behaviors in response to a range of vibrational frequencies designed to simulate wind turbine vibration patterns. Although the data is still under analysis, Luo and Essner found the ICF is capable of successful feeding over the range of observed frequencies, which is promising news for the DNR's conservation efforts.

“This species is very unique and part of our heritage and biodiversity,” Essner said. “I find that the flora and fauna improve my life and the lives of many other people who enjoy natural areas around the state. I think that to lose a species like the ICF would diminish our quality of life a bit.”

Watch a video to learn more



siue.edu/chorus-frogs



Enhancing HIV Education for Future Pharmacists

Beth Cady, PharmD, infectious diseases pharmacist and clinical assistant professor in the Department of Pharmacy Practice, has been involved in the four-year grant “Midwest Integration of the National HIV Curriculum (NHC)*.” The goal for the project, which started in 2018, is to enhance the quality of HIV education and training at accredited health profession programs in various regions of the Midwest using an integrated distance learning platform. NHC consists of six modules to provide ongoing, up-to-date information to healthcare providers in the U.S. The curriculum covers core competency knowledge for HIV prevention, screening, diagnosis, ongoing treatment and care.

Twenty-three programs are participating in the project. In addition to SIUE’s School of Pharmacy, there are three graduate programs of medicine, 10 advance practice registered nursing programs, and nine other Doctor of Pharmacy programs. “School of Pharmacy students have spent most of their time in modules that focus on medication therapy,” Cady said. “Those provide education on antiretroviral therapy for both treatment and prevention of HIV, and treatment and prevention of co-occurring conditions such as sexually transmitted diseases and opportunistic infections.”

Cady collaborates on the project with Natalie Tucker, PharmD, an infectious diseases pharmacist at HSHS St. John’s Hospital in Springfield, Ill. “I coordinate the courses in which HIV is taught,” Cady said. “Dr. Tucker teaches most of the HIV content in the School of Pharmacy curriculum using material from the NHC platform. Together we encourage students to expand their knowledge in HIV care by signing up for the NHC distance learning platform.” When they do, they are provided with reading materials, practice test questions, and the opportunity to obtain a certificate of recognition.

In addition to teaching, Cady and Tucker also meet during the year with participating healthcare programs and project leaders to discuss ways of improving the project or enhancing delivery of the material.

**This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling \$554,743, of which \$554,743 are federal funds with 0% financed with nongovernmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by, HRSA, HHS or the U.S. Government.*

“This has been a wonderful opportunity for the School of Pharmacy to work collaboratively with other healthcare programs across the Midwest to provide cutting-edge educational programs to our students.”

Beth Cady, PharmD
Clinical Assistant Professor
Department of Pharmacy Practice

Estimating the Economic and Health Burdens of HIV in Semi-Urban and Rural Illinois

According to recent data, the most common modes of exposure to HIV in Illinois were the activities of men who have sex with men (MSM), injecting drug users (IDU), and MSM + IDU, accounting for more than 75% of all HIV infections.

“The MSM and IDU communities are widely studied in urban areas, such as Chicago, but less so in more rural areas such as southern Illinois,” said Principal Investigator (PI) John Matta, PhD, assistant professor in the Department of Computer Science. “Studying the behavioral and economic aspects of this population is imperative to understanding and preventing the spread of HIV, as well as to formulating a public health response.”

Matta’s project will involve collection and analysis of data concerning the prevalence and impact of HIV and IV drug use on the economy and healthcare accessibility in southern Illinois, particularly in the context of a post-COVID-19 world. By analyzing data from respondent-driven sampling (RDS) surveys, the project will produce current survey data from semi-urban and mostly rural counties in southern Illinois. In addition to producing useful public health knowledge, the availability of this data will encourage secondary studies by other researchers.

One of the primary goals of the project is to collect data from the southern Illinois MSM/IDU and related communities using an RDS survey. The survey is being conducted as a result of an Illinois Innovation Network grant with co-PI Koushik Sinha, PhD, associate professor in the School of Computing at Southern Illinois University Carbondale.

“RDS has been found to produce more diverse samplings than previous methods in studies of groups such as MSM and IDU,” Matta said. “RDS avoids biases that are introduced by other survey methods, producing a random sample if certain conditions are met.”

To represent the full community of those affected, the survey aims to recruit MSM, IDU, MSM + IDU, as well as their sex and injecting partners, and the partners of their partners. The survey and subsequent analysis will attempt to discover the health and economic impacts of the epidemic on this population, including:

- the economic impact of HIV and COVID-19, especially on self-employed populations
- mental health impacts of HIV, drug use and the COVID-19 pandemic
- impact on the ability to access health and financial resources
- behavioral changes in the community in response to the epidemic and other notable events influencing this community.

The survey will also collect a variety of demographic information, making the study data useful for secondary analysis in other contexts. Surveyors are making extra effort to recruit Black, Hispanic and rural residents.

Focusing on both health and economic impacts, the survey is collecting demographic information, economic data, drug use, sex frequency and practices, use of protective drugs and procedures, size of individual friendship networks and other social determinants of health, and transportation status.

The study will also further increase scientific knowledge of the RDS technique by collecting data via smartphones, which is expected to increase participation rates as smartphone usage is pervasive in many hard-to-reach populations.

“Studying the behavioral and economic aspects of this population is imperative to understanding and preventing the spread of HIV, as well as to formulating a public health response.”

John Matta, PhD, Assistant Professor, Department of Computer Science



Soil Erosion Research Aims to Improve Illinois Bridges

Research shows that 60% of bridge failures in the United States are related to scour—the erosion of soil around the base of a bridge pier from the flow of water.

Through a \$364,000 award from the Illinois Department of Transportation (IDOT), SIUE is conducting a four-year research project to analyze scour estimates at bridge sites in Illinois to improve bridge design and maintenance.

Abdolreza Osouli, PhD, PE, associate professor in the Department of Civil Engineering, is principal investigator (PI) on the project, titled “Developing Scour-Depth Estimation Using the In Situ and Portable Scour Testing Device (ISTD/PSTD) for Illinois Cohesive Soils.*”

“Our primary goal is to improve the scour estimate analyses at bridge sites in Illinois,” Osouli said. “Our work will improve the stability of existing and new bridges, reduce costs of bridge design and maintenance due to an enhanced knowledge of scour estimates at sites with a cohesive riverbed, and equip IDOT with state-of-the-art field equipment developed by the Federal Highway Administration in the field of scour measurement.”

Project co-PIs include:

- Brent Vaughn, Laboratory Specialist, Department of Civil Engineering, SIUE
- Paul Rydlund, PLS, CFM, Section Chief, Central Midwest Water Science Center, United States Geological Survey, Rolla, Mo.
- Richard Huizinga, PE, Hydrologist, Central Midwest Water Science Center, United States Geological Survey, Rolla, Mo.
- Timothy Straub, PhD, PE, Supervisory Hydrologist, Central Midwest Water Science Center, United State Geological Survey, Urbana, Ill.
- Timothy Stark, PhD, PE, Professor, Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign.

Funding also supports several SIUE master’s and doctoral students to contribute as research assistants and gain hands-on field and lab experience. “Our research team has extensive experience in the field of soil erosion and scour analysis,” Osouli explained. “This project will use in situ and portable scour testing devices (ISTD/PSTD) to extract better load versus erosion characteristics of the riverbed material.”

Now half-way through the award period, the research team has fabricated ISTD/PSTD, identified potential bridge sites, and conducted trial testing. Next steps include performing field testing at several bridge sites in Illinois, conducting laboratory experiments on collected samples, conducting 2D hydraulic modeling of the scour at the bridge sites, and developing an enhanced scour analyses procedure using ISTD/PSTD field data.

**This project is supported by the U.S. Department of Transportation as part of an award totaling \$363,832, of which \$272,874 are federal funds with 0% financed with nongovernmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by the U.S. Department of Transportation or the U.S. Government.*

“Our objectives are to establish testing and hydraulic-analysis procedures with ISTD/PSTD data and to improve reliability of the estimated scour depths in cohesive soils that will lead to designing bridges more cost-effectively.”

Reza Osouli, PhD
Associate Professor
Department of Civil Engineering

Assessing Soil Contamination in Illinois Lake Sediments

Frank Holten State Recreation Area (SRA) in Centerville, Ill. includes Whispering Willow Lake and Grand Marais Lake which provide more than 200 acres of water and five miles of shoreline. Though it is surrounded by several potential metal pollution sources, such as a Superfund site at Old American Zinc and the Sauguet Industrial Corridor, metal contamination risk in sediment at Frank Holten SRA has not well been investigated.

Just two miles north of Frank Holten SRA is Horseshoe Lake in Granite City, Ill., where elevated metals concentrations in lake sediments have previously been observed in relation to various metal sources surrounding the lake, including Granite City Steel Company, Hoyt Metal, National Lead and Midland Creosote. National Lead and Midland Creosote pollution sites are currently on the National Priority List (or Superfund sites). In addition to those point-sources of pollution, Horseshoe Lake also receives urban runoff from Granite City, industrial wastewater treatment lagoon discharge and surface runoff from local agricultural lands.

With funding support provided by the Illinois Department of Natural Resources, and in collaboration with the Illinois Department of Natural Resources, Z.-Q. Lin, PhD, has investigated metal contamination in sediments and soils and conducted environmental risk assessments in the Metro East region, including Horseshoe Lake State Park, Frank Holten State Recreation Area, Chouteau Island and Brushy Lake. Lin is the principal investigator and professor in the Departments of Environmental Sciences and Biological Sciences.

The objectives of the research included:

- compiling historically relevant, readily available information about sediment metals contamination in Horseshoe Lake, Whispering Willow Lake, Grand Marais Lake and Brushy Lake, as well as soil metals contamination on Chouteau Island
- developing and implementing a complimentary sampling and analysis plan
- determining sediment concentrations of metals in Horseshoe Lake, Whispering Willow Lake, Grand Marais Lake, Brushy Lake and soil metal concentrations on Chouteau Island
- making recommendations for future ecological and environmental risk assessments at those study areas based on the research findings.

“Our studies found that concentrations of lead and zinc are elevated in some lake sediments and above the recommended Probable Effect Concentrations in freshwater sediments,” Lin said. “This provides the Illinois Department of Natural Resources with potential environmental risk assessments for habitat restoration programs and effective local natural resource management.”

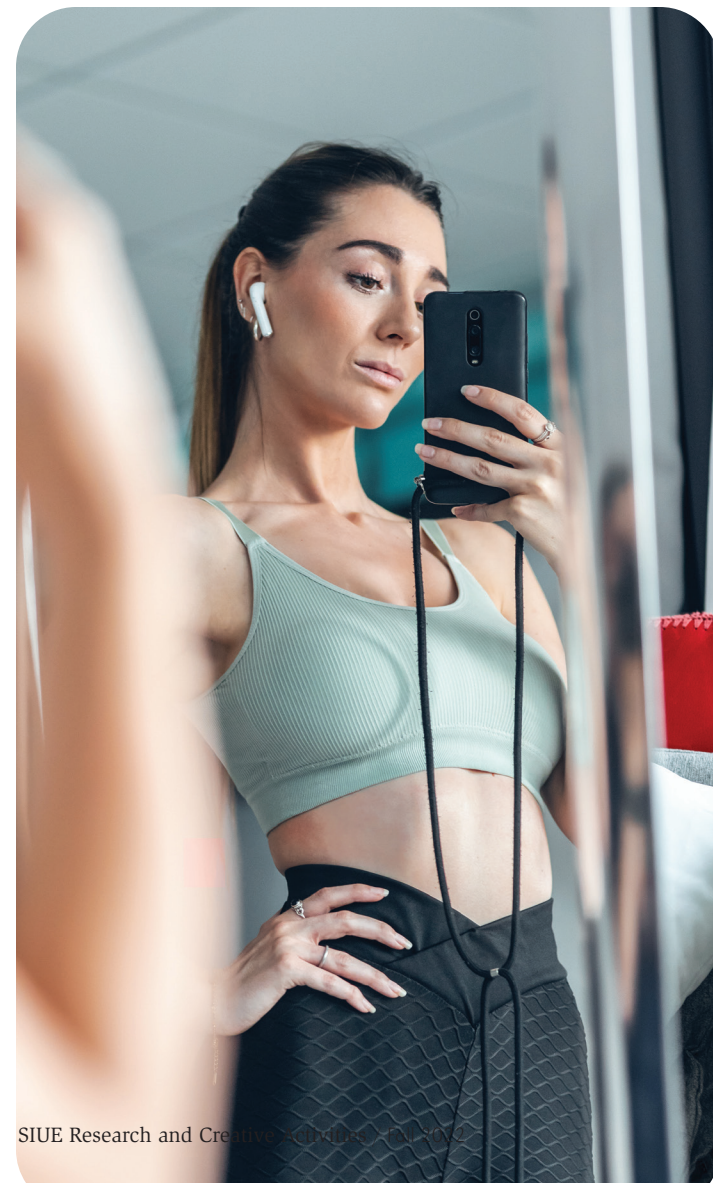


Most Accessed Theses

SIUE's graduate students submit theses, dissertations and doctoral research projects through the Graduate School to ProQuest, an electronic thesis and dissertation system. Their work becomes part of the most comprehensive collection of dissertations and theses in the world, accessible by researchers around the world. Highlighted below are the most accessed theses since 2015.

Instagram and Women's Bodies on Display Kirsten Carney, MS Mass Communications '16

Using content analysis, Carney's project sought to understand how women choose to portray their bodies on Instagram by examining photos from two hashtags that focus on bodies – #thinspogram and #fitspiration. The study examined social comparison theory and self-presentation as to why women choose to post pictures of their bodies on social media platforms such as Instagram. The study found that women posting photos in either hashtag tend to post sexualized photos of their bodies along with almost always appearing alone in the photos rather than with a group. The study also found that a flat stomach is becoming a more sexualized body part on women.



Transformational vs. Transactional Leaders: How Different Leadership Behaviors and Communication Styles Affect Levels of Employee Motivation in the Financial Industry

Danielle Riedle, MS Organizational Communication '15

Riedle's study investigated the perceptions of support staff in the financial industry to identify to what extent perceptions regarding the leadership behaviors of direct supervisors affected their levels of intrinsic and extrinsic motivation, and what motivational techniques used by transactional and transformational leaders appear to be most effective at motivating support staff. The research questions were investigated through qualitative in-depth interviews with 14 employees in the financial industry. Analysis of data shows a close relationship with transformational leaders and positive intrinsic employee motivation, and with transactional leaders, a positive relationship with extrinsic employee motivation.

The results of this study indicate that when intrinsic motivation is available without any extrinsic motivation, people are motivated intrinsically, but feelings of motivation diminish quickly. When intrinsic motivation is present with extrinsic motivation, intrinsic motivation is significantly undermined.

The large difference in the generational cohorts was the most substantial finding from this study. More than 83% of the cohort ages 22-28 years preferred a transactional leader, and more than 83% of the cohort ages 43-54 years preferred a transformational leader. The results of this study have implications for recruiting and selection, and leadership development.



Relationship Satisfaction, Social Anxiety, and Smartphone/Social Networking Addiction Kristen Sleeper, MA Clinical Psychology '18

The purpose of Sleeper's study was to determine whether relationship satisfaction moderated the relationship between social anxiety and smartphone/social networking addiction. It was hypothesized that those who have higher levels of social anxiety and are also less satisfied in their relationships will have the highest scores on measures of smartphone/social networking addiction.

Two multiple regression analyses were run, one with smartphone addiction as the dependent variable and the other with social networking addiction as the dependent variable. Results suggested no significant findings regarding smartphone addiction. However, there was a significant interaction between relationship satisfaction and social anxiety when social networking addiction was the dependent variable.

Higher relationship satisfaction and higher social anxiety were related to the highest levels of social networking addiction; among those with participants with higher relationship satisfaction, those with lower social anxiety had the lowest levels of social networking addiction. For those with low relationship satisfaction, the level of social networking addiction stayed the same regardless of social anxiety.

Are Women Opting Out of STEM Leadership Positions? The Impact of Stereotype Threat, Internalized Sexism, and Leadership Self-Efficacy on Women in STEM

Janna Locke, MA Industrial-Organizational '15

Due to the discrepancy between men and women in STEM careers and in leadership positions within those STEM careers, Locke's study examined the relationship that perceptions of stereotype threat and internalized sexism have on women's decisions to advance or continue in their STEM careers. Additionally, the study examined whether women's decisions to advance or continue in a STEM career could be impacted by their levels of leadership self-efficacy.

Those results were compared to women in gender neutral careers to determine the impact that these variables have on women in STEM careers. Women in STEM and gender neutral careers were surveyed. Results revealed that perceptions of stereotype threat for women in STEM were positively related to their levels of internalized sexism, that leadership self-efficacy significantly moderated the relationship between perceptions of stereotype threat and internalized sexism for women in STEM, and that leadership self-efficacy for women in STEM was positively related to their intentions to advance or continue in their career.

Exploratory analyses suggested that perceptions of stereotype threat and internalized sexism were both significantly related to advancement for women in STEM. These results yielded practical implications for organizations regarding the gender gap in STEM and in leadership positions within STEM careers, along with possible future research that should be conducted on the concept to further understand why this gender gap exists.

Black Panther: Intersectionality in the Marvel Cinematic Universe

Madelaine Deardeuff, MS Media Studies '19

Black Panther, the 18th installment in the global mass media phenomenon referred to as the Marvel Cinematic Universe, has become one of the most economically and culturally significant films released by media juggernaut The Walt Disney Co. The critically acclaimed film portrays an advanced, culturally rich society in Africa untouched by colonialism and features a predominantly Black cast. Most significantly, the film's representation of women earned a large amount of praise.

Using intersectionality as a theoretical basis, Deardeuff conducted a qualitative content analysis of the film Black Panther to discover exactly how the film's women have been characterized. The women of Black Panther, including Okoye, the warrior general; Nakia, the international spy; Shuri, master inventor/engineer; and Ramonda, the supportive Queen Mother; feature characterizations that challenge stereotypes of Black women often depicted in popular culture.



“I hope this study inspires more research on African American educators working in different school environments.”

Jamaal Heavens, PhD, Educational Leadership, '22

Selected Grants for Graduate Students: Featured Doctoral Research Projects

The Graduate School's Research Grants for Research Doctoral Students program awards grants on a competitive basis to support research/projects initiated and conducted by students of the SIUE EdD programs, DNP programs and cooperative PhD programs to enhance their academic progress.

Teacher Retention — Experiences of African American Teachers in Predominantly White Suburban School Districts

Public schools across the U.S. continue to see an increase in diversity among their student populations, but the racial demographics of teachers show a stark difference. People of color comprise a significantly smaller percentage of the teaching population in U.S. public schools than their white counterparts.

While changes have been made to recruitment practices in an effort to attract more diverse educators, less has been done to address the issues that cause teachers to leave a position once hired. Studies have shown a stronger focus on teacher retention may have a greater impact on addressing a lack of diversity among public school teachers.

Jamaal Heavens, who earned a doctorate in educational leadership in May 2022, became interested in the causes of low teacher retention rates among African American teachers after hearing first-hand from an African American teacher at an educator conference.

“I decided to study this topic after listening to an African American teacher speak about her experience working in two predominately white suburban school districts,” explained Heavens. “I felt her experience was very interesting, and I wondered if other African American educators had comparable experiences working in similar environments.”

Through his research, “Teacher Retention—Experiences of African American Teachers in Predominantly White Suburban School Districts,” Heavens sought to gain a better understanding of those experiences and the role they played in a teacher's decision to stay or leave a particular teaching position.

Heavens, who currently serves as the assistant principal of Parkway West High School in St. Louis County, met with a small group of African American educators to collect qualitative data on their experiences. The responses he received revealed an overwhelming majority of participants experienced racism, feelings of alienation, and enhanced scrutiny from parents and co-workers. However, the educators also provided Heavens with several practical solutions that could be implemented to curb these negative experiences and better support teachers of color.

“The participants in my study believe African American educators' experiences can improve if predominantly white schools develop affinity spaces where teachers of color feel free to vocalize issues, provide continued cultural awareness training to staff, develop effective mentoring programs, and actively recruit more teachers of color,” Heavens said.

“As chair of Jamaal's capstone committee, I noted how impressed the faculty were with the fascinating and often troubling findings of his research,” said Tian Yu, PhD, chair and professor, Department of Educational Leadership. “They also commented on the high level of critical analysis in linking the findings to theory and to potential solutions.”

Selected Grants for Graduate Students: Featured Doctoral Research Projects, cont.

Developing a “Force Plate-Less” System Using Whole-Body Kinematics and Machine Learning Techniques for a Real-Time Biomechanical Gait Analysis

The study of how a person or other living creature walks dates back to 350 B.C. when Aristotle wrote “On the Gait of Animals.” In modern times, gait analysis is more commonly used to assess, diagnose and develop treatment for gait disorders in humans and to help athletes run more efficiently.

Clinical gait analysis is often conducted through an optical motion capture system, which uses a set of markers attached to a person’s body. Multiple cameras are positioned at different angles to track the location of the markers while a person moves. Force plates also inform the study by measuring the ground reaction forces generated by an individual’s movements.

The optical motion capture system presents several challenges relating to the data collection process:

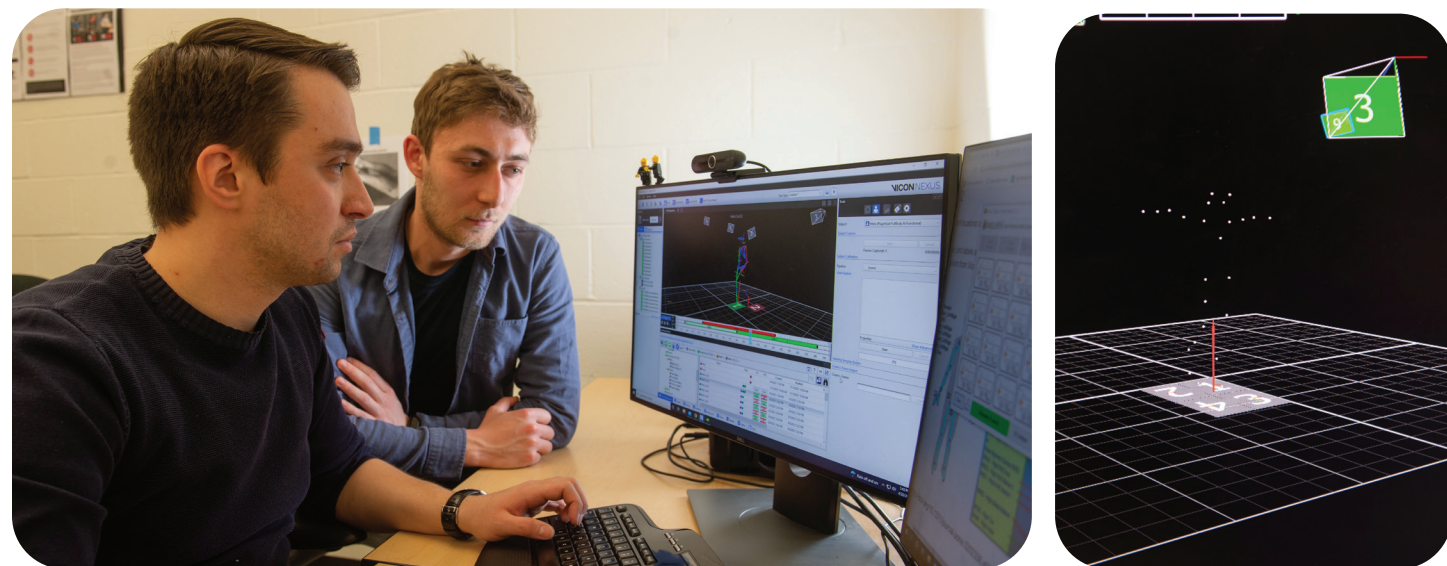
- missing marker data that requires a time-consuming post-analysis and provides less accurate data
- a limitation in the number of gait cycles that can be studied based on the force plates available
- the high set-up cost for installing force plates in a lab.

Goksu Avdan, an industrial engineering doctoral student, sought to use his engineering background to develop a gait analysis system that does not rely on the use of force plates but instead uses only the motion of whole-body — not the forces which cause the motion — to conduct a real-time biomechanical gait analysis.

“Our research project gave me a chance to utilize my industrial engineering skills with hands-on clinical experience to provide clinicians with a more effective, less time-consuming and more cost-effective gait screening procedure,” explained Avdan. “Another reason why I chose this research topic is that understanding the gait patterns of individuals will lead us to the early diagnosis of gait abnormalities, resulting in a better treatment plan for them.”

Through Avdan’s research project, “Developing a ‘Force Plate-Less’ System Using Whole-Body Kinematics and Machine Learning Techniques for a Real-Time Biomechanical Gait Analysis,” he is developing a model to predict ground reaction forces and whole-body joint movements without using force plates. Avdan is now collecting data in SIUE’s state-of-the-art Motion Capture and Analysis Lab, where Avdan’s faculty advisor, Sinan Onal, PhD, associate professor of industrial engineering, serves as director.

“The results were promising and brought us a step closer to developing our proposed gait analysis system when force plates are unavailable in the lab environment or for individuals who are unable to step on force plates properly,” said Avdan. “These individuals include children with autism spectrum disorder and people who are elderly or who have Parkinson’s disease. Helping these individuals improve their quality of life was enough for me to work on this research topic.”



Donor Roll

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Selected Research Grants for Graduate Students Award Recipients

SIUE provides a dynamic environment for master's students to enhance their education and advance knowledge in their fields. The following projects were supported in part by the Graduate School's Research Grants for Graduate Students.

Black Female Collegiate Athletes' Sense of Belonging in Predominantly White Sports

Emily Schwabe, MS Kinesiology-Exercise and Sport Psychology '22

Inspired by her own experiences as a female collegiate athlete, Emily Schwabe investigated the differences in sense of belonging between Black and white female collegiate student-athletes on predominantly white sports teams at historically white institutions (HWI).

A secondary purpose was to assess the relationship between school and sport variables for female collegiate athletes from underserved groups. Of the participants in the study, 100 identified as white and 33 identified as Black. Each completed a demographic survey and the Psychological Sense of Belonging Membership questionnaire for both sport and school.

Results indicated that Black female athletes possess lower scores of having a sense of belonging than white athletes. Black female athletes showed statistically significant lower scores in multiple areas — acceptance by school faculty, acceptance by students, acceptance by athletes, school belonging, sport belonging, and overall sense of sport and school membership.

Having lower levels of sense of belonging, as this current study has shown for Black female athletes, can lead to negative outcomes, such as frustration, unhappiness, loneliness, social isolation and/or depression. Therefore, the results of this study suggest that Black female athletes are at a greater risk for obtaining negative outcomes, such as depression or isolation, and not being able to inherit the positive outcomes of having a sense of belonging.

“Black female athletes having this lower sense of belonging poses a major threat to overall mental health and long-term well-being.”

Emily Schwabe, MS Kinesiology-Exercise and Sport Psychology '22

“These findings offer unique insights into the nuanced and diverse experiences of black female athletes at HWIs and how those differ from white female athletes in both school and sport settings,” Schwabe said. “As the first research study to measure Black female athletes’ sense of belonging, the results of this study highlight a need for coaches and athletic administrators to provide critical care to Black female athletes’ experiences and overall well-being.”

Evaluating Mental and Physical Exhaustion Secondary to Voluntary Wheel Running or Intermittent Fasting in Obese and Non-Obese Rats

Paige Niepoetter, MS Biological Sciences '22

Intermittent fasting is a popular eating pattern that alternates between fasting and eating on a regular schedule as a means of managing weight. In her project, “Evaluating Mental and Physical Exhaustion Secondary to Voluntary Wheel Running or Intermittent Fasting in Obese and Non-Obese Rats,” Paige Niepoetter examined intermittent fasting (IF) and voluntary wheel running (VWR) to understand their effectiveness in controlling obesity without causing side effects such as physical and mental fatigue.

Rats were fed a high-fat diet (HFD) to induce obesity. Baseline behavioral tests were employed to determine physical and mental fatigue before placing them on either IF or VWR. IF involved an 18-hour daily fast with access to food over the remaining six hours.

VWR was used to model human exercise and involved a running wheel being placed in the rats’ home cages with daily activity tracked by VitalView software. The rats were exposed to these regimens for three weeks before behavioral testing occurred again. Open field testing tracked the animals’ movements, such as distance traveled and the speed with which they traveled.

“Like humans, rats are attracted to novel objects after being with a familiar object,” Niepoetter said. “By tracking the time an animal spent with either a novel or a familiar object, we were able to measure recognition memory, which is an indirect measure of cognition.”

The novel object recognition intervals tested were zero, one, two and three days after initial exposure to the familiar object. IF and control groups were able to distinguish the novel object significantly better than the VWR rats at the zero hour.

Blood ketone levels and physical activity were significantly greater, whereas the body weight gain was significantly lower, in the IF group compared to the VWR or control animals. These results suggest a lack of physical fatigue in the IF rats.

Higher ketone levels were associated with increased physical activity but decreased the capability of the animals to distinguish the novel object.

Additionally, the study found VWR to be effective in decreasing weight gain in the group but not in HFD-fed rats. Neither VWR nor IF contributed to mental fatigue.



“Overall, this study shows that IF is more effective than VWR, and that ketone levels play a significant role in exerting the beneficial effects.”

Paige Niepoetter, MS Biological Sciences '22

Outstanding Thesis Award

Recognizing one master's student's thesis as outstanding among all of the theses completed in the previous academic year

George Diak, MS History '20

"Gorleben Soll Leben! German Anti-Nuclear Power and Waste Protest through Images and Artworks in the Wendland 1977-Present"

Diak's research focused on the town of Gorleben, Germany, and its fight with the German government to prevent nuclear waste being stored in its community.

Outstanding Teaching Assistant Awards

Recognizing and rewarding graduate students at the master's and doctoral levels for outstanding performance in teaching and instruction

Tammy Zanker, College of Arts and Sciences

Zanker, MS Biological Sciences '21, taught several biology courses, including Introduction to Biology, Genetics and Bacteriology. Faculty praised her strong foundation in the discipline, effectiveness in instruction and unwavering commitment to student success.

Jordan Smith, School of Nursing

Smith completed the family nurse practitioner specialization in the Doctor of Nursing Practice program in May 2022 and served as a TA in the Simulated Learning Center. Faculty applauded her professional excellence, creativity in discovering new approaches to ensure student understanding, and dedication to preparing future nurses.

Competitive Graduate Awards

Supporting highly qualified new graduate students who are accepted into master's programs at SIUE

College of Arts and Sciences

Applied Communication Studies: Claire Di Lorenzo
Art Therapy: Madeline Miana
Biological Sciences: Emily Hendricks, Jessica Sandoval
Chemistry: Jacob Smith
English-TESL: Kayode Amusan

School of Education, Health and Human Behavior

Clinical Child and School Psychology: Izabelle Harvey
Kinesiology-Exercise Physiology: Sumsen Thapa

School of Business

Accountancy: Hudson Miller
MBA: S M Asifur Rahman

School of Engineering

Civil Engineering: Kamrul Hasan
Computer Science: Tomma Brunken
Electrical and Computer Engineering: Vu Quang Dinh
Industrial Engineering: Dipon Roy
Mechanical Engineering: Shaybal Das Gupta

School of Nursing

Nurse Educator: Kassidy Dexheimer

School of Pharmacy

Pharmaceutical Sciences: Faria Anjum Simin



Research Grants for Graduate Students

Supporting research and creative activities initiated and conducted by SIUE master's students, particularly for their theses and final projects

College of Arts and Sciences

Anthropology: Jacob Province
Applied Communication Studies: Sagarika Shrestha
Applied Health: Kassidy Dexheimer
Art and Design: Garrett Brown, Jordan Mullins, Evan Smith, Nkosi Wan, Deborah Worley
Biological Sciences: Alexis Acoff, Andrew Braun, Bruna Prates De Oliveira Albanez, Olufunke Mercy Ayegbidun, Emma Chilcoat, Emily Hendricks, Andrew Hofferkamp, Carolyn Kinnunen, Mariah Mack, Caitlin Martin, Efe Oniovokukor, Noah Pyles, David Robinson, Jessica Sandoval, Alexandria Wilson
Chemistry: Phillip Abendroth, Opeyemi Bello, Zebediah Campbell, Megan Davis, Anthony Degregorio, Holly Furby, Jessica Hafner, River Jordan, Sophia Melzer, NFN Amena Abdul Razzak, Stephanie Shan, Summy Shrestha, Jacob Smith, Alayna Stephens, Rocky Thapaliya
English Language and Literature: Kayode Victor Amusan

School of Pharmacy

Pharmaceutical Sciences: Kuber Bajgain, Omoh Emmanuel Ben, Prasant Khadka, Safat Shoeb, Faria Anjum Simin

School of Education Health and Human Behavior

Applied Health: Emily Schwabe, Meredith Tunney
Psychology: Daniel Burks, Brooke Kordys, Tariq Minor, Jaden Sangoi, Christine Seitz, Thomas Taylor, Danielle Vaughn

School of Engineering

Civil Engineering: Ashish Aryal, Kamrul Hasan, Abhimanyu Jha, Gokul Khatri
Computer Science: Tomma Brunken
Electrical and Computer Engineering: John Hilbing, Al Mahmud
Environmental Sciences: Arta Cavazos, Sharaban Nasmi, Akinloye Emmanuel Ojewole, Siobhan Perry, Kristin Racoosin
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Research Grants for Doctoral Students

Supporting research initiated and conducted by SIUE doctoral and cooperative doctoral students

School of Engineering

Industrial Engineering: Goksu Avdan

College of Arts and Sciences

History: Patrick Ayres

School of Nursing

Nurse Anesthesiology: Nathan Carroll, Nhan Nguyen

School of Education, Health and Human Behavior

Educational Leadership: Charity Eugea, Jamaal Heavens, Danley Killam, Sneha Kothari Kiss, LaTongia Spencer, Alexa Tate, Eric Taylor, Victoria White



University Grant Award Winners

Paul Simon Outstanding Teacher-Scholar Award

This award recognizes a faculty member for being an outstanding teacher and researcher and for demonstrating the belief that to be a good teacher one must also be a good scholar. Winners have shown significant contributions to original research or creative activities and have successfully integrated those contributions into their teaching and mentoring practices.

Dennis Bouvier, PhD, Professor, Department of Computer Science



Bouvier's research interest is in the area of computing education, specifically improving the educational experience for novice programmers. Since many students are first exposed to computer science and programming in college, Bouvier is committed to solidifying these students' foundational knowledge and experience

through high-quality and engaging introductory computer programming courses. His scholarship and research in computer education to improve students' learning experiences have produced several teaching materials for the field. Among his works is "Commonsense Computing" with seven publications including a best conference paper supported by the National Science Foundation. Other research efforts are ongoing projects in the areas of student feedback systems, student motivation and imposter phenomena.

Emeriti Faculty Association Awards

The SIUE Emeriti Faculty Association provides opportunities for retired faculty to remain active participants of the University community. The group annually awards grant funding to select faculty projects aimed at strengthening the academic quality of programs and enhancing the University's reputation.

Melissa Bogle, DNP, Instructor, Department of Family Health and Community Health Nursing

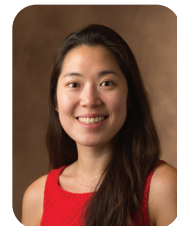
Ellen Santos, PhD, Assistant Professor, Department of Applied Health

"Development of a Global Health Bootcamp Collaboration"



Angela Kim, PhD, Assistant Professor, Department of Music

"Musical Festival: 3-day Residency Program with Four World Class Artists"



Carolina Roche, PhD, Professor, Department of Foreign Languages and Literature

"March 2023 Symposium: Women, Gender and Sexualities"



Vaughnie Lindsay New Investigator Award

This award is presented to junior faculty members to recognize and support individual programs of research or creative activities that have the promise of making significant contributions to their field of study and to SIUE in general.

John Matta, PhD, Assistant Professor, Department of Computer Science



Matta's research project, "Developing an Open-Source Mobile App to Improve Participation of Underserved Populations in Respondent-Driven Sampling Surveys," aims to develop a software solution to help researchers conduct respondent-driven sampling (RDS), a survey technique to collect data on hard-to-reach populations. Matta and his research team will conduct user tests and focus groups to inform the creation of an RDS survey app where the needs of low-income respondents with low-power devices are given special consideration. Moving RDS surveys from computers to more accessible smartphones and tablets will expand the range of populations being reached, leading to improved public health data.

Annette and Henry Baich Award

This award is given annually to the most outstanding Seed Grant for Transitional and Exploratory Projects proposal for basic research conducted within the parameters of the Sigma Xi Society. Disciplines include the physical sciences, life and medical sciences, earth science, engineering, psychology, and mathematics.

Brittany Peterson, PhD, Assistant Professor, Department of Biological Sciences



Peterson's research, "Screening novel antibacterial toxins from the termite gut," centers on understanding the interactions between insects and their gut bacteria. The project seeks to understand how one beneficial bacterium may kill potential pathogens of their host termite. Using a combination of assays and genomics, Peterson's research has identified a bacterium from the termite gut that kills a termite pathogen culture and has 22 potential toxins encoded in its genome.

Hoppe Research Professor Award

Recognizing and supporting SIUE faculty members whose research or creative activities have the promise of making significant contributions to their field of study, this award supports a significant portion of a faculty member's larger research agenda for a two-year period. Recipients are expected to produce published scholarly works and externally sponsored funding.

Elizabeth McKenney, PhD, Associate Professor, Department of Psychology



McKenney's project, "Advocating for socially just multi-tiered systems of support: School psychologists' skills and needs," will advance school psychologists' understanding of effective advocacy toward the goal of creating socially-just Multi-Tiered Systems of Support. The study will advance McKenney's research agenda by combining her existing areas of expertise in supporting evidence-based interventions in school settings and facilitating culturally-responsive, socially-just models of service delivery toward empowering school psychologists to deliver meaningful and impactful services within their unique practice settings.

Gifts to Graduate Studies and Research and Creative Activities support students and faculty across the University. To contribute to these endowed scholarships, visit: siue.edu/give-now/graduate-school.

Visualizing Research Impacts

The SIUE Graduate School's Visualizing Research Impacts competition offers SIUE faculty, staff and students the opportunity to share the results and impact of their research and creative activities through imagery.

Faculty and students submitted a wide array of entries that depicted a wonderfully rich diversity of creative activities and disciplines from across the institution, including entries from the sciences, arts, humanities and nursing.

Most Creative Representation of Research Impact

"Octomom"

Jocelyn DeGroot, PhD, Professor and Assistant Chair, Department of Applied Communication Studies

DeGroot's recent research on motherhood, co-directed with Tennley Vik of the University of Nevada, Reno, explored how mothers perceive, experience, and describe the domestic workload inequity and challenges related to motherhood.

"Mothers engage in invisible labor preparing meals, cleaning, shopping, scheduling for the family, emailing teachers, making health decisions, and doing numerous other activities that often go unnoticed," DeGroot said. "Our research indicates that mothers feel the intense burden of performing motherhood flawlessly as they project a positive self-image, avoid sharing challenges, and discuss only positive experiences. This results in women's domestic labor being further hidden from view.

"'Octomom' recognizes the invisible labor accomplished by mothers and aims to begin conversations about workload inequity," she explained.



Best Representation of Research Impact

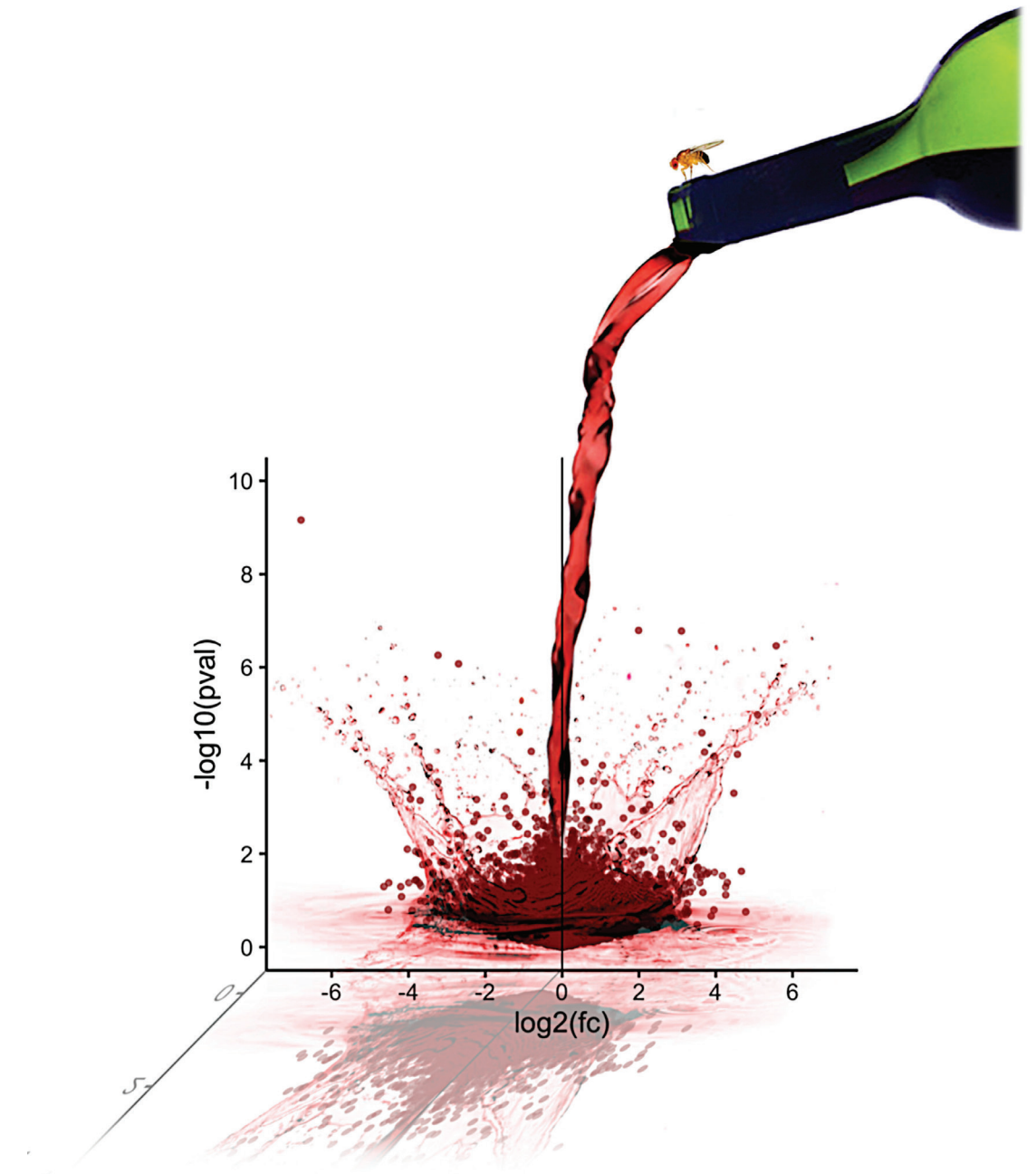
"Pouring efforts in alcohol research"

Emily Petruccelli, PhD, Assistant Professor, Department of Biological Sciences

Petruccelli's research explores the molecular mechanisms underlying alcohol use disorder (AUD). Using RNA-sequencing, her team identifies and tests specific gene transcripts differentially expressed in *Drosophila* (fruit flies) that show addiction-like behaviors.

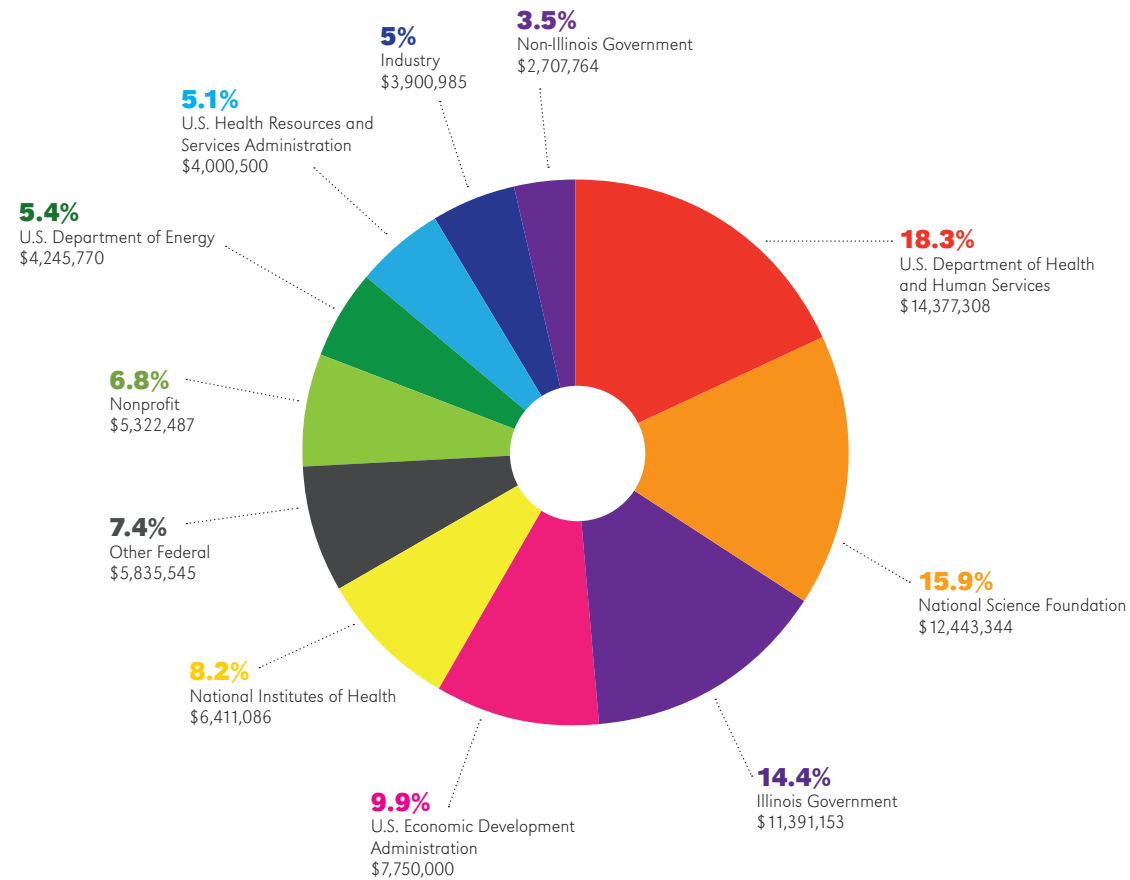
Each data point on the graph is one of the 17,561 genes in the fly genome. By comparing control animals to those previously exposed to repeated bouts of ethanol, gene expression changes can be observed. Relative fold change is represented on the x-axis and the inverse of the statistic's value, so that highly significant changes are higher in the plot, represented on the y-axis.

"Our research has highlighted conserved molecular pathways hijacked by alcohol in the nervous system," Petruccelli said. "This allows for further testing to aid in the development of novel, more effective AUD therapies."

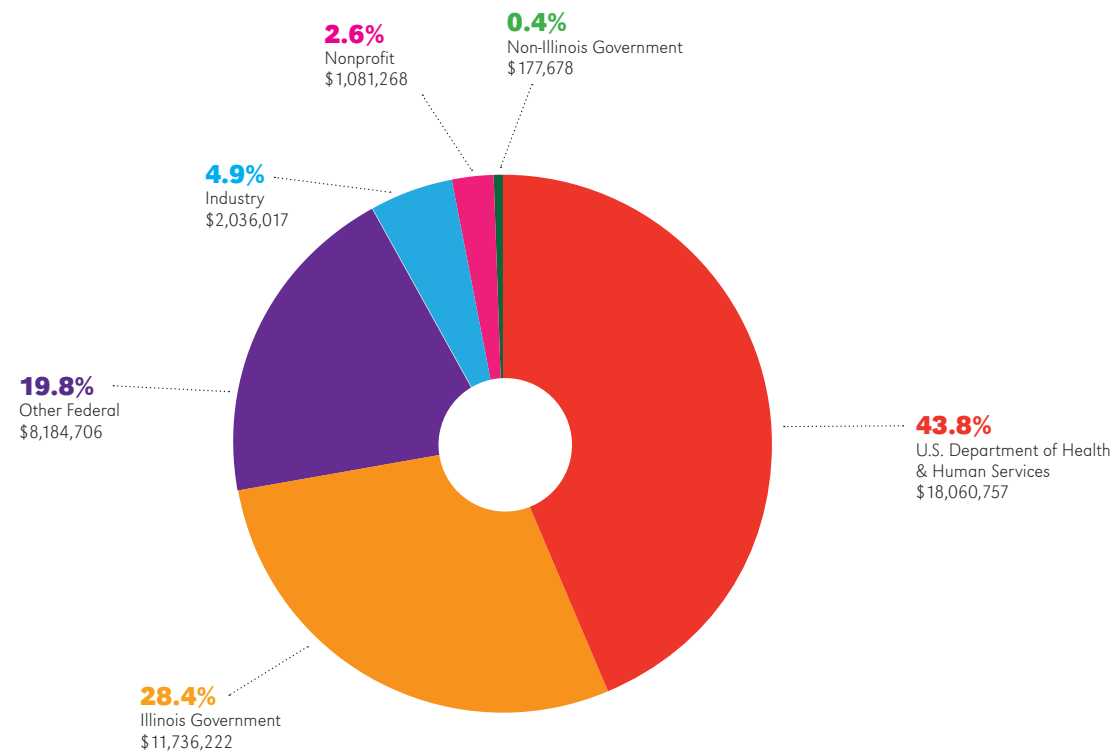


Externally Sponsored Projects

FY22 Proposal Submissions by Sponsor Type



FY22 Awards by Sponsor Type



Selected Books Published

College of Arts and Sciences

Archer, Kimberly. *Fanfare Politeia*, Murphy Music Press, 2021.

Kooiman, Susan. *Ancient Pottery, Cuisine, and Society at the Northern Great Lakes*. University of Notre Dame Press, 2021.

O'Brien, Gerald. *43 Essential Policies for Human Services Professionals*. NASW Press, 2021.

Bezhanova, Olga and Raysa Amador. *Intersectional Feminism in the Age of Transnationalism: Voices from the Margins*. Lexington Books, 2021.

Rice, Laurie L. and Kenneth W. Moffett. *The Political Voices of Generation Z*. Routledge, 2022.

Gómez, Rubén. *Los Tambores de Esteban: Concertino for Percussion and Orchestra*. www.rubendariogomez.net., 2021.

Gómez, Rubén. *Caño Cristales: from solo Trombone and Vibraphone*. www.rubendariogomez.net., 2021.

Gómez, Rubén. *Las "No Hay" Estaciones (The No Four Seasons): for Clarinet Quartet and Wind Band*. www.rubendariogomez.net., 2022.

Hepner, Abbey, Buick, Kristen Pai, Zastudil, Nancy. *The Light at the End of History*. Daylight Books, 2021.

Robb, Megan. *Group Art Therapy: Practice and Research*. Routledge, 2022.

Shaw, Wendy. *America's Poorest and Most Affluent Counties, 1980 - 2010*. Springer Nature Switzerland AG, 2021.

Colby, Richard, Matthew S. S. Johnson, and Rebekah Shultz Colby, editors. *The Ethics of Playing, Researching, and Teaching Games in the Writing Classroom*. Palgrave Macmillan, 2021.

Stacy, Jason E. *Spoon River America: Edgar Lee Masters and the Myth of the American Small Town*. University of Illinois Press, 2021.

Thomason, Allison K, and Neumann, K., eds. *Routledge Handbook of the Senses in the Ancient Near East*. Routledge, 2021.

School of Engineering

Lee, H. Felix. *Computer Aided Design with Siemens NX: Engineering Design in Computer Integrated Design and Manufacturing*. 10th Edition, Kendall/Hunt Publishing Company, 2021.

Chen, Xin. *Network Science Models for Data Analytics Automation: Theories and Applications*. Springer, 2022.

School of Pharmacy

Herndon, Christopher, *Pain*, Oxford University Press, 2022.

School of Education, Health and Human Behavior

Papakyritsis, Ioannis, **Marie Klopfenstein** and Ben Rutter. *The Phonetics of Dysarthria: Studies in Production and Perception*. Equinox Publishing, 2022.



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