

# Research & Creative Activities

Fall 2024



**GRADUATE SCHOOL**

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**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 academically talented students with financial need the opportunity to pursue their educational goals.

### 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.

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On the cover:

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## SIUE Colleagues and Community Members,

This fall 2024 issue of Research & Creative Activities highlights the strengths of SIUE's intellectual community: our diversity, our rigor and our evolving areas of academic achievement.

I can think of no better way to memorialize the passing of our former Graduate School Dean Rosemarie T. Archangel than by sharing the creative, scholarly and research accomplishments of our faculty and graduate students from this last academic year. From groundbreaking theater performances of "King Hedley II" to research on safer opioid prescribing to investigations into mitigating human trafficking, SIUE's faculty and graduate students are contributing knowledge for the public good across our community, region and nation.

In this issue, we continue to report the active research agendas of our emeritus faculty. I am struck by how fully our emeritus faculty model the values of lifelong learning that SIUE upholds. It is particularly thrilling to witness the work of poet, Guggenheim Fellow, and Professor Emerita of English Allison Funk, PhD, celebrated in this issue. We look back on a year of remarkable accomplishments, challenges met and new avenues paved.

As we look ahead to this new academic year, I anticipate a year of transformation as we begin the search for our next Associate Provost for Research and Dean of the Graduate School. We welcome the brilliance that is to come even as we celebrate the excellence of this past year.

Elizabeth Cali, PhD

Interim Associate Dean for Research and Graduate Studies



## In Memoriam

**Rosemarie Archangel was one of SIUE's pioneering faculty members.** She earned a PhD in kinesiology and came to SIUE in 1962, establishing the Department of Physical Education. Vaughnie Lindsay, then dean of the Graduate School, appointed Rosemarie associate dean in 1979. After Lindsay retired, Rosemarie was named dean of the Graduate School serving from 1988-1993. As dean, Rosemarie expanded graduate programs and strengthened the infrastructure supporting faculty research. One of her most significant accomplishments was to establish graduate education as an integral part of SIUE. After retiring, Rosemarie helped launch the Rosemarie Archangel, Ellen Sappington, and Julia Y. and Stephen L. Hansen endowment in the Graduate School to support excellence in graduate education.

**Rosemarie was a pioneer in gender equity.** She was one of 12 individuals invited to Washington D.C. to author the first Title IX amendment as part of the Education Amendments of 1972. At SIUE, Rosemarie was among the first women to provide leadership. She was, for example, the first woman to serve as president of the Faculty Senate. Carol Keene, former dean of the School of Humanities and professor of philosophy said, "Rosemarie was a force for excellence. In a time when money was tight and morale was low, she provided leadership for the faculty."

**Rosemarie was a tour de force.** She wheeled a new Corvette around campus, and, like her car, she had little patience for pettifoggish obfuscation! One time, President Earl Lazerson, known for his sarcastic humor and often brusque manner, asked Rosemarie how many jumping jacks it took to earn a PhD in kinesiology. She coolly looked at Earl and responded by asking how high did he have to count to get a PhD in mathematics? One colleague said, "Rosemarie was as comfortable discussing St. Thomas Aquinas' Summa Theologica as she was expounding on the difficulties of being a left-handed catcher in baseball."

**Rosemarie Archangel was a remarkable person who helped shape SIUE.** As one of the first generation of SIUE scholars, she laid the foundation upon which the University was built. Rosemarie died on March 19, 2024, at the age of 93. Her legacy still lives in the Graduate School, and we still enjoy the benefits of her outstanding life and career.





## Enhancing Signal Sustainability

The role of traffic signals is integral, yet often overlooked. The ubiquitous lights of red, yellow and green maintain the efficiency and flow of daily life.

Highlighting the necessity of upkeep with such an essential system, Ryan Fries, PhD, PE, professor and chair of the Department of Civil Engineering, conducted a two-year project entitled, "Optimum Traffic Signal Condition Assessment and Strategic Maintenance Planning."

Funded by the Illinois Center for Transportation, the project aimed to identify best practices for assessing the condition of traffic signal systems to reduce unexpected failures and enhance efficiency.

"To keep these systems operating reliably and effectively, transportation agencies like the Illinois Department of Transportation (IDOT), are striving to be proactive in their management," explained Fries. "In many cases, transportation agencies maintain traffic signals reactively, only repairing signals when they fail."

Measuring the lifespan of components of traffic signal systems, such as the controller and the electronic device within the system that stores all the data and information for the intersection, was not possible compared to other components of the systems such as the mast arm foundations, which did have a way to assess its condition.

To be able to predict the lifespan of the controller, Fries looked at environmental factors, including average temperature and wind speeds. His research suggests that the average span of signal controllers in Illinois is seven years. Controllers in the Springfield and Collinsville areas proved to have the shortest lifespan, whereas Dixon and Ottawa have the longest.

Addressing the gap in proactive versus reactive signal maintenance will improve the safety and reliability of traffic signal systems across Illinois. IDOT and other public

agencies will be able to better prioritize funding and reduce unexpected failures. At the project's conclusion, Fries and his team built an assessment procedure for traffic signals and a guide for implementing them.

"Implementing the recommendations of this research will provide a consistent and systematic way to identify traffic signal components in poor condition and complete repairs and replacements before they unexpectedly fail during the daily commute," Fries continued.

Fries led a team of engineering graduate students to conduct the research. Srisha Devkota, a civil engineering graduate student specializing in transportation engineering, played an important role in the project's success, as she worked with Fries for the entirety of the research.

Fries' work inspired Devkota to conduct her thesis as an extension of this research. Devkota's thesis revolves around creating a method to assess the condition of the welding connection between the mast arm and signal pole of the traffic signal, working to establish a threshold year that action should be taken to repair or replace that specific part of the system.

Fries and his team's work signifies pivotal advancement in traffic signal systems, helping pave the way for a more reliable and efficient transportation infrastructure.



*\*This project was supported by the U.S. Department of Transportation through the Illinois Center for Transportation as part of an award totaling \$175,000, of which \$131,250 are federal funds with 25% 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.*

## Taking Steps Toward Safer Opioid Prescribing Practices

According to the Centers for Disease Control and Prevention, the total number of U.S. overdose deaths involving commonly prescribed opioids has remained relatively consistent since a peak in 2017, despite efforts aimed at reduction. In response to the devastating opioid epidemic caused by the overprescription of pain killers, all U.S. states have implemented controlled substance prescription drug monitoring programs. The Illinois Prescription Monitoring Program (ILPMP) aims to combat problematic opioid use by monitoring prescriptions, identifying concerning drug taking behaviors by patients and prescribing behaviors among health care providers.



**"Our goal is not to curtail prescribing of legitimate opioid analgesics, but to improve their safe use."**

Chris Herndon, PharmD, BCACP, FASHP, FCCP

Existing scoring systems are based on peer prescriber comparisons. Scores are based on the prescriber who had the most patients on opioids, or the highest prescriber based on the type of provider. These scoring systems do not show negative patient outcomes, however, leaving the system unvalidated.

"As a member of the ILPMP peer review committee, we regularly review the opioid prescribing data in Illinois," Herndon continued. "Considering the sheer amount of data we review; it becomes an incredibly arduous task to identify risky prescribing or prescribing outside currently accepted medical practice. Thus, one score would make identifying the most concerning prescribing patterns much easier."

Adam Schulte, PharmD, 2017, helped Herndon create the coding for the score. Carrie Butts-Wilmsmeyer, assistant professor in the Department of Biological Sciences and director of the Center for Predictive Analytics, is assisting with the current phase of the project's validation efforts. By correlating the reference scores with actual rates of opioid overdose and opioid overdose-related deaths, Herndon and his colleagues hope the validation of the reference score will improve the reception of academic detailing when offered to prescribers.

As part of the project's final step, current PharmD students will have the opportunity to learn how to use predictive modeling to identify individuals at risk of transitioning from prescribed opioids to illicit substances.

"Discussing these prescribing patterns and concerns within our PharmD curriculum gives our students a real-world glimpse into their role in minimizing opioid related overdoses and death as well as to begin considering what they, as future pharmacists, should consider risky or unsafe opioid prescribing," Herndon said.

*\*This project was supported by the Harold Rogers Prescription Drug Monitoring Program, a program that supports state and local governments in detecting and preventing the diversion and misuse of pharmaceutically controlled substances such as opioids and other prescription drugs.*

In the project entitled, "Development of a Composite Prescriber Reference Score for Targeted Opioid Academic Detailing," School of Pharmacy Professor Chris Herndon, PharmD, BCACP, FASHP, FCCP, is helping the ILPMP address risky prescribing behaviors by identifying what constitutes potentially harmful prescribing patterns through the development of a comprehensive risk, or reference score like a grading scale.

"We aim to create a single, validated risk score in which to identify prescribers of opioids for referral for academic detailing," said Herndon. "We hope to be able to quickly identify and educate providers on the safe prescribing and monitoring of opioids."





## Advancing Evidence-Based Practices in Criminal Justice: The Role of SIUE's Center for Crime Science and Violence Prevention

SIUE's Center for Crime Science and Violence Prevention (CCSVP) at the Southwestern Illinois Justice and Workforce Development Center in Belleville, Ill., represents a first in the region for its focus on strengthening evidence-based practices in criminal justice.

The primary focus of the CCSVP is to assist all stakeholders in the criminal justice field in their efforts to reduce crime. The CCSVP has developed partnerships with regional agencies and organizations to provide a range of services, including grant development, data analytics, crime analysis, mapping, evaluation, research and more.

"SIUE has always been community focused, and we want to carry that torch at CCSVP and provide added value to our region," said Dennis Mares, PhD, interim director of the CCSVP and professor in the SIUE Department of Criminal Justice. "The success of the CCSVP will translate into more opportunities for our students, staff and faculty to be involved in research, publications and relationships with the community at large. Given how large a topic public safety has always been, the Center will create a lot of opportunities for SIUE to communicate to the public and become a leader in the region."

Mares is leading several projects through the CCSVP that aim to reduce crime in the surrounding communities.

"My recent research has focused on the intersection of policing and technology, especially the impact of technology on crime prevention and investigative work," said Mares. "While some people may object to more surveillance technology, my view is that such technologies also have the potential to make things fairer and contribute to more equitable policing."

He notes that although the results from the projects may not always lead to definitive conclusions, it is learning and applying best practices while abandoning ineffective approaches that is the most crucial part of the projects.

"Achieving lasting crime reductions is not the typical outcome in our line of work, but that doesn't mean we didn't learn something new or practically relevant," Mares said. "Figuring out the contexts in which innovations and technology may work will be an important part of moving crime prevention forward."

As the CCSVP continues to become more established, SIUE students will have more opportunities to gain hands-on experience and play a key role in the transformation of crime prevention in the region.



## Center for Crime Science and Violence Prevention (CCSVP) Research Highlights

Dennis Mares, PhD, interim director of the CCSVP and professor in the SIUE Department of Criminal Justice is actively working with police departments and counties served by the CCSVP to reduce crime in the surrounding communities.

### The Smart Policing Initiative Grant Program: Integrating Technology and Transparency in Alton, Ill.

Mares and the CCSVP helped the Alton Police Department (PD) obtain an \$800,000 grant in fall 2023 to fund new technologies including license plate readers, cameras and other surveillance tools to help prevent crime and hold offenders accountable. Through the project, the CCSVP will assist Alton PD to establish a real-time crime center and develop a crime analysis portal that brings mapping capacity to the city and expands its commitment to public transparency. The CCSVP will also be involved in the final evaluation of the technology upgrades.

The project is currently in its start-up phase, and Mares is working with Alton PD to develop a specific action plan that will provide greater detail to the implementation process and create ways for the community to provide input. Final project results will include details about crime and policing changes resulting from these efforts and are expected to be released near the end of the project period in 2026.

*\*This project is supported by the U.S. Department of Justice through the Alton Police Department as part of an award totaling \$800,000. 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 Justice or the U.S. Government.*

### Reducing Violent Crime Using Technology

The Collinsville Police Department (PD) started working with the CCSVP in fall 2023 to improve investigative outcomes by expanding license plate reader technology and cell phone forensic software. The CCSVP will provide technical assistance, analysis of ongoing data collection, and the final evaluation detailing the impact on crime and investigative outcomes after the project concludes in September 2026. Collinsville PD is working with vendors to acquire the technological upgrades. Once received, they will continue working with CCSVP on best practices and determining optimal technology placement.

*\*This project is supported by the U.S. Department of Justice through the Collinsville Police Department as part of an award totaling nearly \$300,000. 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 Justice or the U.S. Government.*



### Body-Worn Camera Policy and Implementation Program to Support Law Enforcement Agencies

With a start date of October 2021, this project focuses on implementing body worn cameras across two law enforcement jurisdictions in St. Clair and Madison counties. Recognizing the need for greater police accountability, East St. Louis Alton police departments applied for funding to prepare for the Illinois state mandate that will require body-worn cameras for all agencies in the state. Alton and East St. Louis have since acquired and deployed the cameras. CCSVP will provide the evaluation for the project and has collected survey data from police officers and the public about their views of the cameras which indicated widespread support for the program. In addition, use-of-force statistics of both agencies will be examined to determine if the cameras have an impact on use of force and complaints against officers.

*\*This project is supported by the U.S. Department of Justice through the Alton and East St. Louis Police Departments as part of an award of more than \$225,000. 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 Justice or the U.S. Government.*

**Visit [siue.edu/ccvsp](https://siue.edu/ccvsp) for more information and project results.**





## Uncovering the Legacy of the Nicholas Jarrot Mansion

Seeking new opportunities, Nicholas Jarrot (1764–1820), a wealthy entrepreneur and landowner, immigrated to the United States from France in 1790. His journey led him to settle in 1793 in the Cahokia Heights area where he constructed a homestead between 1807 and 1810. Known as the Nicholas Jarrot Mansion, the homestead is on the National Register of Historic Places. Jarrot reportedly owned over 25,000 acres between Illinois and Missouri and was involved in enslavement in an area where slavery was prohibited by law. The history of Jarrot’s legacy has yet to be fully uncovered, leaving many unanswered questions.

The Jarrot Mansion Project, Inc., a non-profit organization dedicated to supporting and interpreting the Nicholas Jarrot Mansion, reached out to SIUE’s Department of History asking for help to uncover the unknowns surrounding Jarrot and his landholdings. Erik Alexander, PhD, associate professor, was tasked to lead the project.



**“The decisions people made centuries ago still shape our present in all kinds of visible and invisible ways. Making the public aware of those realities is crucial in many ways, but particularly as we try to make fair and just decisions that shape our communities.”**  
Erik Alexander, PhD  
Associate Professor, Department of History

“The site of the Jarrot Mansion is a really unique place, and it challenges a lot of our preconceived ideas about American history,” Alexander explained. “It is an incredibly rich site to tell these stories that historians have been developing over the past several decades.”

Alexander, alongside Robert Paulett, PhD, associate professor, and doctoral student Emily Eckles, are working to document and map the extent of Jarrot’s landholdings at the peak of his career thanks to the support and funding provided by the Jarrot Mansion Project, Inc.

Over 18 months, the group will identify surviving land records in local and regional archives, explore those records, and begin to document Jarrot’s landholdings. The last step will be to transfer the records and create digital maps of the documented information. While it is not the focus of the project, Alexander hopes the research can reveal important historical aspects of Jarrot’s life, including his involvement in enslavement.

“We hope to be able to shed light on the history of slavery in areas where slavery was supposedly outlawed,” said Alexander. “In fact, after Jarrot’s death, one of the people he held in bondage eventually sued for their freedom in a well-known 1845 Illinois Supreme Court case that ultimately clarified and ended the practice of indentured servitude in the state. We think this project can tell us a lot about that history, which is still not very well known.”

The team has uncovered many interesting facts including that Jarrot owned land that is where the Cahokia Mounds State Historic Site now stands. He gifted the land to Trappist monks who named the large central mound “Monks Mound.” They also discovered that Jarrot held property on the Mississippi waterfront near Wood River, which is also known as the mystery town of St. Mary’s. The town’s location is unknown, but the land was possibly connected to a camp that was part of the Lewis and Clark expedition.

Alexander considers the work to highlight Jarrot, the mansion and his landholdings a unique opportunity to bridge the gap between history and the present. He hopes that through this project he can do just that.

“At SIUE, where so many of our students come from the region and local community, connecting our local past with the present helps our students to see the importance, and take ownership, of that history. A site like the Jarrot Mansion provides that opportunity in a unique way,” Alexander said.





## Empowering the Next Generation of Women in Dentistry

Southern Illinois University School of Dental Medicine’s (SIU SDM) Nathalia Garcia, DDS, is equipping the next generation of women in dentistry with the confidence and leadership necessary to excel in the oral health industry. Garcia was one of the faculty representatives involved in initiating and designing the national program, “Empowering Women in Dental Education.”

Funded by the ADEAGies Foundation, the philanthropic arm of the American Dental Education Association, the program caters to female oral health education students across the country in their final year of study. Along with associate professors Karin Quick, PhD, DDS, and Michelle Brady, DDS, Garcia led the collaborative faculty team, all of whom are Enid Neidle Scholars affiliated with the American Dental Education Association.

“The objective of this educational program is to create, implement and assess a curriculum aimed at fostering leadership, confidence, professionalism, relationship-building, cultural competency and various non-technical skills among senior women students in oral health professions,” said Garcia. “The curriculum is strategically crafted to cultivate skills beyond dental technicalities encompassing areas such as business intelligence, leadership and networking, among others, among our female students before they enter the workforce.”

As the primary institution, SIUE hosted the inaugural online interactive workshop in January 2024. The program continued into 2024, offering different iterations of the workshop through other institutions. Attendees of the inaugural session were introduced to women from diverse backgrounds who have excelled as professionals and leaders in their respective industries.

“The program was a great opportunity to learn more about self-confidence and leadership in the workplace,” said SIU SDM fourth-year student Rebecca Da Fonte of Brazil. “It was enriching to connect with a diverse group of women pursuing various career paths, fostering a sense of camaraderie and shared learning experiences.”

Topics included the voice of a woman; leadership and emotional intelligence; power and wellbeing; and diversity, equity, inclusion and belonging.

“The program consisted of several accomplished speakers who discussed strategies and emphasized the importance of having a diverse skill set of academic, leadership, and personal skills to succeed and become influential in the workplace,” said second-year implant fellow Kelly Cusack, DMD. “These skills and strategies help women to confidently enter the workplace and are generally not found in the traditional dental curriculum.”

“I firmly believe that this program aligns seamlessly with the mission and vision of our institution,” Garcia continued. “It catalyzes empowering our students to realize their utmost potential and emerge as influential leaders prepared to shape a dynamic world. Furthermore, it creates invaluable avenues for facilitating access to both personal and professional development opportunities.”

*\*Empowering Women in Dental Education: A project to prepare women oral health professions students for succeeding in the workplace” initiative has been made possible through grant funding allocated by the ADEAGies Foundation. Raising awareness in dental education and the dental profession of this funding and its impact is essential to ensure continued support of oral health initiatives which advance dental education and the dental profession.*

## Strengthening Southern Illinois Communities Against Domestic Extremism

Domestic violent extremism is the most consequential security threat facing the U.S. according to the Department of Homeland Security, Department of Justice and Federal Bureau of Investigations. There is increasing agreement that local communities are the first line of defense to combat the increasing threat.

Department of Political Science faculty Suranjan Weeraratne, PhD, associate professor and Laurie Rice, PhD, professor, developed the project, “Enhancing Local Capacity to Prevent Targeted Violence in Southern Illinois,” to provide a framework for preventing targeted violence and domestic terrorism in 41 counties throughout Southern Illinois.

**“Local communities need to be at the forefront of countering such threats. It is imperative that we engage with a diverse array of local stakeholders to create a whole of society approach to violence prevention.”**

Suranjan Weeraratne, PhD  
Associate Professor, Department of Political Science

“This topic is particularly important now because the U.S. is facing a growing threat of lone wolf actors motivated by a variety of ideologies and grievances,” said Rice. “Mass attacks, targeted violence and domestic terrorism related incidents have all grown significantly over the last decade or so. Given the current highly polarized political environment and the prevalence of online extremism, this threat is likely to grow unless communities act to build preventative factors and work to reduce risk factors.”

The first phase of the project included surveys conducted in 2023 that assessed the community prevalence of extremist attitudes, support for violence and risk factors for terrorism.



According to Rice, surveys they fielded in 41 counties in Southern Illinois asked respondents to agree or disagree with the following: Violence is justifiable to achieve partisan or ideological objectives.

- 15% agreed or strongly agreed
- 25% neither agreed nor disagreed
- 26% agreed or strongly agreed if instead elected officials fail to protect the interests of Americans

Results from the survey also showed that multiple risk factors associated with support for violence are significantly higher in Southern Illinois than nationally. Individuals in Southern Illinois expressed greater difficulty achieving their life goals, and adults who have experienced being bullied had higher levels of support for threats and violence compared to national averages.

The project’s second phase involved informational sessions presented to local community members, college students and law enforcement covering the main findings of the data. Future plans include:

- Train-the-trainer sessions for community members to encourage higher levels of civic engagement
- Additional surveys in Southern Illinois and nationwide with follow-up questions on life difficulties, bullying and exposure to online extremism

“We hope the data-driven conversations we initiated in various training sessions lead to the development of effective community prevention strategies,” said Rice.

“Armed with this knowledge and increased cognizance, it is our hope the local community will work proactively with law enforcement and other relevant stakeholders to effectively address the threats of radicalization and domestic terrorism, thereby providing a critical bulwark support in the fight against violent extremism,” Weeraratne added.

*\*This project was supported by the U.S. Department of Homeland Security as part of an award totaling \$332,491, of which \$332,491 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 Homeland Security or the U.S. Government.*



## Selected Grants for Graduate Students



**“My goal is to highlight the importance of the development of tactical creativity in athletes as an essential ingredient of sport performance.”**

Mariano Rayon  
Exercise and Sport Psychology '24

### The Relationship Between Athletes' Divergent Thinking and Coaching Style

Mariano Rayon, Exercise and Sport Psychology '24

The bond between an athlete and coach is unique—it's a relationship built on mutual trust. The impact a coach has on an athlete's performance and development is instrumental. But can a coach constrain an athlete too much and limit the athlete's abilities? When a decision needs to be made on the field of play, will an athlete rely on what they see in action or what they are told by their coach to make the decision?

Mariano Rayon, an exercise and sport psychology graduate student, was curious about the lack of research regarding the correlation between athlete creativity, as measured by divergent thinking, and coach leadership behavior. So, he gathered data from various coaches and athletes across the NCAA to explore the topic.

“My research assesses how a coach's training, instruction methods, autocratic behavior, democratic behavior, social support and positive feedback influence an athlete's creative abilities,” Rayon explained.

He used the Alternative Uses Test, a creativity test used to assess an individual's flexibility of thinking, as the base measure for the research. He hypothesizes that the higher an athlete scores their coach on the leadership assessment, except autocratic behavior, the higher the creative scores of the athletes on the Alternative Uses Test.

“Understanding the correlation between an athlete's creative abilities and a coach's leadership behavior could significantly impact the choices coaches make when it comes to practice design and player interaction.”

“Often in sport, we see practices run with very little room for athletes to be creative or try out new things,” said Rayon's advisor Lindsay Ross-Stewart, PhD, CMPC, MPC, associate professor in the Department of Applied Health. “This is even though in games athletes are expected to be confident making decisions without constant coach instruction.

“Rayon's research will add to the literature on the importance of creativity for athlete success and the role of the coach in helping this happen through more democratic, and autonomy supportive means.”



**“The work I will do to investigate cross-resistance could help to learn more about pest management and aid in developing the most efficient pest management practices possible.”**

Blake Rentz  
Environmental Sciences Graduate Student



### Establishment and Life-History Analysis of Nearly Isogenic Strains of *Drosophila melanogaster*

Blake Rentz, Environmental Sciences Graduate Student

Blake Rentz got a head start on his graduate research project through SIUE's unique Undergraduate Research and Creative Activities (URCA) program. URCA lets students work closely with faculty on research projects in formats typically only available to graduate students.

Rentz earned a BS in environmental sciences in May 2024. Enrolling in an accelerated combined degree program meant he had already earned credit toward a graduate degree and could continue and expand on his URCA research project as a graduate student. Rentz is working toward a Master of Science in environmental sciences with a specialization in environmental chemistry and toxicology.

Rentz's research focuses on the characterization of a dichlorodiphenyltrichloroethane (DDT)-resistant fruit fly strain. Since there is little knowledge of the key mechanisms that give these pests the ability to resist and survive insecticides, his work compares the DDT-resistant strain to other fruit fly strains to find out if the resistant strain has any fitness disadvantage.

“I hope my research will help further the knowledge present in the field of toxicology by highlighting the relationship between insecticide resistance and fitness disadvantages in resistant insects,” said Rentz.

Rentz is analyzing various life history parameters of the fruit fly, including developmental time, adult longevity and fertility, and the impact of different nutritional conditions to assess if the resistant flies have a fitness disadvantage in comparison to the susceptible flies.

Rentz will additionally conduct bioassays, a test to understand the toxicity of a compound towards an organism, to determine whether the DDT-resistant flies have cross-resistance to other insecticides.

“We hope that Blake's research will help us to better understand insecticide resistance in the fruit fly and provide a foundation for future research,” said Kyong Sup Yoon, PhD, associate professor in the Department of Environmental Sciences “A better understanding of insecticide resistance helps to promote improved pest management strategies to ensure the efficient and effective control of pests.”

Rentz is in the project's beginning phases and aims to complete the study during the spring 2025 semester.



“This study will provide insights into the psychological effects of trafficking and sexual assault, leading to a better understanding of survivors’ experiences.”

Natasha Israt Kabir  
Sociology Graduate Student

## Survivors of Commercial Sex Trafficking: A Case Study of Bangladesh Intertwined with an Ethnographical and Netnographic Portrayal of Poverty

Natasha Israt Kabir, Sociology Graduate Student

Natasha Israt Kabir, sociology graduate student, intends to contribute to the current knowledge on trafficking in the commercial sex industry.

“Trafficking in the commercial sex industry threatens the lives of people all around the world, including Bangladeshi survivors who have been transported to India and the Middle East,” said Kabir. “I am looking at the resistance of Bangladeshi survivors of commercial sex trafficking, with a substantial shed of light on the backdrop of poverty in their victimization and how social media is playing a critical role.”

According to Kabir, existing research on this topic shows that poverty and other socioeconomic factors increase an individual’s susceptibility to trafficking. Furthermore, individuals who experience poverty, inadequate education and insufficient employment opportunities are more vulnerable to manipulation and trafficking through the avenue of social media.

Kabir’s methodology includes reviewing literature that covers human trafficking, the needs of victims of human trafficking, the services in place to help these victims and the aspects missing from these services. Narrative accounts of Bangladeshi survivors of commercial sex trafficking, as well as the NGOs and associations who support them after they return to their home country, will be collected. The following questions will be addressed:

- What are the socioeconomic elements that lead to Bangladeshi victims’ vulnerability to commercial sex trafficking and what is their ethnicity?
- How does poverty affect the process of trafficking and victimization of Bangladeshi survivors in India?
- What are the difficulties and obstacles that Bangladeshi survivors of the commercial sex industry confront and how do they deal with them?
- What coping methods and support systems can Bangladeshi survivors use to reconstruct their lives after fleeing human trafficking?

“My goal is to add substantial value for both researchers and relevant communities and movements in India and Bangladesh, while also contributing to global research on sexual abuse survivors, including gender and ethnographic inequalities,” Kabir said.

## Research and Creative Activities Emeriti Faculty Association Research Spotlight

Allison Funk, PhD

Emerita Distinguished Research Professor, English Language and Literature

In my most recent book of poems, *The Visible Woman*, I explore a subject I care deeply about—the often-endangered bodies of women. A poem that conveys this interest is “Murmurations,” in which I compare young women doing what we used to call “water ballet” to the beautiful shape-shifting aerial dance that starlings are known for. The birds find safety in numbers by sticking together. In the thousands they create mesmerizing, swirling forms that help them evade predators. I imagine something like that for women—finding strength in solidarity with one another.



### Murmurations

*Moving as one body,  
the way girls in matching suits  
and caps practice figures in a pool,  
holding hands, kicking in unison  
to create a flower or eight-pointed star,*

*flocks of starlings synchronize in the air,  
clouds of them morphing as they veer  
and dip and weave, wing-swimming,  
though not for sport. Rather  
to escape a threatening falcon or hawk.*

*Don't underestimate them as some do  
beautiful women.  
In seconds they can change direction.  
Swarm. Become a mass  
that renders a predator helpless.*

My current project is a volume of new and selected poems supported by a recent fellowship I was awarded from the John Simon Guggenheim Memorial Foundation. The first poems I wrote for this book were inspired by the Watershed Nature Center in Edwardsville, a place I love and spent a lot of time in during the height of Covid. I would visit this nature preserve and walk the paths there from season to season, noting the changes in plant and animal life. Much of the Watershed is made up of wetlands, which led me to think about marshes, bogs, and swamps—those liminal places that are not entirely earth or water. I associate them with the changeability of human lives. We are so often in-between, in transition from one phase of our lives to another. I explore grief especially: what life is like in the aftermath of a loved one’s death.

Since my retirement from teaching in 2017 I have had the time to travel and to conduct the research my poems sometimes demand. Last May I went to Ireland at the invitation of the Tyrone Guthrie Centre, a residence for writers and artists, where I explored boglands. I am no scholar, but I often undertake a creative writer’s kind of research that happens for me in nature, in museums, on the road, and in books. In the process I learn more about the world outside of the one I may imagine. Doing this, I find that “outside” and “inside” often meet, even merge to suggest a connection that becomes metaphorical. My poems start there.



## Selected Faculty Publications

### College of Arts and Sciences

**Garcia, Hernando.** "Giant Nonlinear Faraday Rotation in Iron Doped CdMnTe." *Optical Material Express*, vol. 14, no. 2, 2024, pp. 538-548.

**Ramon, Donovan L.** *Striking Features: Psychoanalysis and Racial Passing Narratives*. Mercer University Press, 2024.

**Smith, Margaret K.** "Creating Ethical and Sustainable Collaborations in Digital Recovery." *Legacy*, vol. 40, no. 1/2, 2023, pp. 215-222.

**Smith, Margaret K.** "Overlords, Underlords and Landlords: Negotiating Land and Lordship in Plantation Munster." *Irish Historical Studies*, vol. 47, no. 171, 2023, pp. 38-58.

### School of Education, Health and Human Behavior

Stea, Jonathan & **Hupp, Stephen.** *Investigating Clinical Psychology: Pseudoscience, Fringe Science, and Controversies*. Routledge Press, 2023.

**Slater, Graham.** *Horizons of the Future: Science Fiction, Utopian Imagination, and the Politics of Education*. Routledge, 2024.

**Swartz, R. A. & Thigpen, L. B.** "Preparing for Partnership: Using Dilemmas to Help Teacher Candidates Apply Anti-Bias Praxis to Problem Solving." *Journal of Early Childhood Teacher Education*, vol. 45, no. 1, 2024, pp. 137-154.

**Liu, Yuliang.** "Exigent Issues in Educational Research," in *Education Dialogue: Research Reports from Africa*, edited by M. Fabunmi, T. O. Ajadi, F.T. Veronica, V.F.T Babajide, and M. Baokye-Yiadom, EDUDIA and IEPA, 2023, pp. 3-15.

## Emeritus Faculty Publications

### School of Nursing

**Boyd, M.A.** & Luebbert, L. (Eds). (2023). *Essentials in Psychiatric Nursing, 3rd edition*. Wolters Kluwer.

### College of Arts and Sciences

**Frisbie, Charlotte.** "Victoria Lindsay Levine." Encomium, Honorary Membership in SEM, presented at 2023 Annual Meeting. SEM Newsletter 58(1): 6-7. Winter. Illustrated article. 2024.

**Ho, Chungwu,** He, Tian-Xiao, Shiue, Peter J-S, Professor Emeritus, "Representations of positive integers assumes of arithmetic progressions, I & II," *Notes on Number Theory and Discrete Mathematics*, vol. 29, no. 2, 2023, pp. 241-259 and pp. 260-275.

**Johnson, Charlotte.** May 1 – 31. "Who Knows What Evil Lurks in the Hearts of Men (and Women)," The St. Louis Central Express Public Library, St. Louis, MO, *Comic Censorship Exhibit* (co-created with William Harroff).

**Urszula Ledzewicz** and Heinz Schaettler, "Optimal dosage protocols for mathematical models of synergy of chemo- and immunotherapy, *Frontiers in Immunology*," vol. 14, no. 1303814, 2024.

**Schaefer, Ronald P.** & Francis O. Egbokhare. "Tone, viewpoint aspect, and imperative mood. Proceedings of the Linguistic Society of America." *PLSA*, vol. 9, no. 1, 2024, p.5657.

**Simons, Margaret A.** "Beauvoir and #MeToo." In Simone de Beauvoir, *Diary of a Philosophy Student, Volume 3, 1926-30*. Edited by Barbara Klaw, Sylvie Le Bon de Beauvoir, and Margaret A. Simons with Marybeth Timmermann. University of Illinois Press, 2024; pp. 15-34.

**Taylor, John.** "Was Arnold Hauser Right that Economics Decisively Determines the Creation of Fine Art?" *Economics vs art: Almanac of the Center for Economic Culture*. Moscow. Gaidar Institute, 2024, pp. 177-181.

### Graduate Studies and Research

**Hansen, Stephen** and Kim Moreland. *The Soft Stuff is the Hard Stuff: The Challenge of Management and Leadership*. Washington DC: The National Council of University Research Administrators, 2024.

### School of Engineering

**Gu, Keqin** and Huan Phan-Van, External Direct Sum Invariant Subspace and Decomposition of Coupled Differential-Difference Equations, *IEEE Transactions on Automatic Control*, vol. 69, no. 2, 2024, pp. 1022-1028.

## Outstanding Student Awards



### Outstanding Thesis

Recognizes a master's student's theses that has been identified as outstanding among all those completed in the previous academic year.

- Alexandria Wilson, MS Biological Sciences "The Role of Stat 92E Signaling in Response to Repeated Alcohol Exposures in *Drosophila Melanogaster*"



### Outstanding Teaching Assistant Awards

Recognize and reward graduate students at the master's and doctoral level for outstanding performance in teaching and instruction.

- Navid Ahmed Sadman, MS Chemistry
- Marissa Schuette, Doctoral Candidate Family Nurse Practitioner

## Driving Change Through Research



### Vaughnie Lindsay New Investigator Award

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

- Susan Kooiman, PhD, Department of Anthropology, College of Arts and Sciences



### Distinguished Research Professor

This rank recognizes faculty members who have made an outstanding contribution to research or creative activities as a result of their continued commitment to scholarship beyond the period of promotion to professor.

- Jason Stacy, PhD, Department of History, College of Arts and Sciences



### 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 successfully integrated those contributions into their teaching and mentoring practices.

- Catherine Santanello, PhD, Pharmaceutical Sciences, School of Pharmacy



### 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.

- Debanjana Ghosh, PhD, Department of Chemistry, College of Arts and Sciences



## Faculty Scholarship and Creative Activities Awards

### School of Education, Health and Human Behavior

- Abbey Hepner, MFA, winner of the Juror’s Award for artistic work “The House is Just a Metaphor” in A Smith Gallery exhibit. Awarded work will be included in a limited-edition book titled “Interiors.”

### School of Nursing

- Annie Imboden, DNP, APN, CPNP, Bernadette Sobczak, DNP, and Valerie Griffin, DNP, winners of a 2023 APEX Award for Publication Excellence in Health and Medical Writing, awarded for the co-authored article “The Impact of the COVID-19 Pandemic on Infant and Toddler Development.”

### School of Pharmacy

- Chris Herndon, PharmD, Kshelle Lockman, Maria Lowry, Sandra Discala, Amanda Lovell, Tanya Uritsky, Menjamin Kematick, Michelle Schmidt, Andrea Wetshtein, Bridget Scullion, and Rabia Atayee, winners of the Renee Holder Literature Award for the co-authored article “Development of EPAs for Specialist Hospice and Palliative Care Pharmacists.”

## Research Spotlight and News



### Advancing Campus Pluralism in Higher Education

An Interfaith America Advancing Campus Pluralism Grant is supporting SIUE’s continued efforts to enhance pluralism and cooperation across deep differences on campus. To align with its request for proposals, Interfaith America sought campus partners “who recognize that American colleges and universities have a unique role and responsibility to help our communities and our nation explore and learn how to bridge divides while maintaining a common life together.”

During the one-year grant period, Jessica Harris, PhD, Vice Chancellor for Anti-racism, Diversity, Equity, and Inclusion; J.T. Snipes, PhD, associate professor and chair in the Department of Educational Leadership; Matthew Schunke, PhD, professor of philosophy; Lindy Wagner, Assistant Vice Chancellor for Inclusive Excellence, Education and Development; and two students, Stella Smith and Nicholas Young, will develop a curricular and co-curricular general education pathway for students, focused on pluralism.



## By the Numbers

Sponsored Projects FY24

**153 awards for \$32.9 million**

**238 proposals for \$119.7 million**

*Details can be found in the Office of Research and Projects Annual Report.*  
[siue.edu/graduate/about](http://siue.edu/graduate/about)

## Research Spotlight and News Continued



### NCERC Scientist Recognized for Groundbreaking Research

Jie Dong, PhD, associate professor in the Department of Chemistry, and fermentation scientist at the National Corn-to-Ethanol Research Center (NERC) at SIUE, is among the “2024 Researchers to Know,” according to the Illinois Science & Technology Coalition. The annual list highlights the groundbreaking research being done on Illinois’ campuses and provides a detailed look at some of the researchers that are driving innovation in the state.

Dong works on multiple projects with private companies to promote bioprocess and biomanufacturer research at SIUE. Since 2021, he has received more than \$1.2 million in federal grants and has helped secure research contracts from the industry. He has established ongoing collaborations with multiple universities and national labs.



### Theater Faculty Starred on St. Louis Stage

Geovonday Jones, assistant professor of performance in the Department of Theater and Dance, starred in The Black Rep’s theatre production of August Wilson’s “King Hedley II” at The Edison Theatre in St. Louis. This play is the ninth installment in playwright Wilson’s renowned American Century Cycle of 10 plays about the Black Experience. Prior to this role, Jones directed the play “Wedding Band.”

The Black Rep, a 46-year-old legacy Black arts organization, is committed to producing, re-imagining and commissioning work written by Black playwrights and creating opportunities for new voices and youth.



### Faculty Research Impacted Pain Relief Industry

School of Dental Medicine (SIU SDM) faculty member and alumnus participated in the development of a new over the counter treatment for cold sores, minor cuts, minor burns and insect bites. Alan Wickenhauser, DMD, assistant professor in the Department of Clinical Dentistry and SIU SDM class of ‘98, is a member of the team responsible for a new product in the cold sore industry, Helocaine®.

“Helocaine® is built on years of research and collaboration amongst several excellent scientists and medical professionals. These efforts have shaped the development and launch of a transformative product,” said Wickenhauser.



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