

# Research & Creative Activities

Fall 2018



SOUTHERN ILLINOIS UNIVERSITY  
**EDWARDSVILLE**  
GRADUATE SCHOOL



Supporting Victims,  
Educating the  
University Community  
(on the cover)

With a \$300,000 Department of Justice Violence Against Women Act grant, SIUE is expanding its efforts to ensure students, faculty and staff have a safe space to learn about, discuss and report incidents of gender-based violence. Read more on page 13.

Scholarship and Research  
Endowment

The SIUE Graduate School provides educational opportunities to nearly 2,500 students annually. The Graduate School is currently able to provide a few of these students with scholarship funding to succeed. Scholarships and research support allow students to pursue their educational interests based upon passion and excitement, and not debt concerns. It allows students the ability to focus on their studies rather than their bank statements and provides opportunities for students of exceptional acumen with limited means the opportunity to make a difference in life. As a commitment to our students’ pursuit of excellence, the SIUE Graduate School has launched a High-Impact Campaign to raise a minimum of \$100,000 to create a Scholarship and Research Endowment.

The Scholarship and Research Endowment creates a permanent and lasting source of support for our graduate students. It will provide a commitment to attract and retain the finest graduate students. Funding will be provided to outstanding students from across the University annually and will reward them for their academic excellence.

Give today: [siue.edu/give](http://siue.edu/give)

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Dean’s Message

Graduate Students are at the Heart of the  
University’s Mission and in the Foresight of its Vision

As Dean of the Graduate School, I serve as a leader and advocate for graduate studies. In shaping my advocacy, I often ponder the path, thus far, of my own faculty career. I have had the great pleasure of working with talented graduate students. I’ve worked with teaching assistants who have helped me hone my curricular materials, assisted with classroom demos, implemented lab assignments and helped undergraduate students learn course concepts. I’ve worked with research assistants across a variety of programs whose efforts ensured my external grants were successful. And I’ve chaired theses committees and mentored graduate students whose creativity has resulted in book chapters, journal articles and conference papers. The success I have enjoyed as a teacher-scholar going from assistant professor to tenured associate professor to full professor greatly relies on the adept graduate students who worked with me.



As a faculty member, I used to consider myself fortunate to have attracted some of the best graduate students. I would talk about their accomplishments much like the proud parent who touts how advanced their toddler is each time they do something new. However, as graduate dean, I have come to realize after having met many faculty colleagues, heard the presentations of our award-winning teacher-scholars and recommended the conferral of our distinguished research professors, that it is the University’s nature of being a teacher-scholar institution that attracts these talented graduate students across all graduate programs. And, in turn, **it is these graduate students’ talents and efforts that allow us to meet our mission of communicating, expanding and integrating our knowledge through scholarship and undergraduate education.**

Their work is evident in every article in this issue of Research and Creative Activities. **Each story has at its core the work of a graduate student.** Some directly, such as the graduate internship programs in art therapy counseling, college student personnel administration, and marketing research, that benefit community organizations and businesses while providing an invaluable educational experience, as well as the projects of the awardees of Research Grants for Graduate Students and Research Grants for Research Doctoral Students. Some indirectly, such as the Research Experience for Undergraduates in anthropology sponsored by the National Science Foundation, the research to determine risk of heart disease through an innovative approach to measuring epicardial adipose tissue sponsored by the American Heart Association, and the Survivor Support Initiative sponsored by the Department of Justice through the Violence Against Women Act. **Our graduate students and graduate studies are the heart of our mission and the foresight of our vision.**

Jerry B. Weinberg

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





# Research Spotlights and News

## High-Impact Community Engagement

### America Reads

SIUE students involved in the Project Advance - America Reads program are gaining invaluable professional skills and developing as engaged, thoughtful citizens. Since 1997, SIUE has been coordinating tutoring opportunities for its students at locations spread throughout Madison and St. Clair counties. The federal grant provides approximately \$23,000 in annual funding to support more than 50 SIUE students, who upon completing 300 service hours, earn an AmeriCorps education stipend. SIUE students are making an impact—reading, assisting with homework and playing educational games—at approximately 15 sites in the region.

### Homework Hotline

Fielding nearly 1,600 telephone calls since 2014, SIUE students provide mathematics tutoring for regional students in grades 5-8. In the 2017-2018 school year, face-to-face tutoring for students at the SIUE East St. Louis Center was added. The student tutors are pursuing education, engineering and business majors. Funding is provided by the Illinois Society of Professional Engineers and SIUE, including its Federal Work Study Program.

### Free Hearing Screenings

SIUE graduate students, under the supervision of a licensed speech-language pathologist or audiologist, conducted hearing screenings at the Edwardsville Public Library in April 2018. Those who passed the hearing screening were given earplugs and information on hearing protection. Others left with a list of local resources they could contact for further testing and care. The free community offerings were made possible by a \$2,500 grant from the Edwardsville Community Foundation. The funding allowed the School of Education, Health and Human Behavior’s Speech-Language-Hearing Center to purchase new, updated digital audiometers.

## Externally Sponsored Projects

### Teaching Teachers in Virtual Environment

SIUE is the first in the nation to implement early childhood scenarios in a virtual learning environment with the goal of increasing early childhood workforce capacity by providing teacher practice in classroom management, pedagogy and content. A \$50,000 grant from the McCormick Foundation is supporting the pilot implementation and research of the scenario under the direction of Anni Reinking, EdD, assistant professor in the School of Education, Health and Human Behavior’s Department of Teaching and Learning. The project is in partnership with Illinois Action for Children.

### Supporting Future STEM Educators

Thirteen aspiring math and science educators are 2018 Noyce Scholars at SIUE. The undergraduates are participating in the program’s enhanced curriculum and engaging in professional learning communities. The SIUE Robert Noyce Scholarship Program was created with two grants totaling \$2.2 million from the National Science Foundation. Scholars receive \$11,500 for educational expenses annually for up to two years along with additional support through, for example, mentoring by expert teachers and travel to professional conferences. The program is a partnership of the SIUE College of Arts and Sciences; the SIUE School of Education, Health and Human Behavior; and the SIUE STEM Center, along with master teachers, community-based organizations and cooperating school districts.

### Helping Veterans Succeed

Working in partnership with the SIUE Office of Veterans Services, the new SIUE East St. Louis Center Veterans Upward Bound program will serve 125 adults in St. Clair, Madison and Monroe counties in Illinois; St. Louis City; and St. Louis and St. Charles counties in Missouri. First-generation or low-income students who are also veterans will benefit from intensive supportive services around college preparation, career and college exploration, financial-aid planning, and the application and enrollment process. Funding for the program is through the U.S. Department of Education.

## Faculty Excellence Recognition

### 2017 Outstanding Immigrant Health Professional Huaibo Xin, DrPH Program Director and Associate Professor of Public Health School of Education, Health and Human Behavior

Presented by the non-profit organization Health for All, the annual award recognizes the contributions of foreign-born individuals who have worked in the health field and served people of the U.S. through service, teaching or research in a given year.

### 2017 Olav Alvares Award for Early Career Scholars Rick Biethman, DMD Assistant Professor, Department of Restorative Dentistry School of Dental Medicine

Biethman’s article, “Screening for Diabetes in a Dental School Clinic to Assess Interprofessional Communication Between Physicians and Dental Students,” was selected by *Journal of Dental Education* editors as an example of outstanding research by a junior scholar.

### 2018 Collaborative Research Fellow Jeffrey Manuel, PhD Associate Professor of Historical Studies College of Arts and Sciences

Sponsored by the American Council of Learned Societies, the program supports small teams of scholars as they research and co-author a major scholarly publication. Manual is working with Thomas Rogers, PhD, associate professor of modern Latin American history at Emory University, on a project entitled “Agriculture’s Energy: Learning from the History of Biofuels in Brazil and the U.S.”

### 2018 American Dental Education Association Education Fellowship Anita Joy, DMD Associate Professor and Chair, Department of Growth, Development and Structure School of Dental Medicine

The ADEA and ADEAGies Foundation annually provide the opportunity for a dental educator to become familiar with a broad range of timely issues facing dental education. Joy received a stipend valued at \$15,000 to pursue a cumulative 2-3-month fellowship at the ADEA office in Washington, D.C.

### Prestigious Fulbright Specialist Roster Mark Hildebrandt, PhD Associate Professor of Geography College of Arts and Sciences

The Fulbright Specialist Program of the U.S. Department of State’s Bureau of Educational and Cultural Affairs and the Institute of International Education’s Council for International Exchange of Scholars sends faculty and professionals from the U.S. to businesses and academic institutions in more than 140 countries around the world. Hildebrandt will remain on the roster as an expert on air quality and global climate change until February 2021.



# Beyond the Classroom: Graduate Student Internship Experiences

*“For the things we have to learn before we can do them, we learn by doing them.”* Aristotle

SIUE graduate students enhance their learning experiences by participating in innovative and meaningful research and creative activities, as well as practicum placements and internships. The art therapy counseling, college student personnel administration and marketing research programs are widely known for their robust experiential learning offerings.

## Art Therapy Counseling

Approved by the American Art Therapy Association, SIUE’s art therapy counseling graduate program combines classroom instruction, research and practicum experience.

All first-year students begin fieldwork in Head Start/Early Head Start facilities. During their second and third years in the program, each student’s experience becomes more individualized, with the student choosing from a rich array of more than 100 urban, suburban and rural practicum sites with a wide range of client populations.

In her third year of study, Kalen Smith worked as an art therapy intern at Community Link, a day center for adults with developmental disabilities. Smith managed a case load of 24 clients, with whom she worked on a bi-weekly or weekly basis. Working in small groups or one-on-one, the clients created artwork of their choice, while Smith targeted specific goals such as increasing independence, making choices and expressing feelings.

“One of the biggest takeaways from working at Community Link is the power of self-advocacy,” Smith said. “I studied and wrote about self-advocacy using art with adults with developmental disabilities for my thesis. The hands-on experience with my clients was inspiring and reassured me that everyone can advocate, no matter their ability.”

According to Smith, working at Community Link made her classroom learning real. “You can talk about therapy all day, but until you start building relationships with people and dig into the work, you really don’t understand,” she said. “I had the privilege of working with some amazing people. I truly have a passion for the disability community.”



## College Student Personnel Administration

*Never take what students do personally.  
You were a student once, too.  
Meet the students where they are and help them take responsibility for their growth.  
Never work for a title; always work for a purpose. A purpose is more rewarding.*

These are lessons Kabree Braggs is learning during her practicum experience at Fontbonne University in St. Louis. Practicum experiences for college student personnel administration (CSPA) students are available in more than 65 offices, programs, and functional areas on the SIUE campus along with other institutions within the St. Louis Metropolitan Area. The SIUE CSPA program is one of the few programs in the region to offer placements at professional colleges, community colleges, and historically black colleges and universities (HBCUs).

“Professional field experiences connect our students with a field instructor who facilitates their professional development,” said Pietro Sasso, PhD, assistant professor and graduate program director, CSPA, Department of Educational Leadership. “Students immerse themselves in experiential learning in at least two areas of higher education. The experiences provided to students prepare them as emerging professionals in student affairs and higher education administration positions.”

Working in both the Office of Service, Diversity and Social Justice and the Office of Residential Life at Fontbonne University, Braggs wears multiple hats. In the Office of Residential Life, she creates professional development programs for resident assistants and responds to emergency calls in the residence halls.

Her responsibilities in the Office of Service, Diversity and Social Justice include serving as staff advisor for the Black Student Union and Griffins Achieving Progress, a mentoring program for students of color who are often first-generation students.

“We develop and implement programming which gives students a safe space to explore their college experience while also bringing cultural awareness to a predominately white institution,” Braggs said. “This experience has taught me how to be a disciplined student affairs professional. Most importantly, I am learning how to meet the goals of the institution while meeting the needs of each student.”

## Marketing Research

Master of marketing research (MMR) students gain real-world experience through a corporate-sponsored internship program. Several leading research agencies and corporations sponsor and support the MMR program and its related internships. Combined with the rigorous curriculum, these internships position SIUE MMR graduates as field-tested marketing research professionals, ready to make an immediate impact on the companies who are fortunate enough to recruit them.

Frank Scaduto earned a master of marketing research in May 2018. Before enrolling in graduate school, Scaduto spent 10 years working in financial services. “As a working professional who was changing careers, I understood the importance of direct work experience over the master’s degree by itself,” he said.

As a student, he interned at Nestle Purina PetCare Company in a consumer research and market insights role. He performed shopper research on Purina brands, competitors’ brands, Purina’s key retail partners, and different retail channels to understand shopper behavior and trends.

“I was treated as a valuable member of the team and was able to collaborate on and take responsibility for important projects.”

After graduating, Scaduto accepted a position as associate category manager in the Pet, Home and Garden division of Spectrum Brands in St. Louis.



# Exploring Evidence of the Anthropocene

**A \$287,690 National Science Foundation Research Experiences for Undergraduates three-year grant has turned SIUE into a summertime hub for an innovative, interdisciplinary archaeological and ecological research project that aims to document deep-time anthropogenic impacts in the Upper Mississippi River System.**

The project, “Exploring Evidence of the Anthropocene: Archaeological and Ecological Interdisciplinary Research Experiences for First-Generation Students in the Upper Mississippi River System,” is led by principal investigator (PI) Carol Colaninno, PhD, assistant research professor in the SIUE STEM Center, and co-PI John Chick, PhD, director of the Great Rivers Field Station of the Illinois Natural History Survey, University of Illinois. Each summer, Colaninno and Chick mentor 10 undergraduate students as they participate in an immersive, eight-week research experience that guides students through the scientific process. These students conduct their research on the SIUE campus and nearby Mississippi and Illinois rivers.

**Humanity’s impact on the Earth is now so profound that a new geological epoch—the Anthropocene—has been proposed by experts.**

In addition to learning archaeological and ecological field methods, including excavations and fish monitoring techniques, students learn lab-based data collection methods and then analyze those data in conjunction with published archaeological and ecological datasets. They also learn methods used by researchers in both archaeology and ecology that allow scholars to more fully understand how fish community structures may have changed over millennia.

“Many undergraduate students are not afforded the opportunity to participate in the entirety of the scientific process from the formation of a research question to developing methods and collecting data and then analyzing and presenting their results. This program allows them to explore the scientific process and experience it for themselves,” Colaninno said. “By the end of the program, they have a much better understanding of the challenges and rewards that come along with scientific research and the ways scholars advance knowledge.”

Under this research program, these undergraduate students have found that, despite years of Native Americans fishing in the waters of the Mississippi and Illinois rivers, the zooarchaeological record shows that Native American people maintained similar fishing practices for millennia. The fish communities of the past, however, were very dissimilar to those found in today’s rivers. Colaninno and Chick, along with their students, continue to explore the reason for these differences.

“By incorporating their results, we hope to identify patterns within our data that provide evidence of millennial scale interactions between humans and fishes in the Upper Mississippi River System to more fully understand those factors that may have led us to the Anthropocene,” Colaninno said.

# The Educational Value of EarthCaching



**Future elementary teachers often express a lack of confidence in teaching science, and according to Sharon Locke, PhD, director of the SIUE STEM Center, learning science in the field is not always part of elementary teacher preparation programs.**

Knowing this, the SIUE STEM Center conducted an exploratory study to learn more about EarthCaching, an engaging activity that uses GPS navigation to offer real-time science learning. Millions of people are engaging in this worldwide treasure hunt of sorts to explore the world’s unique geological features.

Initially funded by the SIUE Graduate School, a pilot project found, among others things, that EarthCachers are motivated by the opportunity to see rare features and explore something that is new to them, such as searching for fossils. The information gleaned from this initial study inspired Locke to determine whether EarthCaching is an effective way to engage future elementary teachers with geoscience content.

Locke and a team of researchers are studying the educational value of EarthCaching as science curriculum through a \$299,546 award from the National Science Foundation’s Improving Undergraduate STEM Education program.

The research project entitled “Earthcaching for Pre-service Teachers: Examining Attitudes and Intentions toward Informal Science Learning” is led by Locke. Co-PIs are Georgia Bracey, PhD, research assistant professor with the SIUE STEM Center; Tom Foster, PhD, professor of physics; and Shunfu Hu, PhD, professor of geography.

“We believe EarthCaching offers a chance for future elementary teachers to learn about the Earth, including unusual rock formations and the processes that shape the Earth, such as rivers and glaciers,” Locke said. “It’s a form of authentic, lifelong learning in the geosciences because participants are interacting with Earth features in real time, in the field.”

Over four semesters, elementary education majors taking their science content course at SIUE have had the opportunity to try out EarthCaching on or near the SIUE campus. One EarthCache takes students to a view of a nearby landfill, while another has them looking closely at the different features of soils on campus. Virtual EarthCaches use satellite images and high-resolution photos to create virtual visits to a Missouri state park to learn about minerals and rocks and to the Alaskan coast to learn about glaciers.

Student feedback has been positive. Suggestions for improvements have led to better navigation instructions and more information about how to prepare before going into the field.

“If our current study shows that EarthCaches have a positive impact on learning, we hope other universities decide to integrate EarthCaching into courses for future teachers,” Locke said. “We are also interested in knowing if teacher candidates develop an interest in using EarthCaching or other out-of-classroom activities with their own students in the future.”





# From Passive Telerobotic Platforms to Interactive, Tangible Human Robot Interfaces



**“I have been part robot since May. Instead of legs, I move on gyroscopically stabilized wheels. Instead of a face, I have an iPad screen. ... I am a remote worker.”**

This excerpt from *WIRED Magazine*, September 2015, brings to light one of the most challenging facets for humans using telepresence robots to date—the social experience, or lack thereof. The article describes the frustration associated with the inability to socialize with coworkers. Specifically, not having arms and hands for interacting with colleagues through handshakes or gestures, and inappropriate “robot touching” (e.g. colleagues picking up the platform and moving it without warning).

“While telepresence robots are enabling new heights of remote communication, challenges still exist for both local users and remote users in creating the social dynamic of connectedness,” said Jerry Weinberg, PhD, associate provost for research and dean of the SIUE Graduate School.

**Remote user:** The individual controlling the telepresence platform remotely  
**Local user:** Those in contact with the telepresence platform

“The ability to talk with our hands, something humans do so eloquently in conversation, enables us to connect and relate on a deeper level,” Weinberg said. “This intuitive, nonverbal communication is currently absent in the telepresence experience.”

With funding from a three-year National Science Foundation (NSF) Cyber Human Systems grant and a recent NSF Research Experiences for Undergraduates grant, Weinberg is collaborating with colleagues to bring the tangible and social experiences that connect individuals in conversations to mobile telepresence platforms.

Weinberg, a professor of computer science, is working with SIUE alumna Jenna Gorlewicz, PhD, assistant professor of mechanical engineering at Saint Louis University; Mitsuru Shimizu, PhD, assistant professor of psychology at SIUE; and students from both universities.

An expert in human-machine interfaces, Gorlewicz and her students have designed a lightweight, ergonomic arm that can interact in typical social ways, specifically extending for a handshake, gesturing with hands and pointing. Using an Xbox Connect, Weinberg and his

students have created software which enables the remote user to talk with their hands.

“We don’t want to add an additional technology barrier.” Weinberg said. “The Xbox Connect will pick up the natural movements of the remote user and, using a complex algorithm, translate them to the movement of the robot arm.”

Once the technology has been perfected, Shimizu will begin user studies to test the level of social connectedness. Testing will include human subjects interacting with the robot to determine how well the local user socially connected to the remote user through the enhanced robot interactions. Testing the reverse, where the human subjects control the robot, will determine how connected the remote user feels to the local user while using this technology.

“Our hope is that the social connection is both ways,” Weinberg said. “We hope our research will open up pathways for new levels of remote social experiences and enriched human-robot interaction among individuals in numerous settings across the world.”

# Igniting a Passion for Mathematics

**SIUE College of Arts and Sciences Dean Greg Budzban, PhD, believes that engagement, motivation and persistence are key factors in helping students develop a love of learning and excitement for mathematics. “Gamifying mathematics and creating interactive learning opportunities achieves this,” he said.**

Through a 2017 grant from the Mathematical Association of America’s Tensor-SUMMA Program and contributions from the John Simmons Family Foundation, Budzban spearheaded the Alton Math Games League in cooperation with the Alton School District in Alton, Ill. The league emerged from a collaboration of local school districts and universities with two national nonprofit organizations: The Algebra Project and The Young People’s Project. Funding continued in 2018 through the MAA Tensor-SUMMA Program, and additional funding was received from the Mannie Jackson Center for the Humanities in Edwardsville.

The League is comprised of approximately 40 fifth-grade students, who have either a lower level of math proficiency or indicated they were uninterested in math. Alton high school students are coaches, and SIUE graduate students are the “athletic directors” of the league.

“Fifth-grade students see high school students as leaders to emulate. The same relationship exists between high school students and college students,” Budzban said. “Called near-peer mentoring, this structure is critical to the success of the Alton Math Games League.”

The young group has achieved phenomenal success, including being named national champions at the 2017 National Math Festival held in Washington, D.C., and the 2018 competition, which was sponsored by the College of Arts and Sciences and held on the SIUE campus. The event will return to the nation’s capital in 2019, and the Alton Math Games League plans to attend.

According to Budzban, pre-test and post-test scores of participating students have shown tremendous growth in math abilities over the course of the programming.

“Mathematics achievement is such an indicator of eventual academic success,” said Budzban, who holds a doctorate in mathematics from the University of South Florida. “I strongly believe we can change students’ life trajectory by engaging them in mathematics early, in a fun and interactive way.”



**SIUE College of Arts and Sciences Dean Greg Budzban, PhD, serves as Co-PI on two additional mathematics-based NSF grants.**

- **National Science Foundation Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES) Grant: \$299,276**  
“Expanding STEM to INCLUDE the Bottom Quartile of the Nation’s K-12 Graders Through the Teaching and Learning of Mathematics”  
The team hosted a national conference in St. Louis to discuss building a national alliance dedicated to increasing the number of successful underserved minority students in STEM careers.
- **National Science Foundation Division of Research on Learning (DRL) Grant: \$1,652,550**  
“Development and Empirical Recovery for a Learning Progression-Based Assessment of the Function Concept”  
The team is working with Educational Testing Service (ETS) to design assessments based on learning progressions. Curriculum developed by Budzban is included as the basis for part of the work.



# SIUE Serves as National Center of Excellence in Pain Education

According to a recent analysis by the National Institutes of Health (NIH), an estimated 100 million Americans suffer from chronic pain. In addition to physical suffering, chronic pain is annually costing up to \$635 billion in medical treatment and lost productivity.

The NIH reports that, although most health professionals treat patients who are suffering with pain, many have not been well trained in pain treatment. The NIH Pain Consortium responded to these challenges in 2011 by selecting 11 health professional schools as Centers for Excellence in Pain Education (CoEPE).

One of the original CoEPEs selected, SIUE has received \$477,500 in funding to date through this contract. SIUE’s CoEPE acts as a hub for the development, evaluation and distribution of pain management curriculum resources for medical, dental, nursing, physical therapy and pharmacy schools in an effort to enhance how health care professionals are taught about pain and its treatment.

“As advanced as our healthcare system has become, we are still failing miserably at handling perhaps the biggest issue facing public health,” said Chris Herndon, PharmD, professor of pharmacy practice in the School of Pharmacy and SIUE’s CoEPE principal investigator. “Chronic pain is more prevalent than diabetes or heart disease, yet we have little long-term data as to how to treat patients safely. These patients and their providers frequently must weigh the potential benefits of opioid analgesics against a growing understanding of their associated risks, including addiction.”

Researchers at SIUE have several pain-related interests, including musculoskeletal, neuropathic, arthritic and headache pain, as well as rehabilitation from these disorders. Additionally, SIUE professors have adjusted their curricula to include:

- the pathophysiology and pharmacology of pain and its treatment
- the latest research in complementary and integrative pain management
- factors that contribute to both under- and over-prescribing of pain medications
- how pain manifests itself differently by gender and in children, older adults and diverse populations.

SIUE’s CoEPE multi-disciplinary collaboration is unique among the CoEPEs. SIUE team members include:

- Chris Herndon, PharmD, professor of pharmacy practice, School of Pharmacy, teaches a pain and palliative care course for pharmacy students and sees chronic pain patients at a family medicine clinic in Belleville, Ill.
- McKenzie Ferguson, PharmD, associate professor of pharmacy practice, School of Pharmacy, teaches a pain and palliative care course for pharmacy students and compares treatment modalities for the Cochrane Collaborative, the world authority on evidence-based medicine.
- Becky Luebbert, PhD, associate professor of nursing, School of Nursing, teaches about and researches the protection of vulnerable and at-risk groups and the care of those with medical issues who are at risk for psychiatric comorbidities.
- Kevin Rowland, PhD, associate professor of applied dental medicine, School of Dental Medicine, teaches the physiology of pain production to first-year dental students and studies the mechanisms underlying the generation of chronic orofacial pain.



# Outstanding Thesis Award

**Mariel Schroeder, MA Teaching English as a Second Language '17, is the recipient of the SIUE 2017 Outstanding Thesis Award. Schroeder’s research, “Investigating the Learnability of a Rogue Grammar: Null Subject Parameter Resetting in Second Language Acquisition,” assessed whether or not people learning a second language have access to universal human abilities that helped them learn their first language.**

“Language is something we use every day, and it’s unique to humans, but we don’t know how humans come to learn it or even how language itself originated,” Schroeder said.

In a feat of linguistic innovation, Schroeder created and taught learners four distinct artificial languages. The artificial languages contained patterns found within natural languages, as well as patterns not found within natural languages, or rogue grammars. The learners were taught the artificial languages through web-based, covert instruction. Covert instruction is a language instruction technique in which grammatical rules are not explicitly explained. The learners completed vocabulary and conjugation tests, a grammaticality judgment task and a co-reference judgment task.

Schroeder found preliminary evidence to support her initial hypothesis that a rogue grammar is harder to learn than a naturalistic grammar constrained by Universal Grammar, the theoretical construct that some linguists believe makes first language acquisition possible. With this finding, she concluded that second language acquisition may take longer when learners have to reset to a new parameter that is different from their native language. For example, native Spanish speakers have to learn that the subject of a sentence must always be explicitly stated in English, which is not the case in Spanish.

Schroeder’s research also indicated that the learnability of certain parts of a language may influence the learnability of other parts. Overall, she discovered that the existence of implicational universals that are constrained by Universal Grammar may eliminate what needs to be taught if there is access to Universal Grammar in second language acquisition. In other words, once a person learns quality A of a second language (e.g., a certain verb structure), quality B (e.g., whether or not the subject of a sentence must be explicitly stated) is implied and understood, even if it is only on a subconscious level.

“Mariel completed the most ambitious thesis project I have seen in my 20 years at SIUE,” said Joel Hardman, PhD, chair and professor in the Department of English Language and Literature, and Schroeder’s thesis advisor.

“I was most impressed by her ability to master a variety of literatures connected to her topic,” Hardman said. “Her research method was complex and labor-intensive, yet she accomplished in two semesters what would normally take two or more years.”

Schroeder is in the process of revising her work into a manuscript for publication and is planning a follow-up experiment to determine whether or not verb conjugations used in her artificial languages affected their learnability.



**The Outstanding Thesis Award recognizes and rewards a graduate student whose thesis has been selected by the Graduate Student Award Committee as outstanding among all those nominated during the previous academic year. The winner receives a monetary award, and their thesis is forwarded by the University to the Midwestern Association for Graduate Schools Distinguished Master’s Thesis Award competition.**



# Researchers Developing Innovative System to Analyze Cardiac Risk

Heart disease is the leading cause of death in the U.S., and researchers at SIUE are developing a new system to identify risk of cardiac events. The American Heart Association granted SIUE \$154,000 in support of the research, which is being led by Jon Klingensmith, PhD, assistant professor in the School of Engineering’s Department of Electrical and Computer Engineering. Klingensmith’s primary background is in ultrasound signal processing and coronary imaging.

Closely collaborating on the project is Maria Fernandez del Valle, PhD, an expert on obesity and the use of intervention to affect the deposits of fat around internal organs. Fernandez del Valle is an assistant professor of exercise science in the School of Education, Health and Human Behavior’s Department of Applied Health. Also contributing to the research with his 3D modeling expertise is H. Felix Lee, PhD, professor of industrial engineering in the School of Engineering.

The team is developing a cost-effective system that could be widely deployed for accurate volumetric measurement of epicardial adipose tissue (EAT). EAT, the layer of fat surrounding the heart that is in direct contact with the coronary arteries, can have a significant impact on the development and progression of coronary artery disease. Reducing the volume of EAT can improve a patient’s cardiovascular risk profile.

The team proposes a powerful, innovative system for analysis. Three-dimensional modeling will be used on previously acquired magnetic resonance imaging (MRI) data. The EAT will be identified with ultrasound and then merged with the 3D model to create a volume measurement.

“While MRI has been the primary tool for precise body fat measurement, an ultrasound-based system would be more accessible, safer, real-time and less expensive,” Klingensmith said. “This could make measurement of cardiac fat a standard diagnostic test for risk of heart attack.”

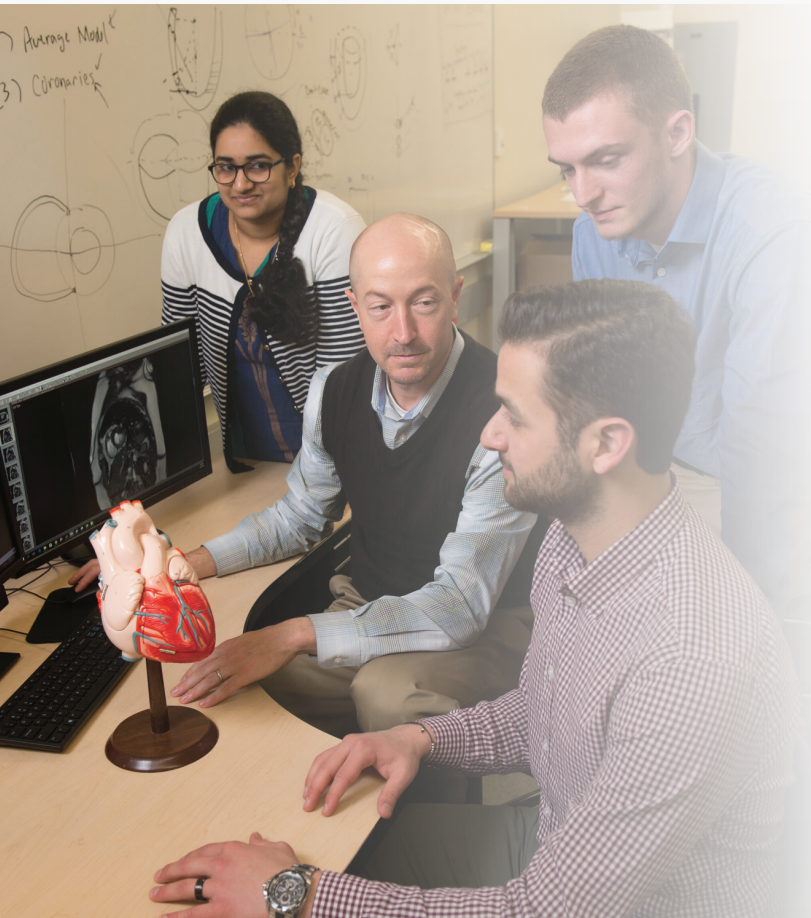
The novel model could be used in hospitals, as well as weight-loss clinics and other facilities with properly trained personnel, to increase its accessibility and, thus, its benefits.

“This volumetric model will be useful not only to assess the effects of different types of exercise, but also other strategies such as diet, drugs, bariatric surgery and more,” Fernandez del Valle said. “Results have the potential to change exercise recommendations for weight and fat loss, cardiovascular risk management, and cardiac health.”

SIUE graduate and undergraduate students in the School of Engineering and the School of Education, Health and Human Behavior are playing an integral role in the research.

“This experience has opened my eyes to an entirely new world of engineering,” said Addison Elliot, a graduate student studying electrical engineering. “My research in this lab opens the possibility of me doing similar work as a biomedical engineer at companies such as Siemens, Phillips or GE.”

“This is a unique opportunity for students that will enhance their academic experience,” Klingensmith said. “By being involved in this interdisciplinary work, our student researchers will participate in an applied learning setting, make corporate connections and develop interpersonal skills.”



# Supporting Victims, Educating the University Community

SIUE is committed to ensuring students, faculty and staff feel they have a safe space to learn about, discuss and report incidents of gender-based violence such as sexual assault, dating violence and stalking. A 2016 \$300,000 grant from the Department of Justice through the Violence Against Women Act has enabled the University to expand its efforts.

“The grant provides on-going training to our student body, increases resources for students, and provides annual training to faculty and staff,” said Jeffrey Waple, PhD and vice chancellor for student affairs. “Special thanks to Jim Klenke, associate vice chancellor for student affairs; Lindsay Serrano, SIUE counseling services; Dustin Brueggemann, SIUE police lieutenant; and former faculty member Dayna Henry, who were the principle grant writers.”

**Funds are supporting the SIUE Survivor Support Initiative, which has three goals:**

- prevent and reduce the incidence of sexual assault experienced by SIUE students
- coordinate current and proposed efforts to respond to sexual assault committed toward SIUE students
- increase awareness of and access to prevention information and victims’ services.

Samantha Dickens, coordinator of SIUE’s recently established Prevention, Education and Advocacy Center (PEACE), was hired to develop and implement sexual assault prevention and education programming.

According to Dickens, PEACE is committed to maintaining a community in which students, faculty and staff can work and learn together in an atmosphere free of all forms of discrimination, including sexual assault and harassment. PEACE offers resources and referral information, including a confidential advisor and sexual assault victim’s hotline; ways to participate in the work against gender-based violence; and opportunities to chat with professionals about the topic.

**PEACE collaborates with groups on campus such as Counseling and Health Services, the Office of Student Affairs, Accessible Campus Community and Equitable Student Support (ACCESS), International Students and Scholars, the Campus Activities Board and many others to host events throughout the year. Events have included the following:**

- Clothesline Project: Students created t-shirts to illustrate the effect sexual assault has had on their lives.
- Denim Day: The campus community was invited to wear jeans as a symbol of protest against erroneous and destructive attitudes about sexual assault.
- Walk A Mile in Her Shoes: Men walked the campus in high heels to support women and engage as allies against sexual violence while campus and community partners tabled to provide information.
- Silent Protest: Students, faculty and staff gathered at the center of campus holding signs featuring awareness messages to support survivors and end sexual assault.

“Bringing prevention and awareness programs to campus encourages feelings of safety and support,” Dickens said. “It shows that SIUE is serious about ending sexual and interpersonal violence, as well as supporting its students. These programs are aimed at educating the entire University community, so accountability to end violence is on every individual.”





# Program Reduces Burden for Area Asthma Patients

In the State of Illinois, St. Clair County ranks highest for asthma-related hospitalizations, with Madison County ranking third. This public health concern in SIUE’s region is one Rhonda Comrie, PhD, associate professor emerita of the School of Nursing, has been addressing since 2005 through various grant funding and coalitions. Most recently, Comrie is the principal investigator (PI) for a \$60,000 grant from the Illinois Department of Public Health for the Asthma Home Assessment Project.

“According to research, the most effective approach for managing asthma and improving outcomes is through a multi-step self-management program, coupled with home environment control,” Comrie said.

Comrie and her team used guidelines from the National Heart, Lung, and Blood Institute’s Expert Panel Report 3 to develop the Asthma Trigger Assessment Program (ATAP), an evidence-based practice project.

“ATAP aims to implement home-based trigger assessments and asthma self-management education,” Comrie said. “We have a system for identifying patients and a certified asthma educator. Grant funding helps support the costs of the program, and we received some additional support through the St. Louis Asthma and Allergy Foundation.”

Asthma patients in need of home assessment may be referred for ATAP through the School’s WE CARE Clinic in East St. Louis, the Asthma and Allergy Foundation of America, other healthcare providers, and school nurses. Once referred, patients receive a home assessment by WE CARE Clinic’s Charlotte Chance, DNP, RN, and certified asthma educator.

Environmental home assessments for people with asthma aim to reduce exposure to multiple indoor asthma triggers, which includes allergens and irritants.

“Understanding the environment and triggers is key to controlling asthma episodes,” Chance said. “At an initial home assessment, we educate patients that those triggers can include tobacco, smoke, dust mites, mold, viral infections, pollen, pollution, strong odors, animal dander, cockroaches, exercise and cold weather.”

“We teach the importance of changing the indoor home environment to reduce exposure to asthma triggers,” Comrie said. “Along with education about the home environment, we also emphasize self-management education for the patient and family.”

After an initial home assessment, Chance follows up after two weeks and again after two months. When possible, a final evaluation is conducted in 4-6 months. Additionally, the grant supports an asthma health education coordinator who provides materials to increase awareness of asthma and the ATAP program at various community sites, such as area food banks, children’s programs at East St. Louis housing projects, and local schools.

This practice substantially reduces the burden of asthma on patients with the disease. Results from this grant have shown that emergency department visits declined by 85 percent among participants. Asthma-related visits to healthcare providers declined by 66 percent. Days missed due to asthma declined by 62 percent.

Both Comrie and Chance retired at the end of the 2018 academic year. Jerrica Ampadu, PhD, assistant professor in the School of Nursing, is now leading the initiative and serving at principle investigator.



# Selected Research Grants for Research Doctoral Students

Research Grants for Research Doctoral Students (RGRDS) are awarded on a competitive basis to support research and projects initiated and conducted by doctoral students.

## Development of a Biosensor for Diabetes Monitoring

According to the World Health Organization, more than 422 million adults are diabetic. Many diabetics monitor their blood glucose and insulin levels through invasive techniques such as finger-piercing. Breath sample analysis has been recognized as an alternative method which works by measuring the level of acetone in patients’ exhalations. Sakineh Abadi, a doctoral candidate in mechanical and industrial engineering, is designing, fabricating and testing a semi-conductive metal oxide film that would increase selectivity and sensitivity of the gas sensors to acetone.

“I anticipate by introducing carbon-doped tungsten tri-oxide into the gas sensor, the accuracy and sensitivity toward acetone detection in breath samples of patients with elevated blood glucose levels can be increased,” Abadi said.



## Benefits and Equity of Non-Instructional Programming

Previous research suggests that students who participate in non-instructional school programs experience a wide-range of academic benefits, including access to positive adult role models and pro-social peer groups. Dustin Bilbruck, a doctoral candidate in educational leadership, is exploring participation rates in non-instructional programs at Carlyle Junior High School in Carlyle, Ill., to identify barriers to students’ participation.

“In order for schools to maximize the return on their investment in non-instructional programming, they must ensure that such programming is accessible to all students, is supportive of a wide range of skills and interests, and appeals to the local student population,” Bilbruck said.



## Leadership in High-Achieving, High-Poverty Schools in Belleville School District #118

Generally, students who live in poverty significantly underperform their non-low income counterparts. However, Belleville School District #118, in Belleville, Ill., students have thrived academically despite their poverty level. Brian Mentzer, a doctoral candidate in education administration, seeks to determine why by focusing on a factor that can affect any school: an engaged, transformational leader. Mentzer has collected qualitative and quantitative data in eight elementary schools.

“Looking at the leadership of successful institutions will begin to uncover and provide much-needed information to begin to close the educational attainment gap,” Mentzer said. “Great schools are led by great teachers, and gaining knowledge of teacher perceptions of building-level leaders in the district will help guide administrative professional development.”





# Selected Research Grants for Graduate Students Award Recipients

Research Grants for Graduate Students (RGGS) support research and creative activities initiated and conducted by SIUE master’s students to enhance their academic progress. Although faculty advisors oversee the research or creative activity, these grants support the graduate students’ work as it relates to their thesis or final project.

## Dissociation and Schizotypy, Unusual Sleep Experiences and Emotional Regulation

Mackenzie Atchie, a graduate student pursuing her degree in clinical psychology, examined relationships among the following constructs in psychopathology: dissociation/schizotypy, unusual sleep experiences and emotional regulation. These phenomena often coexist as difficulties in individuals with mental disorders. Atchie has worked to test their relations comprehensively.

Atchie surveyed 150 participants and conducted correlational analyses on the survey responses. She also used a moderated regression to test for interactions between dissociation/schizotypy and emotional regulation that resulted in unusual sleep experiences.

Through this study, Atchie aims to reaffirm past relationships of these variables and also fill in the gaps by investigating new associations.

“This research has the potential to enlighten our current views on psychopathology by adding how individuals deal with emotions, and I believe this is the first study designed to consider all of these variables in an integrative way,” she said.

By gaining a firm understanding of a patient’s multifaceted symptoms of psychopathology, clinicians will be capable of developing an individualized course of treatment, which can result in more positive patient outcomes.

## Undocumented Student Experiences in Higher Education

At a time of increased turmoil in regard to American immigration policy, undocumented individuals seeking advanced degrees from universities across the U.S. are experiencing a number of challenges.

For his thesis, José Iván Solis Cruz, a master’s candidate studying college student personnel administration, sought to understand how undocumented students from across the nation have navigated their higher education experiences while confronting the challenges that come with their immigration status. By recognizing their circumstances, Solis Cruz hopes to provide insight into how higher education institutions can work to meet the needs of this population.

“As it stands, higher education lacks resources, such as mental health and wellness assistance, financial aid, and legal assistance for undocumented students,” said Solis Cruz. “These individuals are constantly reminded of their status and potential consequences, which could be detention, deportation, and separation from their families and homes. In addition to these concerns, undocumented individuals experience discrimination, which can lead to internalized oppression.”

For his project, Solis Cruz recorded open-ended interviews with seven undocumented college students. Using a qualitative textual analysis method, Solis Cruz identified four common themes.

- Undocumented students face financial barriers.
- Family and community support accompany and sustain undocumented students’ higher education journey.
- Policies against the undocumented community create challenges to pursue higher education.
- Undocumented students serve as self-advocates and organizers.



## Detection and Evaluation of Antibiotics in Wastewater Treatment Plants

Antibiotics, or antimicrobial drugs, fight infections caused by bacteria among humans, animals and plants.

Although antibiotics can be helpful, overuse and misuse can promote the development of antibiotic-resistant bacteria. After these bacteria are flushed through plumbing, aquaculture, livestock works and industry, they can become a big threat to human health.

Wastewater treatment plants serve as the public’s final barrier between antibiotics and the environment. However, previous studies have found an increased concentration of antibiotics in water after passing through wastewater treatment plants.

Qianqian Zhang, a graduate student studying chemistry, aims to quantify the concentrations of antibiotics in wastewater samples in Southwest Illinois as a precursor to future studies about antibiotic-resistant bacteria. Using a process of filtration, spiking, pH adjusting, solid-phase extraction, nitrogen gas drying, centrifugation, and analysis by liquid chromatography coupled to tandem mass spectrometry, Zhang also hopes to build a mature method of antibiotic extraction.

Zhang collected primary and effluent samples from seven wastewater treatment plant sites around the St. Louis region. She also collected samples 100 feet upstream and downstream at the wastewater treatment plants’ discharge sites. Determined to get the largest data set possible, she collected the data in all four seasons.

“I feel good that I can do something that can help the environment,” Zhang said. “Even without conducting this research, I knew there was already so much polluting our planet. I wanted to see a real number and how that really affected our environment.”

## Analysis of Impedance-based Biosensors for Detection of Foodborne Pathogens for Food Safety

Contamination of fresh produce with foodborne pathogens, such as Escherichia coli, causes multiple outbreaks every year. These outbreaks can have significant public health and financial consequences for both consumers and food producers, respectively.

Understanding the behavior of foodborne pathogens on produce could enable researchers to take a critical step forward in improving food safety and potentially eliminating the possibility of these outbreaks.

“In order to better control and eventually eliminate these outbreaks, we first need to understand what happens when these pathogens arrive on the surface of produce—how they interact with the produce and how they grow and survive under different ambient conditions,” said Roya Mazrouei, a mechanical engineering graduate student.

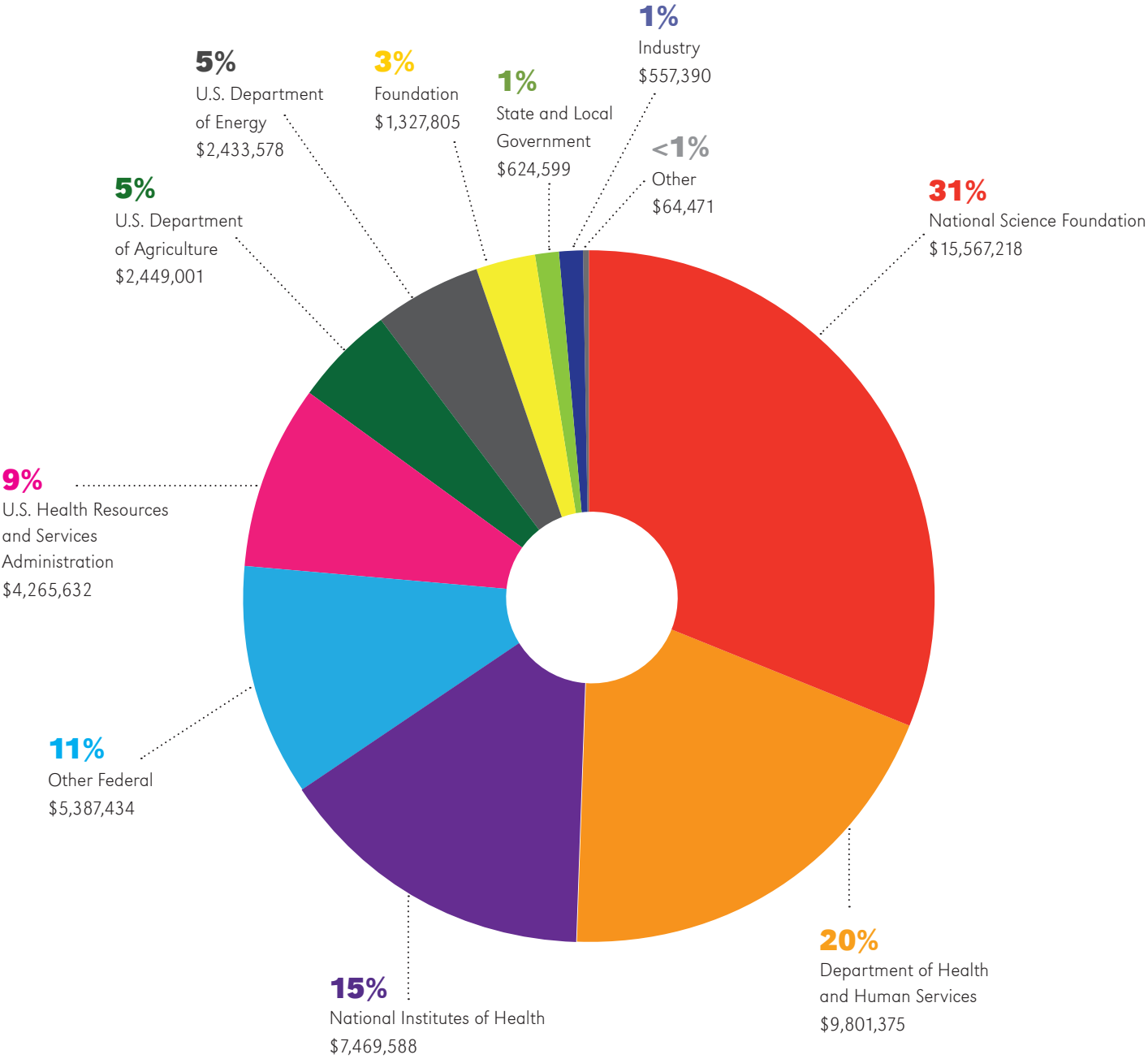
Mazrouei worked to improve upon a biosensor created by Kamran Shavezipur, PhD, assistant professor in the Department of Mechanical Engineering, and created a three-dimensional impedance-based biomimetic biosensor. Mazrouei’s version not only helps detect foodborne pathogens on fresh produce but can be used to study the behavior of these pathogens in real time.

Once the system is optimized, it will provide invaluable data to improve food safety in many ways, including optimizing sanitization processes to effectively inactivate pathogens that can prevent consumers from getting sick.



# Externally Sponsored Projects

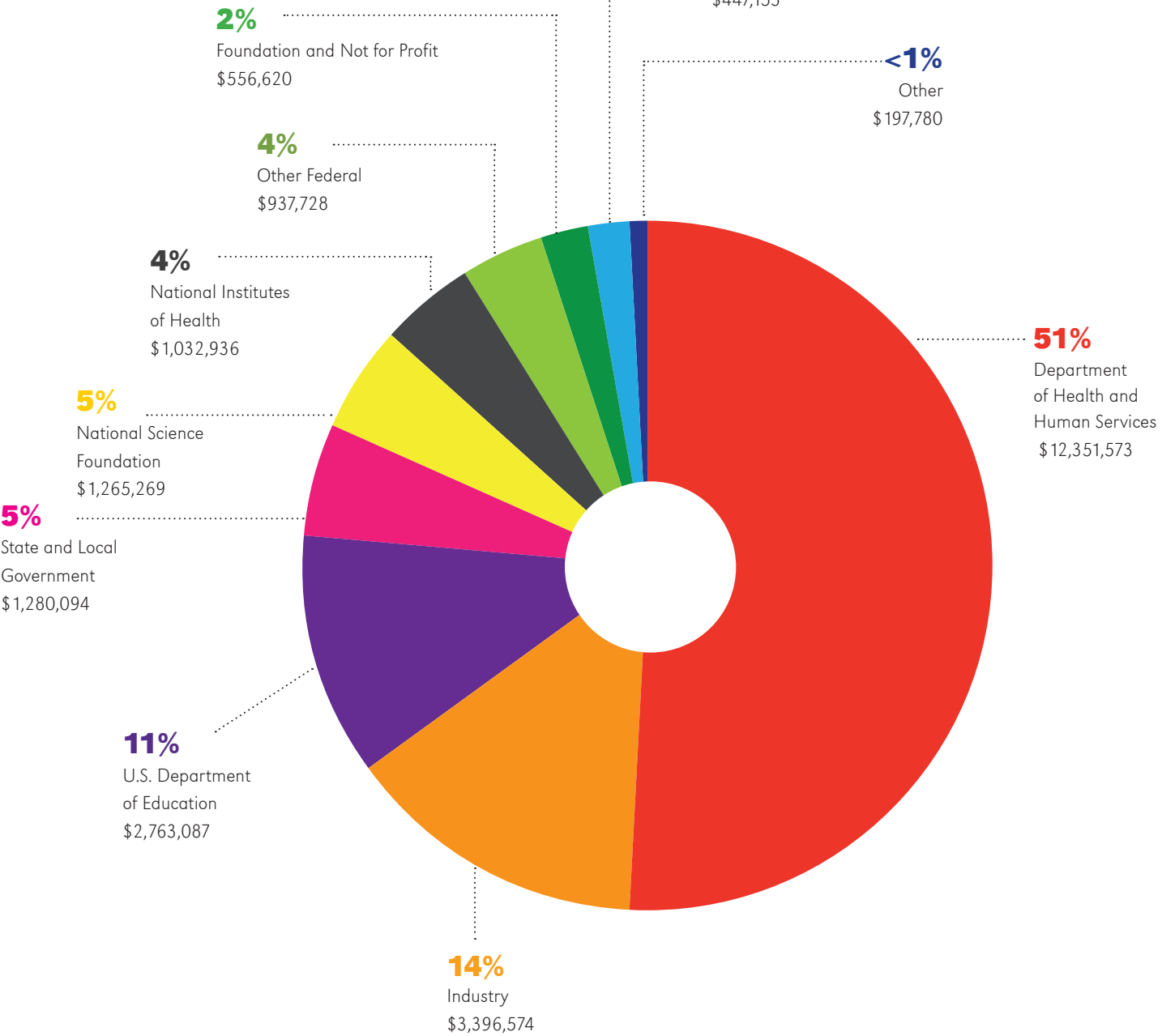
FY18 Proposal Submissions by Agency Type



95% of FY17 proposal funding\* was submitted for federal funding

\*by dollars

FY18 Awards by Funding Type



78% of FY17 award funding\* was federally funded

\*by dollars



# Internal Grant Award Winners



## Emeriti Faculty Association Awards

The SIUE Emeriti Faculty Association provides opportunities for retired faculty to remain active participants of the University community. The group awards grant funding to select faculty projects aimed at strengthening the academic quality of programs and enhancing the University’s reputation. The yearly award competition provides funding for a variety of projects that span across academic disciplines.

**Nima Lotfi, PhD, Assistant Professor, Department of Mechanical Engineering; and  
Yadong Wang, PhD, Assistant Professor, Department of Computer and Electrical Engineering**

“Introducing Unmanned Aerial Vehicle Technology to the School of Engineering and the SIUE Community through the Development of Low-Cost Drones”

**Debbie Mann, PhD, Professor, Department of Foreign Languages and Literature**

“Participation in a Faculty Exchange between SIUE and the Université de Catholique Ouest”

**Jeffrey Manuel, PhD, Associate Professor, Department of Historical Studies; and  
Jason Stacy, PhD, Associate Professor, Department of Historical Studies**

“Madison Historical: The Online Encyclopedia and Digital Archive of Madison County, Illinois”

**Catherine Santanello, PhD, Department of Pharmaceutical Sciences; and  
Lakesha Butler, PharmD, Clinical Associate Professor, Department of Pharmacy Practice**

“Enhancing Cultural Competency through Pharmacogenomics Education”



## 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.

**Brianne Guilford, PhD, Assistant Professor  
Department of Applied Health**

Guilford’s research project, “Do Omega-3-Fatty Acids Hold Therapeutic Potential for the Prevention of Diabetic Neuropathy?” aims to determine if fish oil prevents neuropathy by attenuating peripheral nervous system inflammation in high fat diet-induced prediabetic mice. The overarching goal of this research is to provide evidence to support the use of omega-3-fatty acids to prevent neuropathy in human patients. “Millions of people suffer from diabetic peripheral neuropathy, and the prevalence of diabetes continues to rise in the U.S.,” Guilford explained. “Diabetic peripheral neuropathy is the most common complication of diabetes and is extremely debilitating. Current pharmacological treatments are aimed at relieving symptoms, but do not reverse nerve damage.”

## 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.

**Serdar Celik, PhD, Associate Professor  
Department of Mechanical and Industrial Engineering**

Celik says he has always been passionate about integrating his research into his teaching for two reasons: to elevate students’ excitement for learning and to maintain motivation for teaching at high standards. Since beginning his tenure at SIUE in 2007, he has received the Department of Mechanical Engineering Outstanding Teacher Award in 2008, 2010, 2012 and 2016. He also received the University Teaching Recognition award in 2010 and the University Teaching Distinction Award in 2011. Celik’s research focus includes energy in general and, more specifically, green roofs, solar energy and alternative cooling technologies. Among his research achievements are nine journal publications, three with graduate students; 26 peer-reviewed conference proceedings, 12 with graduate and three with undergraduate students; three book chapters, one with a graduate student; and two patent applications, one with a graduate student.



## Concept Commercialization Award

This award promotes interest in and involvement with intellectual property development and commercialization in order to benefit the health, safety and welfare of the community and the economic welfare of the University. The award is primarily intended for patentable inventions or discoveries, but can also support trade secrets and copyrighted materials.

**Kevin Rowland, DMD  
Associate Professor, Applied Dental Medicine**

Dental cavities are one of the most prevalent chronic diseases in the world. Over the past several years, there has been an increased global demand for more oral health options that are considered more natural and fluoride free. Rowland’s invention is a combination of naturally occurring ingredients which work synergistically to reduce the incidence and progression of dental cavities. One ingredient is found in many tea products and a second ingredient is commonly used as a natural supplement for building proteins in the body. Rowland and a co-inventor are investigating the bactericidal activity of their all-natural mixture compared to three mouthwashes currently on the market.







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.

Guim Kwon, PhD  
Associate Professor of Pharmaceutical Sciences

Kwon’s proposal titled “Prediction of Blood Glucose Levels Using Artificial Neural Network in Diabetic Rats” will investigate the feasibility of developing an accurate and adaptable blood glucose level prediction model for an artificial pancreas system that is under development. Kwon hopes to advance the current open-loop artificial pancreas and is working in collaboration with co-investigators Associate Professor Hoo Sang Ko, PhD, and Professor H. Felix Lee, PhD, both from the Department of Industrial Engineering to develop control algorithms for the design of a closed-loop artificial pancreas.

Hoppe Research Professor Award

This award recognizes and supports faculty members whose research or creative activities have the promise of making significant contributions to their fields of studies. The award supports a significant and discrete portion of a faculty member’s larger research agenda for a two-year period.

Johanna Schmitz, PhD  
Professor of Theater History

Schmitz’s project, “Building the Rose Theatre Archive (1989-2019): Discovery, Protection and Presentation of the Remains of Shakespeare and Marlowe’s Theater,” involves the creation of a digital archive to showcase the 1989 discovery of the Rose Theatre in London, which operated from 1587-c.1605 at the height of early modern theater in the Elizabethan and Jacobean eras. In 1989, during site preparation for the construction of a new high-rise office building, archaeologists discovered the Rose Theatre’s foundation. After months of public protest and construction delays, the new building was redesigned so that the structure would span over the Rose rather than remove it to make space for an underground parking lot. Nearly every year since 1990, Schmitz has travelled to London to work and study. The digital archive will preserve the 30 years including the discovery, protest, preservation and ultimate re-opening of the archeological site as a scheduled ancient monument, museum and newly accessible modern performance space.

Distinguished Research Professor

This academic rank is awarded to faculty members in recognition of outstanding and sustained contributions to research and creative activities as a result of their continued commitment to scholarship beyond the period of their promotion to professor. Recognition is only awarded to nominees demonstrating superior merit. Award recipients are recognized with the rank of “SIUE Distinguished Professor” for the duration of their tenure at SIUE.

Gregory Fields, PhD, Professor  
Department of Philosophy

Fields is an active teacher-scholar whose work aims to help prevent the loss and neglect of indigenous languages, oral histories, literatures, philosophies and lifeways through active and scholarly engagement in the recovery and preservation of indigenous knowledge. His research contributions incorporate content and methods from anthropology, history, philosophy, religious studies, ethnomusicology, languages and literature. Fields has given 41 conference presentations and is the recipient of more than \$130,000 in grant awards. He is a prolific writer, among whose works are two books with National Heritage Fellow Pauline Hillaire (Lummi Coast Salish): “Rights Remembered: A Salish Grandmother Speaks on American Indian History and the Future” in 2016, and “A Totem Pole History: The Work of Lummi Carver Joe Hillaire” in 2013. For each book, Fields produced an audio CD and DVD companion volume. His current book project, the third in a trilogy representing three generations of Coast Salish culture bearers, has received support from the National Endowment for the Humanities.



Competitive Graduate Awardees

- Caroline BarrettSmart, Social Work
- Nathan Brown Jr., College Student Personnel Administration
- Tessa England, Biological Sciences
- Richelle Gonzalez, Accountancy
- Theresa Hitchcock, Art Therapy Counseling
- Amy Givan (Hurtado), Kinesiology
- Hayden King, Environmental Sciences
- Eboni McKenney, Social Work
- Nitisha Parajuli, Civil Engineering
- Siarus Priom, Industrial Engineering
- Prasanna Shrestha, Environmental Sciences
- Aaron Silas, Business Administration
- Wyatt Teague, Applied Communication Studies
- Manikomevwe Udjoh, Geography
- Anna Mae Wells, Social Work
- Courtney Willoughby, Kinesiology
- William Wilson, Mechanical Engineering

Research Grants for Graduate Students

- Roya Amini Tabrizi, Chemistry
- Mackenzie Atchie, Clinical Psychology
- Patrick Ayres, History
- Kelsey Bernard, Biological Sciences
- Raife Demirer, Pharmaceutical Sciences
- Katherine Dreas, Environmental Sciences
- Bradford Eilering, Art Studio
- Andrea Fentem, Clinical Psychology
- Shawn Fraine, Clinical Psychology
- Lakshmi Anjana Devi Gorantla, Electrical Engineering
- Md Nahid Hasan, Mechanical Engineering
- Jeremy Howard, Biological Sciences
- Jessica Hunt, Art Studio
- Jillian Lakota, School Psychology
- Kathleen Lochhead, Art Studio
- Joshua Lupardus, Clinical Psychology
- Li Ma, Chemistry
- Roya Mazrouei, Mechanical Engineering
- Jacob Miller, Biological Sciences
- Mazen Mohammed Othayq, Mechanical Engineering
- Gita Pant, Electrical Engineering
- Mandy Pedigo, Art Studio
- Dierdra Renfroe, Biological Sciences
- Gerardo Rojo, Mechanical Engineering
- Rachel Ryan, Clinical Psychology
- Nader Sakhaee, Integrative Studies
- Reza Salehi, Civil Engineering - Transportation Engineering
- Megan Schaller, Kinesiology - Exercise Physiology
- Alexander Smith, Biological Sciences
- Jose Ivan Solis Cruz, College Student Personnel Administration
- Kodi Thompson, Art Studio
- Morgan Tillery, Psychology
- Lucero Villarreal Rodriguez, Biological Sciences
- Benjamin Wedeking, Biological Sciences
- Taylor Wise, Biological Sciences
- Erim Yanik, Mechanical Engineering
- Maryam Zangi, Chemistry

- Qianqian Zhang, Chemistry
- Goksu Avdan, Industrial Engineering
- Tessa England, Biological Sciences
- Emily Fabry, Chemistry
- Christopher Featherstone, Biological Sciences
- Emily Fischer, Clinical Child & School Psychology
- Jocelyn Frazelle, Biological Sciences
- Hailey Freres, Biological Sciences
- Angie Garces, Biological Sciences
- Amy Givan, Kinesiology - Exercise Physiology
- Miles Gossett, Biological Sciences
- Kay Guyer, Art Therapy Counseling
- Kyle Heckert, Mathematics - Postsecondary Mathematics Education
- Dakota Kamm, Kinesiology - Exercise Physiology
- Hayden King, Environmental Sciences
- Haley Kutosky, Biological Sciences
- Rachel Lubbinga, Biological Sciences
- Chau Nguyen, Marketing Research - Business Analytics
- Chiagozie Obuekwe, Environmental Sciences
- Brittany Rakers, Biological Sciences
- Christopher Riggs, Biological Sciences
- Bharath Selvaraj, Kinesiology - Exercise Physiology
- Erin Shamley, Environmental Sciences
- Prasanna Shrestha, Environmental Sciences
- Bethany Sleik, School Psychology
- Kayla Tatum, Biological Sciences
- Manikomevwe Udjoh, Geography - Industrial/Organizational Psychology
- Casey Vaclavik, Psychology
- Kathryn Vandenberg, Art Therapy Counseling

Research Grants for Research Doctoral Students

- Sakineh Esmaelli Mohsen Abadi, Mechanical/Industrial Engineering
- Dustin R. Bilbruck, Educational Leadership
- Brian Mentzer, Education Administration
- Chaketa Riddle, Educational Leadership
- Lavon Singleton, Education Administration



# Visualizing Research Impacts

The SIUE Graduate School’s Visualizing Research Impacts (VRI) 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 15 entries that depicted a wonderfully rich diversity of creative activities and disciplines from across the institution, including entries from the sciences, engineering, arts, humanities and education. A panel of SIUE alumni selected the award winners, who each received a \$1,500 monetary prize to fund their continued scholarly activities.

## Most Creative Representation of Research Impact

### “Vitreous Chambers”

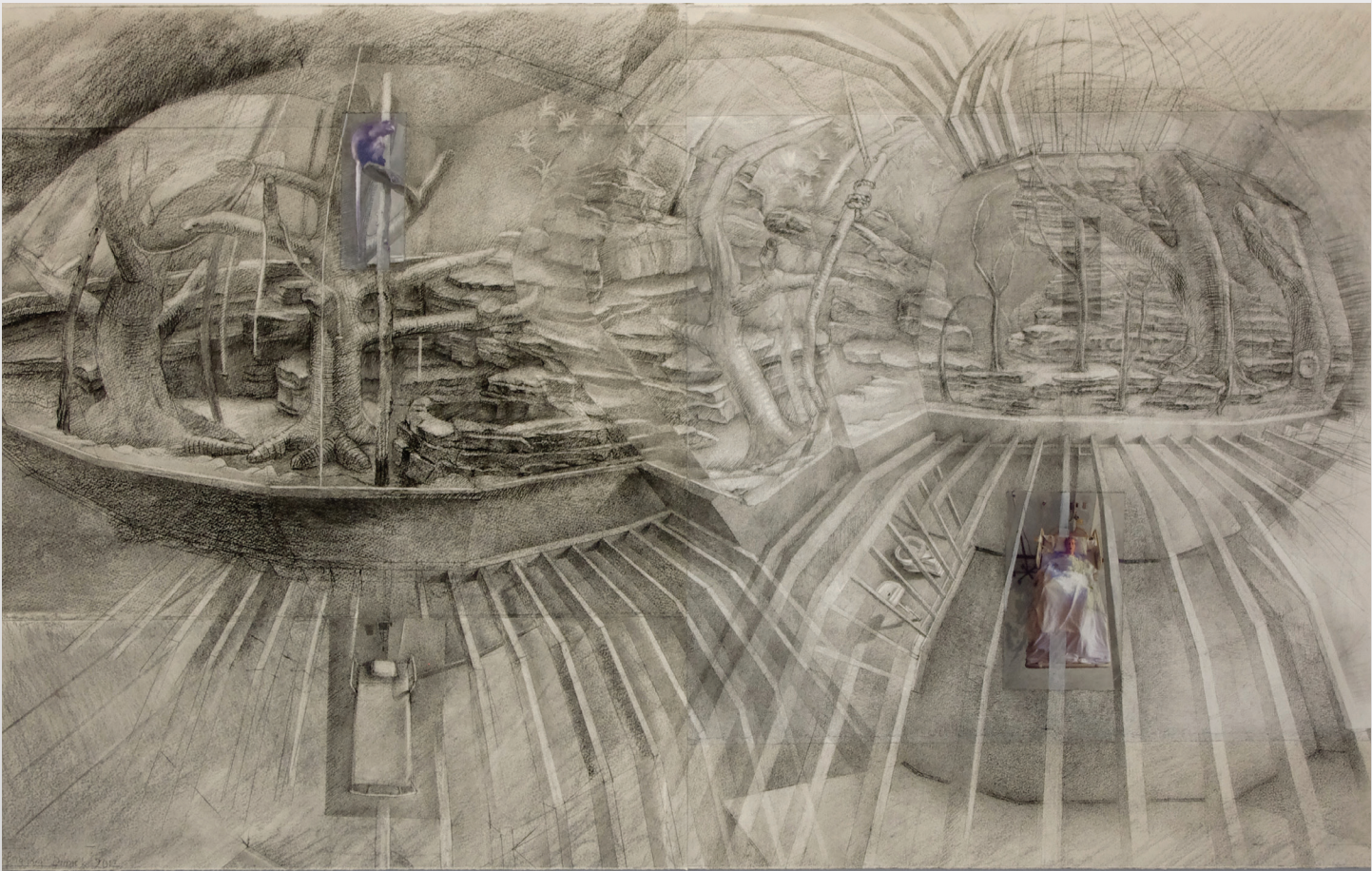
Brigham Dimick, Professor, Department of Art and Design

In this piece, Dimick embedded photographs of two vulnerable protagonists—an endangered primate called François’ Langur and a fragile woman in a hospital bed—living in two distinct, oil and charcoal-drawn environments: a zoological habitat and a cancer ward.

Dimick spent hours drawing and observing the François’ Langur at the zoo. The species’ population is declining due to hunting and destruction of its habitat in the tropical rainforests of Southeast Asia.

Another dimension of sorrow depicted by the artist integrates a photograph of his wife during her eight-day hospital stay. The image was captured while his wife was admitted during the nadir of her cancer treatment.

“While this primate embodies the vulnerability of a declining species, the moral danger of this person represents the threat of personal loss,” Dimick said. “Through this artwork, I explore tensions between the potential for personal loss and the irrevocable disappearance of a species closely related to us.”



## Best Representation of Research Impact

### “Learning Through Community”

Katrina LaCombe, Research Assistant, Center for STEM Research, Education and Outreach

An art therapy counseling graduate student working on the SIUE STEM Center’s Digital East St. Louis research project, LaCombe wished to display the wealth of content being created among middle school students in the region while showcasing their educational growth.

While working with the Digital East St. Louis research project, Lacombe helped middle-school students conduct interviews, capture photographs, and produce written and multimedia content for eaststlouisculture.org. The website features local history archives, content-rich digital maps, a walking tour of East St. Louis neighborhoods, and more.

“When we analyzed student interviews, we found that the students loved showcasing their city and experiences,” LaCombe said. “I wanted not only to represent the data we have collected about motivations but also the work the participants put into their projects.”

Webpages about the environment, as well as images and research materials depicting how music and sports have had ongoing influence in the industrialized city, created the dynamic background. At the forefront of the work is a monochromatic figure drawing, used to depict how the project has furthered the participants’ learning.





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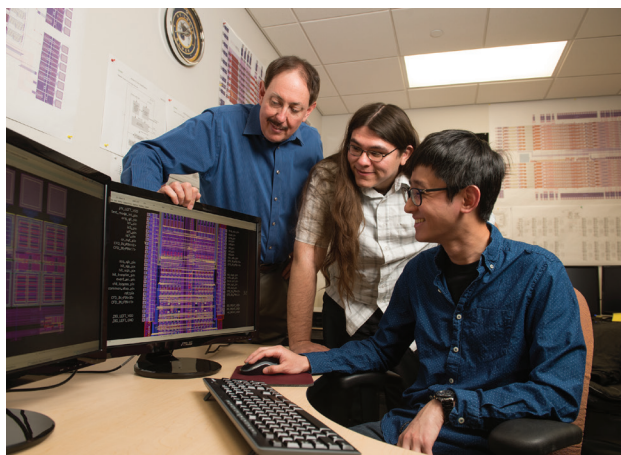
No similar interdisciplinary programs are offered in the St. Louis metropolitan region. The closest comparable program is more than 75 miles from SIUE.

Students have created programs such as cultural education advocacy, engineering management and sustainability.

### **LEARN MORE**

[siue.edu/integrative-studies](http://siue.edu/integrative-studies)

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