

FY 2018 Awards

Project Director	Michelle L Cathorall
Title	Applied Health Internship, Service, & Culture Study Abroad program in Uganda
Award	\$20000
Abstract	<p>The Department of Applied Health is offering a new four-week study abroad program in Uganda, East Africa, in June 2018. The funding requested in this proposal would serve two important purposes: 1) It would allow program faculty to visit Ndejje University to meet and work in person with Ugandan colleagues to finalize preparations; and 2) It would reduce the student expenses associated with the program.</p> <p>This travel study is a joint endeavor between the public health (PBHE) and speech-language pathology (SPPA) programs at SIUE. It is designed as a high impact experiential immersion learning opportunity. This program will be offered for the first time to majors and minors in these programs and to interested students in other areas of study. The broad goals of the program are to foster the cultural competence that students in health-related fields require to practice their professions in an increasingly diverse society, to provide students with experiential learning opportunities to broaden their understanding of how to practice in their respective fields in a diverse world, and to create sustainable relationships with institutions and community organizations in Uganda in order to allow for increasingly effective collaborations.</p> <p>In January, it is anticipated that two faculty members will travel to Uganda to meet with faculty and students at Ndejje University, explore housing options, and visit potential locations for site visits. Because this is the first travel study program in Uganda, and neither of the trip leaders have experience in Uganda, it is important to lay this groundwork in order to ensure a smooth and productive trip for students later in the year. Funds are requested to support this step in the course planning process.</p> <p>In June the same faculty members will accompany up to 20 students who will engage in service learning projects or complete internships in Uganda. Participants will live in student dormitories for four weeks, working closely with Ndejje University faculty and students.. Students will register for one 6-credit-hour course offered by SEHNB programs. Funds are requested to reduce the cost of this trip for each student.</p> <p>Student performance will be assessed through participation in pre- and post-travel surveys/interviews, journals, completion of work products and final projects describing their experiences. Results will be disseminated to the SIUE community, in international or national publications, and scholarly conferences.</p>

Project Director	Ben Greenfield
Title	Integrating High Impact Education Practices and Applied Data Analysis Training Into Environmental Epidemiology (ENSC 436)
Award	\$6063
Abstract	SIUE's Environmental Epidemiology course (ENSC 436) was last taught in 2012, using a traditional lecture-based pedagogy. I am proposing to rebuild this upper division undergraduate course to address learning needs and capacity building for undergraduates. The course will emphasize the High Impact Educational Practices of collaborative projects, and diversity, and an interactive case-based learning and computer laboratory pedagogy. The new pedagogy would focus on four activities: 1. weekly computer lab assignments, to train students in advanced data management and data analysis techniques using spreadsheets; 2. classroom case-studies to illustrate epidemiological concepts and principles; 3. a group project in which students use epidemiological methods and concepts to research and analyze a local or regional environmental inequity; and 4. flipped lectures to free up class-time. All examples will emphasize local concerns and vulnerable subpopulations, to emphasize inequalities faced by different groups and how they may be evaluated. The revised course will apply my research experience and interest in environmental systems modeling, data analysis, and environmental justice to engage students in deep learning activities on the environmental determinants of human health.

Project Director	Valerie Griffin
Title	Developing Global Citizenship in Undergraduate Nursing Education at SIUE
Award	\$6500
Abstract	<p>For the first time, in March 2018, four faculty from the School of Nursing (SON) will be taking thirteen undergraduate nursing to San Jose, Costa Rica for a service trip. Chancellor Randy Pembroke asked the SON to participate in Central American Mission Projects (CAMP) program as an active element of his focus on community service and the University's mission to shape a changing world. The trip begins with a relaxed weekend and exploration of the surrounding ecology and culture. During the week, nursing students will perform health assessments/screenings, provide health education, compare healthcare in this region to that of the United States, visit local communities, work with Costa Rican adults and children, attend indigenous events, and sample Costa Rican cuisine.</p> <p>General Tour Itinerary Day 1-fly from STL to San Jose, Costa Rica; orientation; feed children on the street Infiernillos Day 2-Church (optional)/LaPaz Waterfalls (optional) Day 3- Clinic Santo Tomas, Santo Domingo Day 4- Clinic Hogar Roblealto Day 5- Tour Children's Cancer Center Hospital Mexico Day 6- Clinic Los Guido</p>

	<p>Day 7- Shoe day for children Day 8- fly home to STL from San Jose, Costa Rica</p> <p>Budget Summary (entered into online form) Service Trip Program (March 3-March 10) Approximately \$3200.00 *Includes airfare, ground transportation, exit visa, hotel, insurance, passport fee (approximately \$135 for first time applicants; \$110 for renewals), \$75 international program application fee (will be added to your student account when you complete the online application), luggage (1 bag) fee (\$25 for first bag with each travel day, \$50 total), all meals, La Paz waterfall excursion (\$60), and a five-part, online Spanish tutorial program.</p>
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Project Director	Sharon Locke
Title	Exploring Service in STEM
Award	\$9926
Abstract	Exploring Service in STEM is a planning project to design a service learning course for STEM majors that enables students at any level to apply their STEM interest and knowledge to address community needs. During the 2017-18 academic year, faculty members representing STEM departments will convene in several sessions to develop the framework for the course, including its learning objectives, format, instructor pool, curriculum, course designations, and assessments. This proposal requests funding to bring faculty and staff from the University of Wisconsin-Madison (UW Madison) to SIUE for a one-day planning workshop with participating faculty. Through a program called WISCIENCE, UW Madison faculty and staff have developed science service learning courses with the goal of increasing retention and student engagement in high-impact practices, while also serving the surrounding community. Additionally, a 25% graduate student will assist the team in identifying and compiling similar courses at peer institutions and published literature of success, challenges, and effectiveness of the teaching approach.

Project Director	Nima Lotfi
Title	Development of Low-cost Educational Platforms to Improve Mechatronics Education and Promote it among the University Community and General Public
Award	\$4189
Abstract	Mechatronics is the synergistic integration of precision mechanical engineering with electronics and intelligent computer control in the design of products and manufacturing processes. This field is rapidly reshaping the world by introducing smart and autonomous applications into our daily lives. In its commitment to shape a changing world and aiming to fill the skill gap in the field of mechatronics, SIUE has established a new degree program, titled Mechatronics and Robotics Engineering (MRE), in the School of Engineering since Fall 2016. Through this proposal, we request funding to develop a number of low-cost educational platforms to significantly improve the new MRE program. More specifically, these platforms will be used as laboratory experiments for the multidisciplinary course "Integrated Mechatronics Using Raspberry Pi," currently offered for ME, MRE, and ECE students. This course is designed to familiarize the students with the fundamentals of mechatronic systems and to provide an opportunity for them to get hands-on experience with some of the commonly-used hardware platforms in this field such as sensors, actuators, and microcontroller boards including Raspberry Pi and Arduino. Another important aspect of this course is to give the students an opportunity to learn programming with real-world physical systems. These experimental platforms will also be used in an educational outreach course for high school students and teachers that we plan to offer in collaboration with the Office of Educational Outreach and STEM Center in 2018 Spring

	<p>Semester. Considering the rapid advancements in the field of mechatronics and robotics, it is essential to increase the awareness about mechatronics among general public, especially K-12 students. The aforementioned educational platforms can facilitate a low-cost, hands-on, and widespread education about mechatronics. At minimum, such an education would train hobbyists, proficient in mechatronics, who can contribute to the Maker Movement by developing smart projects and applications. However, on a grander scheme, such an exposure especially for K-12 students, can significantly help promote higher education and potentially, the newly-developed MRE program at SIUE, which can consequently lead to an increase in student enrollment.</p>
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Project Director	Mark McKenney
Title	Design of a Research Oriented, Writing Intensive Course in Computer Science
Award	\$9170
Abstract	<p>In this project, we propose to develop a new course entitled Computer Science Research Writing Intensive (CSRWI). The new course addresses the lack of a formalized introduction to research in the Computer science (CS) undergraduate curriculum and the lack of a writing intensive course. The EUE call for proposals indicates that a primary goal for this round of the program is to enable high impact practices in programs where they are "not common or well developed." Two such high impact practices indicated by the call for proposals are undergraduate research and writing intensive courses. The proposed CSRWI course will incorporate both of those practices in the CS curriculum, which currently has no writing intensive courses and which has no formal introduction to research in the undergraduate program.</p>

Project Director	Dr. Sorin Nastasia
Title	Aligning SIUE's New International Studies Program to High Impact Practices for a 21st Century Undergraduate Education
Award	\$12623
Abstract	<p>This project proposes to engage the director of the International Studies (INTS) undergraduate program at SIUE, Dr. Sorin Nastasia, in collaboration with the program's advisor, Mr. Brian Hinterscher, selected members of the program's advisory board (the program's wide range of core faculty from across College of Arts and Sciences units, also functioning as an advisory board, is listed on the INTS website), and selected representatives of partnering regional organizations with an international focus (for example the Peace Corps' regional office, the International Institute in St. Louis, the World Affairs Council of St. Louis, the Diversity Awareness Partnership, the Regional Chamber of Commerce), in an intensive exchange, during a three day on-campus retreat, as well as online sessions prior to and following the retreat, in Summer 2018 (during the May 15 to June 30 time frame), to align SIUE's new International Studies program to high impact practices for a 21st century undergraduate education.</p> <p>Given the rapid expansion of the new International Studies undergraduate program (currently, after only one year of the program's existence, enrolling approximately 25 majors in International Studies, and projected to enroll over 50 majors within 3 years), the successes it has had in regards to student recruitment and retention, programmatic and outreach activities, and preparing students for global careers (both the program's students, through coursework and applied learning, and hundreds of diverse additional SIUE students, such as those participating in the program's outreach activities, for example in International Studies Day), it is high time for INTS at SIUE to pursue a project engaging its key stakeholders in an intensive dialogue and coordination exercise to further align the program to high impact practices, and thus further increase the capacity of the program to educate students as international and global professionals and citizens for the 21st century.</p> <p>Specifically, the project will increase capacity for INTS at SIUE in the following areas, coordinated with high impact practices as defined by the American Association of Colleges and Universities: common intellectual experiences; service learning and community-based learning; internships and capstone projects; and diversity and global learning. Project results will impact the growing number of INTS majors and hundreds of additional students connected with the program.</p>

Project Director	Terri Poirier
Title	Community Health Clinics for Underserved Populations: A Co-curricular Interprofessional Experience for Health Professional Students
Award	\$10288
Abstract	<p>In order to prepare our health professional students to be able to practice in an interprofessional team-based collaborative manner, there needs to be educational experiences that develop the skills for this type of practice. The existing literature in Interprofessional Education (IPE) reveals lack of evaluative reports on educational experiences that are based on experiential learning theories.¹ Outcomes of enhancing communication and teamwork and collaborations are not evaluated in terms of impact on the community (clients). Currently in the scope of IPE interventions at SIUe, there is no structured IPE activity that uses co-curricular experiential learning. Theories of experiential learning are linked to collaborative learning which is consistent with the intended outcomes for IPE. Experiential learning uses the theories of concrete experience "feeling"), active experimentation "doing") and reflective observation "watching").² This project will engage healthcare teams of undergraduate nursing, pharmacy, speech language, Spanish, nutrition, and public health students in providing a community health clinic for underserved populations in southern Illinois. The service will be structured as a co-curricular experience. The Kirkpatrick model of evaluation will be used to determine the impact of this community engagement.³ Evaluation of student attitudes, reactions, and self-awareness regarding interprofessional communication and teamwork will be measured. Student volunteers will be asked to write reflections on their experiences. Faculty will conduct post clinic debriefing sessions to evaluate the effects on students learning of the experiences. Data on health care interventions and evaluation of the effects of these interventions on the community served will be measured. The impact of the interventions on the community will be quantified using a satisfaction measure survey and also by measuring the clinical interventions provided. We are requesting support in the amount of \$10,288 to support this project.</p>

Project Director	Anni Reinking
Title	Preparing Early Childhood Teacher Candidates Using Virtual Learning Environments
Award	\$6440
Abstract	<p>Virtual Learning Environment (VLE) in early childhood courses. The specific courses in which this technology would be used include working with co-teachers and parents in a collaborative relationship (CIED 318) and practicing assessment techniques that could guide instruction in early childhood environments (CIED 417). Specifically teacher candidates could practice parent teacher conferences and co-teaching in a classroom setting, both of which are common in early childhood but often not experienced in the real classroom placements. Also, teacher candidates could practice giving assessments as a way to plan for instruction for individual work, small group, and whole group lessons. Furthermore,</p>

	<p>between these two courses, sixty early childhood teacher candidates will be accessed and provided the opportunity to experience learning techniques in a VLE.</p> <p>Traditionally, experiential learning in teacher preparation programs could only happen during practicum or student teaching placements. However, in this project teacher candidates will be able to practice and receive feedback in an immersive VLE that will simulate a traditional early childhood or parent meeting setting. The experiences in VLEs are shown to have a high impact on teaching strategies in elementary and higher grades, however the research in early childhood is currently in the research stage at the University of Central Florida (UCF).</p> <p>UCF is the location that currently holds the patent for the VLE. The VLE offers a computer-generated mixed-reality classroom experience that supports teacher candidate practice in pedagogy and content. This project will allow teacher candidates to increase learning through discovery and exploration as they apply evidence-based strategies. The VLE available through UCF for our use at SIUE includes animated student and parent avatars that are programmed and manipulated by an actor "behind the scenes". The implementation of learned strategies in the VLE will allow teacher candidates to reflect on what they have learned, provide and receive feedback, and improve their practice without the pressure of being in front of an actual classroom or parents.</p>
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Project Director	Catherine Santanello
Title	Water for Life
Award	\$6094
Abstract	A major concern among health profession schools is the ability to meet the health and pharmaceutical care demands of the rapidly growing racial and multi-ethnic population in the U.S.; that is, to develop student pharmacists with great cultural competency. While cultural competency is addressed in some of our didactic courses, faculty in the School of Pharmacy feel that we should offer additional experiences to help address this topic, such as more international opportunities. Faculty-led experiential activities are presently offered in countries such as Haiti, Guatemala, and Costa Rica. While these projects offer students invaluable learning experiences, so much more can be done to enhance their learning about infectious disease threats faced by citizens of these countries, particularly water-borne diseases. This EUE seeks sorely needed water purification and medical supplies that will be used to help people in these countries combat these pathogenic diseases. This will not only be a service to many of the people of these countries, it will serve to enhance student learning and awareness of the medical conditions that plague those in tropical countries who are faced with a lack of clean water and related medical care.

Project Director	Matthew Schmitz
Title	Using Virtual Simulations to Provide Real-World Experiences
Award	\$18223
Abstract	One of the common concerns employers have about new college graduates is a lack of practical experience. In disciplines ranging from Education to Engineering and Community Nursing to Criminal Justice, students are often given little to no real-world experience performing activities that will be essential in their day-to-day occupations. Even if real-world opportunities are offered, they are often done so with no margin of error for the student; a misstep or incorrect action might have dire consequences. To address this issue, the Department of Teaching and Learning began using simulation software to provide virtual reality experiences to replicate real-world scenarios so select students in the School of Education, Health, and Human Behavior can experience and plan for the different learning opportunities that exist in the K-12 classroom. According to one SEHNB faculty, the SIUE Virtual Professional Practice Lab offers teacher candidates an opportunity to “practice their knowledge of content and teaching in a non-threatening virtual classroom.” While the usage of this software has proven beneficial to many education students, opportunities exist to expand usage of virtual reality simulations to other disciplines to provide students in those areas of study a chance to gain real-world experience. This project will pair interested faculty from other Schools/Colleges with the coordinator of the SEHNB's Virtual Professional Practice Lab and ITS instructional designers to devise activities and scenarios that will enable students to acquire valuable, real-world experiences. The participating faculty will be able to integrate the virtual

	experiences into their courses, ideally inspiring others in their departments and programs to offer virtual reality opportunities in their course activities, increasing the usage of the Virtual Lab to provide real world experience of the students while also increasing the number of high impact experiential learning opportunities in various disciplines.
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Project Director	Christine Simmons
Title	Development of Authentic Research-Based Modules for Upper Level Microbiology Courses
Award	\$17779
Abstract	<p>Funding of this Excellence in Undergraduate Education (EUE) project will provide the necessary equipment to implement an authentic research-based module into each of two courses: BIOL 250 Bacteriology and BIOL 350 Microbiology. The proposed modules are course-based undergraduate research experiences (CUREs). In both courses the students will learn standard microbiological techniques in the beginning weeks of the semester. Once students have demonstrated their knowledge of these standard microbiological techniques they will be introduced to the specifics of their research projects. The premise of the proposed CURE in BIOL 250 is identification of an unknown environmental organism through standard microbiological techniques and assessment for antibiotic susceptibility/resistance in environmental isolates. This includes novel research on potentially unidentified environmental microbes and the effects of antimicrobial therapy on those isolates. The premise of the proposed CURE in BIOL 350 is to screen soil samples for social slime molds and isolate, purify, to identify collected species, and to screen the microbiome of the isolated species. Students in the CUREs will conduct novel research during their laboratory sessions and present their research to their classmates at the conclusion of the project (end of semester). The rationale for implementation of both CUREs is to increase student ownership (of their research project), expose the students to a practical application of the techniques they have learned over the progression of the semester, and to engage the students in scientific community whereby they interact with other members of the scientific community. These aspects of CUREs often lead to increased retention in the curriculum and a more positive learning experience for the students.</p>

Project Director	Yanhong Zhang
Title	Connecting Credentials: Badges for Critical Technical Competencies
Award	\$19950
Abstract	<p>Grounded in research about the high impact of contextualized, applied, hands-on learning, and challenges in employers' ability to adequately assess candidates' skills, this project seeks to develop and deliver three non-credit workshops and associated competency-based assessments, to demonstrate SIUE undergraduates' mastery of specific skills and training sought by employers. Employer testimony also demonstrates a need for better communication of student abilities as they relate to jobs. A national advisory committee of 372 employers convened by Wonderlic, Inc., a nationally recognized industry skills assessment provider, had an 83% preference for digital badges clearly identifying the competencies associated with a course or degree rather than for a traditional academic transcript in making hiring decisions, with 86% of employers encouraging local educators to provide student opportunities to gain competency-based digital badges. Based on industry demand, this project will result in "badges students can showcase to employers.</p> <p>To better connect student knowledge with workplace competencies, the project team has identified competencies or skills required for competitive employment in key regional high demand occupations typically filled by graduates in Chemistry and related fields: High-Performance Liquid Chromatography (HPLC), Good Manufacturing Practices (GMP), and Fourier Transform Infrared Spectroscopy (FTIR). Each skill will be addressed through: 1) a non-credit, industry-led workshop (approximately 8 hours) at NCERC at SIUE; and 2) a hands-on, competency-based assessment, approved by regional employers, leading to an "badge. Undergraduate students pursuing degrees in Chemistry, Biology, Pharmacy, or Engineering at SIUE will be eligible to participate, selection being competitive. EUE funding will support the pilot launch with 30 students, 125 students being served in each subsequent academic year. In addition to the benefits of applied training, delivered in an industrial setting by subject matter experts, students will be better able to communicate their qualifications for a position when entering the workforce. Employer engagement and transparent reporting of what the training includes and what the assessments measure are key features of the workshops and "badges, allowing students to earn employer-based certifications directly connected to and providing excellence in undergraduate education.</p>