## FY 2019 Awards

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| Project Director | Gillian Acheson |
| Title | Implementing Collaborative Learning Assignments & Projects in GEOG201 |
| Award | $8258 |
| Abstract | I am proposing to convert GEOG201: World Regions from a traditional lecture-style course to one that focuses on the high impact practice of collaborative learning assignments & projects (CLAP) using a team based learning (TBL) approach. CLAP focuses on students (1) working with each other to solve problems and (2) refining their own knowledge by listening carefully to others (especially those from different backgrounds). TBL is one method for addressing these two criteria. TBL addresses many â€œbest practicesâ€ in evidence-based teaching, including cooperative learning, assessment for learning, reciprocal teaching, and whole-class interactive teaching (Michaelsen and Sweet 2011, 41). GEOG201 is a required core course for Geography majors; it is also required for International Studies majors and students seeking secondary teacher licensure in the social studies. It is also taken for general education credit (social sciences breadth and international cultures experience). At SIUE, five sections of GEOG201 are usually offered in a given year with enrollment capped at 65 students per section. GEOG201 is typically taught in a traditional, teacher-centered lecture format, however, the content of the course could be a good fit for TBL. TBL works best in courses that cover a significant amount of information and also require students to critically evaluate that information. GEOG201 covers the entire world within one semester, and a major goal of the course is to have students consider the problems posing various regions, identify possible solutions, and think about the diversity of viewpoints found across the globe. The course modifications required to transform GEOG201 from a teacher-centered, lecture-based course to one that focuses on team-based collaborative learning will require a significant time commitment. As such, I am requesting one month of summer salary to complete this project and offer GEOG201 as a CLAP-TBL course in the 2018-2019 academic year. |

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| Project Director | Connie S. Barber |
| Title | Bringing Your Students Up To Speed: Teaching the System Development Lifecycle Using an Agile Methodology |
| Award | $9024 |
| Abstract | Students studying computer management and information systems at SIUE take a variety of courses that teach them about the functionalities of information systems. CMIS 270, their first course in the major, provides the content they need to learn the process for designing those systems and functionalities. Unfortunately, due to the nature of that content and the limitation of the semester, we are currently only able to thoroughly cover the traditional method of design known as the systems development lifecycle (SDLC). This is a weakness of the course because 80% of system |

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| | design projects are conducted using an agile design methodology…a derivative of the traditional method. We spend 1-2 course periods on agile methodologies at the end of the semester, once students have learned the SDLC. It is possible, however, to apply techniques from agile methodologies pedagogically, allowing the students to learn the method through experiencing it during the management of the course, their homework and team project assignments. This proposal presents a course restructuration project for the CMIS 270 course that will utilize the agile methodology known as SCRUM to teach the system development lifecycle. Approximately 170 students per academic year would be impacted by this structural change to the CMIS 270 course. Upon finishing CMIS 270, most CMIS students begin to look for internships. What would set them apart when applying for those internships would be to actually have experience with the aspects of agile methodologies. This EUE grant would support the first phase of this course restructuration. The next phase is to transition the new course structure to a High Impact Community Engagement Practice (HICEP) in which I partner with system design professionals in local businesses to transform the homework and team projects in the course into co-curricular activities. This will allow students and faculty to help external clients (not-for-profits, businesses, government entities, etc.) with system design problems they are facing. |

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| Project Director | Lakesha Butler |
| Title | Developing Cultural Competency of Pharmacy Students Through Immersive Theater |
| Award | $4168 |
| Abstract | The lack of cultural competency training has been identified by Healthy People 2020 as a primary factor leading to health disparities. Accreditation standards for pharmacy include the expectation that pharmacy schools produce healthcare practitioners who are prepared to serve culturally diverse populations. Pharmacy students in their 2nd year of pharmacy school complete a required course, “Health Promotion and Literacy,” which develops students to be able to understand and respect individuals from a variety of cultures and backgrounds. Discussions about social identities, unconscious bias, stereotypes, and health disparities are provided over a series of 2-hour class sessions each spring semester. The purpose of this course is to prepare students to provide optimal patient care to a diverse world. In teaching cultural competency, it can often times be difficult for students to truly understand the impact of their biases on interactions with others in a classroom setting alone. This proposal will develop an innovative collaboration between the School of Pharmacy, Department of Pharmacy Practice and the College of Arts and Sciences, Department of Theater Performance to facilitate diversity education through Immersion Theater. The program will consist of a 2-hour interactive, immersive theater production held in the SIUE Metcalf Theater. The pharmacy students will be immersed into the production of scripted scenarios focusing on diversity and inclusion, cultural awareness, bias and stereotypes. Additionally, pharmacy students will participate in an interactive talk-back with the |

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| | characters who are still in character and then resume the scene as written. The scripted production will be developed by the Project Director and Associate Professor of Theater and Dance along with 3 theater students. A self-report validated assessment tool will be used to evaluate the learning objectives in pre- and post-tests. Additionally, qualitative responses to open-ended questions will assess the students' overall experience with the immersive cultural theater program. This innovative, interdisciplinary approach to teaching diversity to health professional students will impact 88 total students initially and more broadly in the future.<br>Budget Summary (entered into online form)<br>Service Trip Program (March 3-March 10)<br>Approximately $3200.00<br>*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. |

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| Project Director | Jeff Darabi |
| Title | Integrating Studio Teaching into an Engineering Thermodynamics Course |
| Award | $13500 |
| Abstract | ME 310 -Thermodynamics I is a required junior-level course for Mechanical, Industrial and Civil Engineering students. This course is a prerequisite for several ME courses and students must complete this course with a grade of "C" or better before they can take higher level courses. Every year, approximately150 students take this course. However, Thermodynamics is a difficult subject and involves a challenging set of abstract concepts such as entropy and exergy that are difficult for students to grasp. Currently, this course is offered in a traditional lecture format. Based on my experience teaching this course for over 10 years and from reports in the literature, I have identified a set of strategies that are critical for mastery of thermodynamics. Thus, the goal of this project is to incorporate practice-oriented studio sessions into this course to help students learn the thermodynamic concepts and laws. We will develop a set of well-designed group exercises and projects throughout the semester in a studio setting that will focus on collaborative and experiential learning. These studio assignments will be connected with the real world to motivate students and to solidify their knowledge of thermodynamic principles. Group exercises and projects will range from analyzing simple real-life examples such as a bicycle pump to more complex systems such as an internal combustion engine. The proposed studio environment is expected to get students actively engaged in directing their own learning and to enhance student motivation and retention in engineering. An outcomes-based survey will be conducted on student achievement of learning |

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| | outcomes. In addition, peer and self-assessment strategies and feedback will be incorporated throughout the semester to assess student learning. |

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| Project Director | Yuliang Liu |
| Title | Impacts of an International Education and Culture-Focused Study Abroad Program in Northwest China on Education Students |
| Award | $15180 |
| Abstract | This proposal requests EUE funds to help implement a repeat program emphasizing the impact of an Education and Culture-Focused Study Abroad Program in Lanzhou and Beijing, China to education majors for two weeks in May 6-19, 2019. Funding this program will create a unique option to SEHHB majors in general and special education, psychology, applied health, and learning, cultural, and society at undergraduate and graduate levels. The Project Director (PD) received an EUE award to lead a study abroad program to China in May 2016 and the EUE funding allowed 16 students to participate. In May 2017, the PD led a repeat program to China. Initially 18 students applied, but a majority withdrew at the last minute due to inadequate funding. Therefore, only 4 students participated and each enrolled two 3-hour credit courses in 2017. In addition, due to recent budget crisis, SEHHB has decided to only offer a repeat program to China once every other year. Thus, this repeat program will be offered in 2019. The EUE funding will make this repeat program attractive to students in 2019 due to the increasing demand and interest in this program and the Project Director's recent success. It is expected that 12 students in education and 2 faculty/staff can participate and each student will enroll in two 3-hour summer courses in 2019. Students will closely interact with Northwest Normal University faculty and teacher candidates, K-12 students and teachers in general and special education, and various members in China. Students' performance will be assessed based on their participation in lecture/orientation sessions held in both the U.S. and China, daily debriefings, journals, school and cultural visits, and two projects after the return. Program effectiveness will also be assessed against the diversity standard of the Illinois Professional Teaching Standards. Based on the PD's recent success, it is expected that project objectives will be fully achieved: (1) introduce students to two distinct disciplines (special and general education) in Chinese K-12 education and culture; (2) help students gain a deeper understanding of social, cultural, and political factors that significantly influence teaching and learning in special and general education; and (3) help students compare and contrast special and general education systems between China and U.S. Results will be widely disseminated via a variety of ways such as at the SIUE campus, scholarly conferences, and publications. |

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| Project Director | Adriana Martinez |
| Title | The Future of Mapping Technology: Upgrading to ArcGIS Pro |
| Award | $8750 |

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| Abstract | We are requesting funding to update the course GEOG 418 Geographic Information Systems to the latest major software change from ArcMap to ArcGIS Pro. Environmental Systems Research Institute (ESRI) is a major company that develops the premier software for mapping known as ArcGIS. Two years ago, ESRI completely overhauled their suite of mapping software and developed the new mapping program known as ArcGIS Pro. This new program is an online-based system for mapping and is significantly different from the ArcMap system previously used. In order to bring students up to date on the latest software and tools within the Arc system, we aim to first learn the new software and then update the associated labs to reflect the new system. By redesigning the course to ArcGIS Pro, we are ensuring that students are learning the latest technology and are completely prepared for the workforce where a growing number of employers are switching to the ArcGIS Pro system. This course is offered every semester and during the summer session. Geographic Information Systems instructs students in basic GIS techniques and tools and serves as the introductory course to a suite of courses in Geospatial Technologies that we offer in Geography. Topics in the course include: vector and raster data, projections, queries, geocoding, GPS, and spatial analysis. In addition, this is a foundational course that serves not only our major, but other SIUE students within engineering and the natural and social sciences. This course is one of three required courses for the GIS minor at SIUE. |

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| Project Director | Barbara Martin |
| Title | Integrating Feedback and Analytic Technology into Coursework and Supervision in the Teaching and Learning Department |
| Award | $16418 |
| Abstract | The purpose of the proposed project titled, Integrating Feedback and Analytic Technology into Coursework and Supervision in the Teaching and Learning Department, is to implement and investigate the impact of using an interactive technology system to provide feedback to teacher candidates in a synchronous and asynchronous manner. This technology will be implemented with various professors in various programs throughout the Department of Teaching and Learning, with the addition of mini book clubs focused on Jim Knight's book, Focus on Teaching: Using Video for High-Impact Instruction. Specifically, faculty and instructors in the special education program, elementary program, early childhood program, and secondary program will implement this technology for use during supervision and within courses. By using this technology, faculty members and instructors will be able to provide feedback on instruction, projects, and in-the-moment teaching segments. This will provide more feedback, more learning, and more opportunities to grow for our teacher candidates. Additionally, by utilizing this technology department-wide, multiple students will be able to reap the benefits. In total, approximately 210 teacher candidates in our department will be able to utilize this technology in courses and supervision. Furthermore, the technology, GoReact, is partnered with Blackboard (the university-wide course management system). Therefore, the ease of grading, uploading rubrics, and learning the system will be extraordinary.<br>Traditionally, faculty members and instructors have had to travel far distances to observe teacher candidates in classrooms, which at times leads to minimal observations, even for students who may need more guidance and coaching. Additionally, faculty members have been unable to fully provide quality feedback on instruction. However, in this project faculty members and instructors will be able to provide better quality and more frequent feedback with the videotaping and synchronous learning environments available through this technology. It should be noted, though, that this will not replace face-to-face interactions with cooperating teachers in school or teacher candidates, however this will add to the coaching, education, and guidance supervisors will be able to provide. Additionally, faculty members and instructors will be able to integrate this technology into their coursework in order to provide more detailed feedback to each student. |

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| Project Director | Edward Navarre |
| Title | Modernizing Visible Spectroscopy for Sophomore-level Analytical Chemistry |
| Award | $11836 |
| Abstract | The quantitative analytical chemistry laboratory (CHEM 335) is designed as the introduction for all Chemistry majors and minors to high-quality |

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| | chemical measurement and the practices of chemical measurement. Recent work by the project director of this proposal in the department of Chemistry has given the CHEM 335 course a set of experiments that incrementally challenge student's laboratory abilities and that work as expected (this last point is neither trivial to achieve, nor unimportant to students). One of the important feature of CHEM 335 is that students are introduced to simple laboratory instrumentation such as potentiometry and visible light spectrometry. The direct experience of operating instrumentation is essential training for these students to build their competency and confidence in the chemical laboratory in preparation for the junior- and senior-level coursework in Chemistry.<br>This EUE proposal requests funds to support visible spectrometry instrumentation that makes better use of existing departmental resources and provides an opportunity for students to have a more meaningful experience with the equipment. The particular issue is that the existing visible light spectrometers are long since discontinued by the manufacturer and replacement parts are unavailable. As these instruments continue to age and break, repair will be impossible, and the experiments that use them will not be able to be completed. The requested EUE funds will allow the project director to build an easy-to-use interface for students to operate a more sophisticated visible light spectrometer already owned by the department. Existing spectrometers will be interfaced with software written by the project director and operated on a Raspberry PI computer. This particular choice of equipment is important to make use of the limited space available in the laboratory. |

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| Project Director | Sangsook Park |
| Title | Redesigning Art Education Curriculum and Program |
| Award | $7996 |
| Abstract | I propose to redesign the current Art Education curriculum and program by completing two projects: 1) Make an in-depth examination and research of the current Art Education curriculum in order to redesign the existing program and to recommend the new courses for compliance with the National Visual Arts learning standards (released in 2015) and the new Illinois State Visual Arts learning standards (released in 2017). Our current Art Education curriculum is over 30 years old and the Illinois Board of Education (ISBE) requires the design of a new curriculum in all education programs, and art education in the K-12 program is no exception. ISBE has adopted a new test, the edTPA (Teacher Performance based assessment) and key assignments on the assessment will be integrated into our new curriculum; 2) Develop an "Art Education Degree only" option. Our current Art Education program is a BS degree with K-12 teacher licensure. Because of the significant changes in the IL teacher licensure exam requirements, such as passing score on ACT with Writing or TAP, I have observed that some students who were passionate about and dedicated to art teaching and artistically talented have had to drop their art education study due to failing to meet the requirements for licensure. This |

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| | has had a negative impact on enrollment in the Art Education program., but this option will allow such students to continue to study art education. Furthermore, if they want to obtain the teacher licensure, the new curriculum will allow them to easily switch and pursue the option with licensure. Moreover, this option would be beneficial for art studio and art history majors by providing the educational information and skills to help them consider teaching as their career choice.<br>To develop and redesign the new curriculum and program, and to make the necessary changes, will require time to prepare the extensive paperwork related to the proposals, revisions, and approvals at the department and university levels as well as for the ISBE. This grant will allow me to concentrate on the process, complete the changes and all necessary paperwork by the end of summer of 2019 and submit it to the university review committee by the end of fall 2019. |

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| Project Director | Connie Frey Spurlock |
| Title | Food Sustainability Consortium |
| Award | $14224 |
| Abstract | Food sustainability is an issue that reflects the need for true interdisciplinarity that extends beyond academic departments to include a greater collaboration between academic and student affairs. To understand fully the implications of the meals that end up on their plates each day, students must learn about biological diversity, urban and rural landscapes, cultural foodways, and the social and nutritional implications of food quality and scarcity. Faculty in Sociology, English, History, Applied Health, Geography, Biological Sciences, Environmental Sciences, Anthropology, and Philosophy have been teaching courses related to food sustainability both within their own departments and for interdisciplinary studies. These courses often contained service learning components involving campus and the broader community. Meanwhile, Sarah Laux and others in Kimmel Student Involvement Center, have been working tirelessly with students to develop service-oriented, extra-curricular programs that address poverty and hunger for our own student populations and across the Metro-East. Despite several markers of success, efforts like on-campus teaching gardens, a push for campus-wide composting, or food pantries have been too contained by particular offices or the boundaries of one course's service project to make it beyond a single semester or one cohort of students. The work of faculty, staff, and students has reached a critical apex wherein to continue to develop, we need to create a consortium across departments and offices to ensure that there is a continuing set of courses, resources, and student support. The consortium will support five on-going food sustainability-related high impact projects underway at SIUE but in need of curricular and extra-curricular coordination: the student food pantry; the new SIUE Goshen Farmer's Market; a Market on Wheels in collaboration with the Goshen Market Foundation that provides greater access to affordable, healthy produce in food insecure areas of the region; the community garden started by the student organization Natural Connections; and a rooftop teaching garden currently in production outside |

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| | Fixins'. The consortium will include a coordinator for activities, a sustainable system for sharing resources across projects, the planning of a steady slate of courses integrating these projects into the curriculum, and a food sustainability competency badge to reach new audiences with the innovative food-related work underway at SIUE. |

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| Project Director | Jason Stacy |
| Title | Manifest Destiny, The History and Practice of an Idea: Editing George Lippard's Legends of Mexico (1847) |
| Award | $600 |
| Abstract | Since the Department of Historical Studies added a lab component to our undergraduate survey courses in 2012, we have sought to incorporate training in applied historical methods into our curriculum. Recently, we added a specialization in applied historical methods for students who seek training in public history, historical archiving and history pedagogy.<br>"Manifest Destiny: The History and Practice of an Idea" will further these reforms by transforming an upper-division, lecture-style history class into a model of applied historical practice.<br>"History of American Ideas (HIST 425)" is a traditional survey of intellectual trends in the United States that values recall over application. In fall 2018, I will pilot a section of "History of American Ideas" that focuses on a single historical idea and trains students in historical editing rather than factual memorization. This piloted section of HIST 425 will be dedicated to the idea of Manifest Destiny and culminate in a class-edited edition of George Lippard's Legends of Mexico (1847), published at the height of the Mexican-American War (1846-1847), and a hallmark of the ideology of Manifest Destiny.<br>During the course, students will collaboratively research and write a historical introduction and annotate the text to situate the book within its historical context. In this regard, the historiography that we read as a class, the discussions we have about the history of Manifest Destiny, and the analyses we undertake of this primary source, will serve to revive Lippard's book from historical oblivion and make it accessible to the general reader as an example of Manifest Destiny in the 19th century.<br>Should this pilot prove successful, I will use the experience to formally reconfigure "History of American Ideas" into a course dedicated to training students in historical documentary editing and add it to our electives in our "Applied Historical Methods"specialization. In this regard, this pilot has the potential to impact all history majors by providing a foundation upon which to build training in applied historical skills into all of our upper-division electives. |

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| Project Director | Eric J. Voss |
| Title | Chemical Demonstration Resources for the 21st Century |
| Award | $6900 |

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| 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 SEHHB 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 SEHHB'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 | Yadong Wang |
| Title | Experimental Learning in Radar System Course |
| Award | $8000 |
| Abstract | Experiential learning is the optimum approach for engineering students to understand the knowledge from the textbook and to build the capability of solving problems. Radar system (ECE447) is an undergraduate/graduate course, which helps students to transform their roles from “good students” to “high quality radar engineers”. For this purpose, this project proposes to adopt and adjust real radar research topics as ECE447 course projects. There are three major steps in this project: 1.) radar algorithms selection, 2.) studying, testing, modifying platform creation, and 3.) results validation. Through this experiential learning process, students can better understand the course knowledge and obtain real work/research experience which is highly desired by radar industry or research institutes. |

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| Project Director | James Wulfsong |
| Title | Computer Numerical Control in the modern scenic studio |
| Award | $14898 |

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| Abstract | Computer Numerical Control for scenery manufacture is rapidly being adopted by production houses and University Theater programs. The advent of low cost 3d printing has helped drive this trend, small machines can be found below $2k and a full-size CNC like the one in this project well under $20k. A decade ago computer controlled 2d and 3d machining would require a $100,000 investment in equipment and experienced machinists to operate putting it well out of all but Hollywood and the very largest shops.<br>We will build and install a 5'x10' bed CNC machine which we will use in our construction and design course series to produce scenery as well as other tools and jigs for our studio. This machine allows precision manufacture and repeatability of scenic units by milling material from sheet stock in plywood, foam, aluminum and composite materials.<br>As mandated by our accreditation agency NAST our classes are small, each course maxing out at 15 students, however it will be used across our whole design/construction series - From the introductory design and construction course (150) class to Computer Drafting and Rendering (340B), and our advanced classes in Design (350) and Construction (399). We will also develop a course focused on advanced manufacturing techniques for scenery and props using this machine combined with the 3d printer the department purchased, and a vacuform machine we will build with this CNC once it is installed. It may be possible to develop a certification program for CAD and CNC manufacturing through this or other classes this equipment can make possible. Students trained in CAD drafting and CNC manufacture will be not only at the top of the competition for theater construction but these skills are easily transferred to Film production houses and manufacturing in many industrial settings. |

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| Project Director | Bin Zhou |
| Title | Developing a Business Geography Course that Teaches Techniques of Business Locational Analysis and Uses Free Open-Source Software |
| Award | $9000 |
| Abstract | This proposal requests EUE funding to develop a new course Business Geography which teaches techniques in business locational analysis using free open source software. Currently, the Department of Geography offers several courses that involve some locational analysis. However, none of the courses directly teaches students business location decision-making, leaving a gap in business skill training with advanced technologies.<br>The proposed course teaches business locational analysis from a business decision making perspective. The course will be structured using established economic and business models including spatial interaction theory, location theory, location–allocation theory, and transport network analysis. It teaches five sets of techniques: market analysis using the spatial point process analysis techniques; market area analysis using various gravity models and area data; business catchment area analysis using attribute data and actual road networks; location-allocation analysis focusing on locating businesses and allocating customers to businesses; and road network analysis involving flow pattern analysis from road |

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| | network and transport planning. While most of the techniques are commonly used for business locational analysis, the location-allocation and road network analyses are also important tools for government work.<br>To eliminate the cost burden on students and reduce resource access inequity, the new course will be taught entirely using free open source software.<br>The new course is planned to be taught in Spring Semester 2019 as a special topics course and will be developed as a formal course after going through the curricular process. The proposal requests one month summer salary $9,000 for developing the new course that will require a large and dedicated time commitment. |