

## **Miller Faculty Fellowship Grants Academic Year 2018-2019**

### **Can automated writing evaluation enhance undergraduate writing? A cross-disciplinary multi-course pilot of Grammarly, \$13,000**

James Ranalli, Department of English (LAS) with 20 collaborators

Writing is a core academic competency, but incorporating writing into coursework and assessment is increasingly difficult given ballooning enrollments and shrinking TA support. Cutting-edge tools for automated writing evaluation (AWE) can help by empowering students to independently improve their grammar and usage, thus freeing instructors to focus on higher-level concerns such as content. Barriers remain, however, to the widespread adoption of such tools, including (1) doubts about the accuracy and efficacy of AWE feedback; (2) lack of knowledge about how such tools are best incorporated into the writing process and coursework; and (3) lack of information about the effectiveness of specific tools on which to base programmatic decisions. To address these gaps, the current project will pilot one such tool, Grammarly, in writing-focused and writing-intensive courses at ISU and gather student and instructor views about its value for supporting writing and instruction.

### **Developing innovative and interactive digital learning resources for veterinary medical students: Canine and feline applied anatomy, \$5,000**

Thimmasettappa Thippeswamy, Biomedical Sciences (CVM); Jessica Ward, Veterinary Clinical Sciences (CVM); Jared Danielson, (CVM); and Cory Farver, IT Services (CVM)

Anatomy has been perceived as the most daunting and boring veterinary subject, both to teach and to learn. Several textbooks and online resources are available for both instructors and students. However, in spite of advancement in technology for creating teaching and learning resources, there has been minimal change in the way the veterinary anatomy is being taught and learned. There is some element of complacency in the teaching of anatomy, for example, based on the premise that "*anatomical facts do not change*", which is true. However, there is a disconnection between preclinical and clinical veterinary curriculum with respect to vertical integration of anatomy topics. The main goal of this proposal is to bridge this gap by creating digital interactive learning resources to enthuse and motivate students' active learning of veterinary anatomy from clinical perspectives.

### **Identifying Factors that Aid in the Successful Transition of Transfer Students from a Two-Year Institution to Iowa State University, \$5,000**

Jennifer Bundy, Animal Science (CALs); and Cori Siberski, Animal Science (CALs)

Students transferring to Iowa State University (ISU) from a two-year institution often face challenges that are different from those experienced by students coming to us directly from high school. These challenges can be segmented into three categories of stress: psychological, academic, and financial. These stressors play a role in decreased retention and graduation rates of transfer students as when compared to direct-from-high-school students. Although ISU provides resources to alleviate some of these stressors at the departmental, college, and university level, we still see reduced retention and graduation rates among transfer students. Therefore, the goal of this project is to determine where our resources are lacking. We propose a mixed method approach to college and analyze qualitative and quantitative feedback from our current transfer students.

## **Latino/as and the Iowa Immigration experience: Undergraduates and community engagement, \$7,091**

Megan Jeanette Myers, World Languages and Cultures (LAS); and Flor Romero de Slowing, World Languages and Cultures (LAS)

The Hispanic population in the state of Iowa is growing. Towns neighboring our Ames community report significant increases in the Latino/a population; In Perry, for example, nearly 40% of residents identified as Latino/a on the 2010 census. Communities like Perry, located about a 35-minute drive from the ISU campus, offer a unique opportunity for undergraduate students majoring or minoring in Spanish and/or U.S. Latino/a Studies to strengthen cultural competency, improve social responsibility, and develop leadership and communication skills. The National Service Clearing House confirms that community engagement work “integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities.” While courses in the Humanities often aim to bring culture into the classroom, this new course, cross listed between U.S. Latino/a Studies and Spanish, will engage students with the local Latino/a community through a mentorship program with Perry High School. The new course will be an ideal addition to the Latino/a Studies curriculum in particular, with approximately 300 students per year enrolled in USLS 211 (Introduction to Latino/a Studies). Moreover, the Spanish major is the most popular within the Department of World Languages and Cultures, currently with approximately 280 majors, and these students would be able to take this proposed course as a major elective.

## **Practical experience on service dog behavior and training science, \$5,000**

Mariana Rossoni Serao, Animal Science(CALS); and Jodi Sterle, Animal Science (CALs)

The purpose of this project is to provide service dog training experience to undergraduate students of animal science and disseminate information on service dog industry to the academic community. A high demand for professionals in the area of service dog training has been identified. Five students from the Department of Animal Science will be selected to participate in a practical experience of service dog training. In a period of 10 weeks, each student will have the opportunity to work with a dog-in-training provided by an organization that trains dogs to serve individuals with disabilities. Students are expected to foster, socialize and train dogs for a period of 10 weeks. Students will be expected to present their experience to different levels of Animal Science undergraduate students and to teach handler/dog service dog training to senior students in the Department of Animal Science.

## **Promoting student engagement and productive group dynamics in team-based learning Calculus courses, \$15,000**

Amanda Baker, School of Education (CHS); and Heather Bolles, Mathematics (LAS)

In autumn 2017, over 380 undergraduate students enrolled in a Calculus I (Math 165) course using a Team -Based Learning (TBL) approach. Results of ongoing course evaluations suggest that the TBL approach to teaching calculus is associated with higher student retention in the course and better conceptual understanding of mathematics. However, the effectiveness of the TBL approach seems to be mediated by individual students' level of engagement in course activities, as well as the quality of students' team dynamics. Understanding how instructors and teaching assistants can facilitate high -quality student engagement and positive team dynamics, thus, may further improve student retention and learning. We seek \$14,986 to support a mixed -methods evaluation of student engagement and team dynamics within TBL sections of Math 165, with the goal of developing concrete recommendations for improving student experiences and outcomes in this course and in other courses using a cooperative, active -learning approach to instruction.

### **Real talk: Engaging pre-service elementary social studies teachers in critical inquiry and conversations about race and immigration, \$10,751**

Noreen Naseem Rodríguez, School of Education (CHS); and Katy Swalwell, School of Education (CHS)

This project aims to model inquiry-based social studies and language arts integration through a semester-long unit on race and immigration in required early childhood and elementary social studies methods courses. Prospective early childhood and elementary teachers often lack social studies content knowledge and frequently ask for more resources to work with racially and linguistically diverse children whose experiences differ from their own. In this project, undergraduates will engage in reading groups throughout the course of the semester to develop historical and contemporary understandings of race and immigration in the United States. As the students' content knowledge grows and questions emerge, the instructors will model inquiry-based learning parallel to those social studies methods taught in class. Additionally, experts on race and immigration will serve as guest speakers and interested students will be invited to present on their experience in the course at state and local educational conferences.

### **Sketch-noting as a pedagogical tool in ecology, \$14,148**

Verena Paepcke-Hjeltness, Industrial Design (COD); Ann Russell, NREM (CALs), and Ann Gansemer-Topf, School of Education (CHS)

Sketchnoting is a design-visualization methodology that provides a framework for students to communicate visually by allowing them to break down complex forms and concepts into combinations of dots, lines, squares, triangles, and circles. The simplicity of these shapes promotes this pedagogical tool's use for skilled and non-skilled drawers alike. In previous Sketchnoting seminars organized through CELT and in classrooms, this tool exhibited the potential to foster generation of ideas and confidence in design creativity by students. This methodology is expected to foster higher-level thinking in STEM fields because it promotes visual synthesis that enhances students' capacities to problem-solve. The objectives of this cross-disciplinary study are to adapt and evaluate the effect on student learning and attitudes of this tool in a STEM field. This will be the first rigorous evaluation of this low-cost tool in a required undergraduate course for the Biology major.