CDCF Funded Proposals 2019-2020

Breaking News! This is a Disaster Notification. Are You Read?
Nursing: Theresa Bucco

Disaster management experts agree- it is not a matter of if but when a disaster will strike. Are nurses prepared? Disasters pose a huge burden on the world’s health, leaving communities in tatters, property damaged, lives lost and changed forever (Nielson, 2017). Nurses are the largest segment of the healthcare workforce and are at the forefront of engaging and participating in disasters. The capacity of nurses to respond to these disasters is limited by gaps in knowledge, preparation and experience (Veenema, 2017). There is a need for all nurses to be prepared for, respond to and mitigate the impact of disasters on human health. The gap has been identified within the nursing educational curriculum (Shannon, 2015). Many nurses receive little to no disaster nursing education (Jacobs-Wingo, Schlegelmilch, Berliner, Airall-Simon & Lang, 2019). Here at Meyers we have begun to offer an undergraduate nursing elective in Disaster Nursing and Emergency Preparedness (UG 1311) in fall 2019. Although this elective is available to all graduating students, only 10% of the students (approximately 20 students) are enrolled in this elective. This CDCF proposal will support the development, implementation, and evaluation of “The Disaster Nursing Project” which will be an innovative, immersive initiative within the required Community Health Course (UG 1244) using simulation. The purpose of this project will provide the necessary knowledge and experience for all graduating students to have foundational knowledge and preparation for a disaster response. The project teaching modalities will be guided by the Experiential Learning Framework and best practices for innovations in simulation (Kolb, 2015; Bryant, Aebersold, Jeffries & Kardong-Edgren, 2019). The integration of this nursing curriculum addition will have a profound impact on student learning and contribute to nursing workforce readiness to improve health outcomes of communities during disasters.

Improving Population Health Through Interprofessional Learning: Using Digital Design Thinking to Address the Built Environment and Global Climate Change Factors
Nursing: Stacen Keating

The environment, both in terms of its structural setting (the built environment) and current climate trends, have had dramatic health impacts in recent years. These foci are so important they have been designated key target areas of change by the United Nations (U.N.). The UN Sustainable Development Goals (SDGs) have provided a framework for how to improve life and
foster health and prosperity for all. Of the 17 goals, there are a number which specifically focus on the built environment and climate control. For example, SDG #13 focuses on climate change which includes heat waves, extreme weather patterns and droughts. Heat waves have claimed the lives of many of vulnerable individuals, especially older adults. The population toll from major weather extremes includes an array of unwanted effects: illness from water and food related disease as well as infectious diseases, damage to water and food supplies, injury, disability and death. Further population health effects can be felt due to the mental health complications that can result from these extremes in weather. Changes in life circumstance, worsening poverty, damage to domiciles, exacerbated illness and loss of a loved one can lead to depression, anxiety and post-traumatic stress disorder (PTSD). Poorly constructed environments leave populations at risk for injury, illness and violence among other things. A gap exists within the nursing curriculum in regard to attaining the requisite knowledge, skills and attitudes needed to be innovators in a quest to ameliorate the negative health impacts of faulty built environments and mounting climate changes. This proposal will support the development, implementation and evaluation of a hybrid graduate nursing course that will provide a platform for interprofessional learning, fieldwork, independent digital module completion and group collaboration to gain the expertise needed to design ways to address these complex and pressing global health issues. Using Design Thinking (DT) methodology will allow the interprofessional teams to build a solution to an environmental or climate change issue of their choosing as a final summative project in the course.

**Online Elementary Chinese Course Development**

CAS: Chen Gao

This funding request is for an innovative project to develop an online elementary Chinese course, which will introduce Chinese pronunciation, essential grammar and writing system to undergraduate students in the Department of East Asian Studies. Nowadays, students are digital natives and online courses are or will be what they demand but our current curriculum are not able to provide. In partnership with NYU IT and the FAS office of Educational Technology, we will leverage innovative educational technologies to deliver knowledge through interactive video lectures and synchronous learning activities. Extra learning resources will be created and various types of digital tools will be used to engage students, address differences in students’ preparedness, and increase learning outcomes. As the result of this project, we will be able to update and expand the existing curriculum. We’re hoping to launch this online course in fall 2020 semester. This will be the first online foreign language course offered at NYU and may provide a model for online foreign language courses. It will also have a long-term impact on creating a new venue to engage prospective students and boost enrollment, as it will provide the flexibility needed to accommodate the varied schedules and learning needs of students. The course
Lambda Calculator: An Educational Software Application for Formal Semantics
FAS: Lucas Champollion

This project proposes to hire two student programmers to maintain and enhance the functionality and usability of an existing software program that supports the standard curriculum in semantics, a subdiscipline of linguistics. This program is both a classroom aid that helps instructors visualize material; an automatic homework grading system; and an interactive calculator that automatically generates feedback in reaction to student errors. Semantics instructors at NYU and worldwide have successfully integrated the current version into their curricula. The objective of this project is to ensure that the lambda calculator can continue to be used on modern operating systems; affords more reliability and flexibility to instructors and students; integrates better with pedagogical materials under parallel development; and incorporates features and bugfixes that users have requested over time.

Climate, Sustainability and Food Security: An Interdisciplinary Perspective
GPH: Niyati Parekj and Jack Caravanos

Over the past decade, there has been growing interest, both in research and practice settings in the topic of climate and its consequences on food security and health by the year 2050. The aim of this proposal is to develop a new graduate-level online course, which will address the emergent topic of the interrelationship between climate, food security and public health through a systems-thinking lens. This foundational course aims to equip students with the background needed to understand the causes and consequences of climate change and the proposed adaptation and mitigation options as it relates to food security. It will also serve to enhance understanding of sustainable development and the impact on food systems globally by using country case studies as examples. Funding for this proposal will support research assistance and collaboration with climate/atmospheric scientists as well as experts from agencies including the United Nations and the Rockefeller Foundation, to develop course
content and class activities, which will emphasize practical lessons learned within the formal didactic instruction to maximize real-world application. The course will be open to graduate students at GPH and other schools across NYU and working public health professionals globally through our certificate programs. We believe that this course will make an important contribution to the GPH curriculum and will equip our students, who will become the next generation of public health practitioners and researchers, with a new content expertise and understanding how to tackle a serious challenge that is upon us.

**Interactive Teaching and Learning of Statistical Programming and Machine Learning in R**

GPH: Yang Feng

We propose to develop a sequence of programming and machine learning courses in the College of Global Public Health through a combination of traditional lectures and modern interactive lessons/quizzes. The most attractive feature of this combination format is that in addition to the traditional lectures, it allows course instructors to create interactive lessons and quizzes for each topic of the course. Through the interactive lessons, the students can preview/review course materials and work on practice problems anytime, anywhere, and at their own pace. The students can receive real-time feedback on their work, which is important for learning a programming language. Through the interactive quizzes (in class), the instructors can get real-time feedback on the progress/performance of all students and can proceed with the lecture accordingly. Throughout the course, the instructor will have a record of the up-to-date learning profile of each student from the interactive lessons as well as the quizzes, which could be valuable both in evaluating the students and tailoring the remaining course materials accordingly. Furthermore, the course can be adjusted based on the entire learning profiles of students at the next offering. The interactive lessons and quizzes will be made via an open-source R package swirl, and the relevant materials will be stored on a repository in GitHub for sharing and easy access. The objectives of this project are 1) Develop the feedback system by connecting R package swirl with Google Form API; 2) Create companion interactive lessons/quizzes for the following three new courses: Introduction to Statistical Programming in R, Intermediate Statistical Programming in R, and Machine Learning in Public Health; 3) Create a public repository on GitHub that containing all the developed lessons and quizzes to help the students across NYU that is interested in learning R programming or machine learning interactively.
Applied Predictive Analysis to Social Good
Courant: Anasse Bari

Predictive analytics (a branch of AI) is the art and science of extracting useful information from historical data and present data for the purpose of predicting future trends. It is a technology that learns from experience: Big Data. While the majority of computer science and AI related courses at NYU focus on the theory and narrow applications of AI, this course will be different in three ways: (1) It will focus on teaching students the tools and the foundations of AI they can use to quickly pick a dataset and apply predictive analytics capabilities to extract insights (e.g. supervised learning, unsupervised learning, mining associations and time series forecasting.) (2) The course will adopt easy-to-use tools that other classes do not use like Intel AI (a collaboration has been put in place) and several other easy-to-use open sources tools such as Knime open source analytics tool. (3) Most importantly, the course focuses on the applications of AI to social problems in domains like: climate change, violent crimes, education, gender equality, poverty reduction, among others.

Interactive Learning for Program Evaluation
Steinhardt: Jennifer Hill

Program evaluation refers to a research process specifically targeted at answering questions about policy and practice. Often it involves a focus on understanding the efficacy of the program in question. Program evaluation is challenging in practice because, unlike other research areas, there are so many aspects of the research process that are beyond the researcher’s control. This characteristic of program evaluation also makes it incredibly difficult to teach well. Often we end up teaching our students about idealized “best practices” and then they end up learning on the job how to navigate the myriad pitfalls that occur in real life. This is suboptimal both for the student and their future employer. The goal of the proposed project is to create a technology-enhanced interactive teaching tool that will help students understand one of the core concepts in many program evaluations – site selection. The hope is that this tool could then be used as a pilot demonstration to secure funding from foundations or other funders to create more such tools.

Wikimedians at NYU: Pedagogy, Curriculum, and Community of Practice
Libraries: Lauren Kehoe, Alexandra Provo, Lori Salmon, Jennifer Stubbs, and Kimerly Tarr

Wikimedians at NYU: Pedagogy, Curriculum, and Community of Practice curricular development
project seeks to understand how Wikipedia and other Wikimedia projects are being used across NYU’s classrooms and to expand the Division of Libraries’ support of this activity. Building on the Division’s established Wikimedians at NYU Community of Practice, the PIs will administer a survey to NYU faculty across the campuses to assess the curricular use of Wikimedia. The results of the survey will be used to develop library programming in New York and Shanghai, grow the community of practice beyond the Division of Libraries, and to build a curricular toolkit to support Wikimedia activities at NYU.