

## **Regular Research Grants Awarded in FY 2016**

### **Adya, Monica**

Associate Professor, Management

### **Cotton, John**

Professor, Management

RRG Award Amount: \$3,000

### **Mentoring Among IT Professionals: Understanding Process and Outcomes**

One of the most influential methods of worker development is the mentoring relationship. Workplace mentoring can be beneficial to protégés in the form of career related and psychosocial support and positively impacts career progression, satisfaction, and commitment. Although mentoring has been examined in the general management literature, it has received passing attention in information technology (IT) research in spite of the above findings. Mentoring may be particularly beneficial for improving participation in the IT workforce, especially as recruitment and retention of IT professionals continues to remain volatile. Mentoring may provide a solution for mitigating the effects of a high-pressure, masculine work environment. Further, mentoring across generations of IT professionals can support exchange of critical business and technical knowledge. These unique demands of the IS profession and increasing trends toward offshoring warrant an IT-specific examination of mentoring behaviors, preferences, and influences. With this in mind, the study has the following broad objectives:

- a. To empirically examine the process and outcomes of mentoring on IT professionals,
- b. To empirically determine how these mentoring processes and practices differ among IT professionals with regards to personal and professional demographics and orientations.

An online survey of professionals will provide insights into most questions above. The survey has been designed and includes items related to personal and professional demographics, mentoring practices at work, career orientation, existing mentoring relationships and perceived benefits from the same, and a set of outcome measures such as job satisfaction and turnover intentions.

### **Afinoguenova, Eugenia**

Professor of Spanish, Foreign Languages and Literatures

RRG Award Amount: \$4,550

### **Socialist Non-Realism: Picasso's Guernica and the Artistic Experiments of the Popular Front, 1936-1939**

The project contributes a new approach to Pablo Picasso's mural Guernica commissioned for the Spanish Republic's Pavilion at the 1937 International Exhibition in Paris and painted between late April and early June 1937. The present SFF/RRG application seeks support to complete research for, and write an article addressing one neglected aspect in the history of Guernica: the fact that Picasso produced his work in communication with a tightly-knit group of French and Spanish intellectuals who at the time advocated for a de-individualized, collective mode of artistic production. Tracing connections between these little-studied ideas and the ideologies of the Popular Front shared by the majority of Picasso's friends and bringing in new archival sources, my article will tell an unknown story of how Guernica was made and what it meant for the Popular Front quest for a political art beyond Stalin's "socialist realism." This project, furthermore, provides an important step-stone for my next monograph, dedicated to Picasso and the art of the Popular Front.

**Birren, Jill**

Assistant Professor, Educational Policy and Leadership

**Hristova, Krassimira**

Assistant Professor, Biological Sciences

RRG Award Amount: \$6,000

**Science, Policy, and Public Engagement in Kewaunee County Water Quality Concerns Over Local Contamination Due to Concentrated Agricultural Feeding Operations**

The proposed study explores intersections between science, policy, and public engagement in Kewaunee County, Wisconsin, where high numbers of Concentrated Animal Feeding Operations (CAFOs) combined with a uniquely susceptible geology have threatened the quality and safety of well-sourced drinking water in local communities. Recent activity on the part of citizens and environmental activist groups have placed water contamination issues in Kewaunee County at the forefront of regulatory and public concern over the implications of CAFOs for local communities and the environment. Our proposed collaborative research project will examine public engagement in policy negotiations and link local groundwater quality with human health. The partnership will provide unique perspectives into public understanding of science and the influence of science on policy in controversy over CAFO sourced water contamination. This work will lay foundations for our ongoing research at the intersection of science and policy related to agricultural waste management, water quality, water policy and environmental justice. As Milwaukee seeks to become a leader in water-related science, technology and development, research frameworks that are able to consider the technical aspects of such initiatives within contexts of socio-scientific controversy and policy processes will be increasingly important for pursuing and protecting interests of environmental justice.

**Canavan, Gerry**

Assistant Professor, English

RRG Award Amount: \$1,500

**The Science Fiction of Clifford D. Simak**

This project takes up the work of Wisconsin-born science fiction writer Clifford D. Simak (1904-1988) towards the production of two related articles. The first article will explore Simak's attempts to integrate science fiction and religion, which stand in marked contrast to the well-known atheism of contemporaries like Isaac Asimov, Robert Heinlein, and Arthur C. Clarke. A lifelong Catholic, Simak deployed science fictional tropes in the service of his spiritual speculations, seeking to produce a positive vision of the science fiction genre that is compatible with religious thought rather than permanently or endemically opposed to it. The second article focuses specifically on Simak's 1952 inventive novel *City*, which describes the emergence of a species of intelligent Dogs (*Canis sapiens*) and the subsequent total disappearance of human beings from Planet Earth. I consider *City* in the context of related works, in particular Olaf Stapledon's *Sirius* (1944)—also about a dog that has been raised to human intelligence—and David Brin's "Uplift" series of novels (1980s-1990s), which concerns the creation by scientists of sentient dolphin and chimpanzee "persons." This article in turn will feed into my third book project, which traces the relationship between science fictional figurations of animal and alien "personhood" and the rhetoric of contemporary animal rights movements. I plan to apply for an NEH fellowship in spring 2016 to support this project in academic year 2016-2017.

The significance of this project is thus to revive critical interest in Simak's fiction at a time when his thematic interests in philosophy, ecology, and animal rights make him increasingly relevant to contemporary debates in the humanities, as well as demonstrate important links between science fictional speculations and animal rights struggle.

**Fishman, Jenn**

Associate Professor, English  
RRG Award Amount: \$2,080

**Tracing the Impact of Undergraduate Research in Rhetoric and Composition/Writing Studies**

While George Kuh's often cited 2008 report on "high impact learning practices" brought new attention to the importance of undergraduate research in college-level education, the data supporting his work comes almost exclusively from studies conducted in STEM disciplines. My project responds to the current need for data regarding the impact of undergraduate research in the Humanities. Focusing on the relatively young discipline of Rhetoric and Composition/Writing Studies (RC/WS), my project poses two main questions. First: What is undergraduate research in the discipline, meaning what kinds of studies do students conduct, what methods and methodologies do they employ, and how do they circulate their findings? Second: How do students, teachers, scholars, and administrators measure (or otherwise gauge) the impact of undergraduate research on RC/WS?

To address these questions, I collect and analyze three discrete, yet complementary datasets: (1) bibliometrics and altmetrics for undergraduate authored scholarship in RC/WS, (2) focus group interviews with active undergraduate researchers and mentors, and (3) audio- or audio-video-recorded narratives of undergraduate research told by researchers and mentors. Project findings will circulate via two new resources: a scholarly monograph, which will propose a taxonomy of undergraduate research in RC/WS, and an open digital archive of undergraduate research narratives. The latter will encourage disciplinary practitioners to continue sharing evidence of undergraduate research in years to come, while both deliverables will affirm and strengthen the active commitment to undergraduate education that defines RC/WS and anchors its contribution to teaching and learning within the Humanities.

**Gilat Schmidt, Taly**

Associate Professor, Biomedical Engineering  
RRG Award Amount: \$6,000

**Using Spectral Information to Reduce Metal Artifacts in Computed Tomography Images**

Computed tomography (CT) is a powerful medical diagnostic tool that is routinely used to noninvasively image the inside of a patient. Metal objects cause CT image degradations, known as artifacts. Numerous metal artifact correction algorithms have been proposed, however complete artifact removal is difficult and new artifacts may be introduced by the correction methods. This project will investigate a novel approach for removing metal artifacts in CT images. This project is significant because metal artifacts can obscure important diagnostic information in CT images and because patients who have metallic implants, such as joint replacement (hip, knee, etc.) and pacemakers, are becoming more prevalent. The proposed metal artifact correction method is novel because it will identify metal artifacts based on their spectra (energy) signatures. The project will (1) Develop algorithms to separate and remove the metal artifacts based on their spectral signatures and (2) Quantify the algorithm performance through a simulation study. A preliminary algorithm has been implemented and demonstrated potential feasibility of the method. If successful, the project will improve CT image quality in the presence of metallic objects.

**Gilmartin, Marieke**

Assistant Professor, Biomedical Sciences  
RRG Award Amount: \$5,939

**The Role of Estradiol in Mediating the Effects on Fear Memory by the Stress Peptide PACAP**

Women are over twice as likely to develop PTSD as men following a traumatic experience. Recently, a genetic polymorphism was identified that is correlated with symptom severity in women, but not men (Ressler et al., 2011). This single nucleotide polymorphism is in the gene encoding the PAC1 receptor which is activated by PACAP (pituitary adenylate cyclase-activating polypeptide), a highly conserved signaling peptide that is integral in adaptive stress responses. This finding suggests that PACAP signaling may contribute to maladaptive stress responses in fearful situations, but how PACAP contributes to fear and anxiety is not known. We have recently found that PACAP signaling the PAC1 receptor in the prefrontal cortex of female rats is necessary for fear learning in most, but not all, of the rats tested. This suggests that individual differences in PACAP signaling may contribute to adaptive responding to fear cues. One potential source of individual variability affecting PACAP signaling is circulating ovarian hormone levels at the time of learning about threat. In fact, the promoter for the PAC1 receptor contains an estrogen response element, which means that estrogen has the potential to modulate transcription of the gene. This project will test the contribution of estrogen in female rats to the memory-impairing effects of PAC1 receptor blockade. Our results will provide insight into the neurobiological mechanisms of normal PACAP signaling that, when disrupted in women with the polymorphism, may confer susceptibility to PTSD in this higher-risk population.

**Guttormson, Jill**

Assistant Professor, Nursing  
RRG Award Amount: \$4,771

**Enhancing Nurses' Utilization of Alternative Communication Strategies with Mechanically Ventilated Patients**

**Background and Significance:** Mechanically ventilated (MV) patients are unable to speak due to the breathing tube. Inability to effectively communicate during mechanical ventilation increases patients' stress, impacts symptom management, and limits patients' ability to participate in care decisions. Nurses play an integral role in supporting patients' communication yet often lack formal training in alternative communication (AC) strategies that would facilitate effective communication for these nonverbal patients. **Purpose:** This feasibility study will evaluate the impact of training on nurses' utilization of AC strategies and develop processes that enhance nurses' utilization of AC strategies with MV patients. **Methods:** The proposed study is a mixed methods, prospective pre/post design with data collected for four months prior to and four months after initiation of the intervention. The intervention consists of an online training program that includes nurse training in AC strategies, an algorithm to guide AC choices, provision of communication supplies, and communication care plans to increase consistency of communication strategies with individual patients. Barriers and processes that support adoption of AC strategies will be identified from nurse focus groups and nurse survey data. A Daily Communication Survey will collect data on AC utilization before and after implementation of the intervention. **Conclusion:** The proposed study will provide guidance for successful implementation of communication training programs. Results from this study will be used to support a larger multi-site grant application investigating the impact of increased use of AC strategies on patient level outcomes of: patient reported ease of communication, patient satisfaction, and patient anxiety.

**Heinrich, Stephen**

Professor; Director of Graduate Studies, Civil, Construction, and Environmental Engineering

**Lee, Chung Hoon**

Associate Professor, Electrical and Computer Engineering

RRG Award Amount: \$9,998

**Toward Higher-Order Micro/Nanobeam-Based Mass Detection Methods in Biological and Chemical Sensing**

The feasibility of a new paradigm for micro/nanoscale mass detection will be examined in detail through a collaborative project aimed at developing inexpensive, portable, resonant-beam devices that will detect the presence of small “particles” (e.g., cells, molecules, small organisms), differentiate between particles of different weight and/or dimension, and monitor changes in a particle’s attributes in real-time. The successful operation of the device (a small, vibrating structural beam excited via an electrical signal) is based on the principle that the device’s resonant frequencies at which it is predisposed to vibrate are influenced by the mass characteristics of any attached particle – provided that the device is small enough to “feel” the particle. Electrically measured shifts in the resonant frequencies may be correlated to particle characteristics such as mass, size, shape, adherence, and position on the beam, but only if the underlying mechanics of the beam/particle system are fully understood. This knowledge may then be utilized to design optimized devices for which the particle attributes of interest will be reflected in the device’s measurable vibration response. In this project an appropriate theory, building on a recent preliminary model, will be formulated, and its validity tested via experimentation. The collaborative, interdepartmental project will mesh theoretical expertise in structural mechanics and experimental expertise in fabricating and testing micro/nano devices. The results of this fundamental study will have important practical implications in biosensing (e.g., monitoring cell response to drug exposure) and chemical sensing (e.g., identifying environmental toxins at very small, but dangerous, concentration levels).

**Iuzzini-Seigel, Jenya**

Assistant Professor, Speech Pathology and Audiology

RRG Award Amount: \$5,996

**Implicit Learning Ability and its Relation to Speech, Language, and Motor Deficits in Preschool-aged Children**

Imagine being a child on a playground during recess. Now imagine being a child with severe communication and physical disabilities whose speech cannot be understood, who is clumsy and uncoordinated.

Childhood apraxia of speech (CAS) is a neurological speech disorder that often requires speech therapy well into adolescence. Some children with CAS show severe speech problems only, whereas others require therapy for learning and physical disabilities too. It is unknown if the physical disabilities have the same underlying cause as the speech impairment in CAS, or if they result from a different factor that exacerbates speech. The proposed project will investigate implicit learning impairment as one potential factor contributing to the breadth of disabilities impacting these children.

Implicit learning is the process by which fine/gross motor skills (e.g., bike-riding) and grammatical rules are acquired; once learned, rules and motor acts occur quickly and automatically.

Consequently, implicit learning deficits can have effects on systems throughout the body and could contribute to the variation in symptoms and performance prevalent among children with CAS.

The proposed work uses custom computer games to test implicit learning in children with CAS; speech, grammar, and fine/gross motor skills will also be assessed. We hypothesize children with poor implicit learning will have more severe speech and physical disabilities than those with good implicit learning ability. We expect this research will identify implicit learning as a significant factor in the disabilities that affect children with CAS, which will help us develop much-needed assessments and treatments for this population

**Lodh, Nilanjan**

Assistant Professor, Clinical Laboratory Science  
RRG Award Amount: \$6,000

**Point of Care Diagnosis for Schistosomiasis: Parasite DNA Detection in Urine by LAMP**

Schistosomiasis is second only to malaria as a major parasitic disease in its deprecating effects on humankind. Differential diagnosis of two major concurrent human schistosomes namely *Schistosoma mansoni* and *S. haematobium*, is an involved process requiring both urine and stool and the standard procedures are low in sensitivity. The diagnostic challenges are important because this chronic parasitic disease infects 200 million people and causes estimated worldwide death of over 200,000 people every year. The success of control strategies based on Mass Drug Administration (MDA) depends on accurate and highly sensitive diagnostic test, and one that can differentiate between the species. Due to effectiveness of control programs the issue of diagnostic sensitivity has become more critical in the assessment of program effectiveness. It will be important to identify lightly infected people as they can still infect snail (parasite carrier) and keep the transmission going. World Health Organization (WHO) also has drawn attention to / the need for field applicable tests with high specificity and improved sensitivity. We have detected *S. mansoni* and *S. haematobium* parasite specific DNA from urine by Polymerase Chain Reaction (PCR) on filter paper. We also demonstrated that mixed infection by above mentioned schistosome species can be detected by the same method from a single source of urine. I am proposing to use urine samples from endemic areas and a common sample preparation procedure with isothermal DNA amplification technology (LAMP) to optimize parasite specific DNA detection in field laboratories for integrated diagnosis of Schistosomiasis.

**Peressini, Anthony**

Associate Professor, Philosophy  
RRG Award Amount: \$3,170

**Extending Nonlinear Symbolic Dynamic Analysis via Orbital Decomposition to Take fMRI Analysis to the Next Level**

I propose to develop software to convert fMRI data to a format appropriate for analysis by our ORBDE (orbital decomposition) computer program (Peressini and Guastello, 2014), thereby allowing ORBDE's analysis to be applied to fMRI studies of the brain.

ORBDE "decomposes" complex sequences of observations into patterns that reveal its under-lying structure. Its effectiveness for many kinds of problems has been demonstrated. ORBDE requires

that the observations be given nominal codes, that is, each kind of observation is coded as a symbol (e.g., upper case letter): a typical coded sequence might be {A A C B A C B A...}. ORBDE was a breakthrough because it automated the analysis of such nominally coded data, allowing realistically large/complex sequences to be analyzed. But fMRI data are sequences of quadruples of the form (x, y, z, a). And while fMRI data have been fruitfully analyzed by ORBDE (Guastello et al., 2002; Nathan et al., 2012), the time and effort required to manually transform fMRI data to nominally coded data for analysis by ORBDE is prohibitive.

The significance of this program will be to reduce by orders of magnitude the effort required to use ORBDE with fMRI data, thereby opening it to the very large, vibrant body of researchers working with fMRI data.

The benefit for my work will be to (a) enhance funding prospects for a resubmission of our unfunded NIH proposal (Guastello et al., 2014), (b) help me combine my philosophical research with my scientific research, and (c) revitalize my philosophical work on neurodynamics, free action, and fMRI issues.

**Rindfleisch, Bryan**

Assistant Professor, History

RRG Award Amount: \$3,974\* (\*Funded by the Center for Transnational Justice)

**"Possessed of the Most Extensive Trade, Connexions & Influence" The Atlantic Intimacies of an 18th Century Indian Trader**

This project examines the life of George Galphin, a Scots-Irish trader who immigrated to South Carolina in 1737, where he emerged as one of the most influential cultural intermediaries in the American south. Specifically, Galphin provides a window into the many personal and spatial connections that existed between the American colonies, Native America, Europe, and the Atlantic commercial system. Through Galphin, we see how the lives of countless people from disparate worlds intersected with Galphin's own - often in very intimate ways - which included Irish immigrants, Creek and Cherokee Indians, European merchants, imperial administrators, African slaves, and others. With such an intimate look at Galphin's considerable and dissimilar cast of characters, then, I reframe the larger narrative of Early American history according to the relationships that these individuals used to understand, navigate, and structure the broader worlds that they were a part of. In short, Galphin reveals to us the very personal and local contours of the eighteenth-century.

I am applying for both the Summer Faculty Fellowship and Regular Research Grant, which will facilitate travel, living expenses, and research costs in Northern Ireland during the summer of 2016. I will spend four weeks in Belfast at the Public Records Office and Presbyterian Historical Society, in addition to a week at the Armagh Public Library. While I am in the beginning stages of transforming my dissertation into a book manuscript, this trip will be critical to completing my research, after which I can begin the revision process.

**Robinson, Karen**

Assistant Professor, Nursing

RRG Award Amount: \$5,500

### **In-home Peer Counseling to Increase Breastfeeding Rates Among African American Women Who Participate in WIC**

**Purpose:** The purpose of this feasibility study is to examine the probability of success in implementing an in-home postpartum breastfeeding support program using breastfeeding peer counselors (BPC) among African American Women (AAW) participating in WIC. **Problem:** Breastfeeding is the ideal infant feeding practice. Despite increasing breastfeeding initiation rates nationally, women who participate in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) do not meet national breastfeeding objectives. Various WIC programs connect AAW, with breastfeeding intentions, with peers who have successfully breastfed. These programs have shown to be effective in increasing breastfeeding rates. Yet, few programs provide consistent in-home postpartum counseling; a time when mothers are more likely to abandon breastfeeding. **Methods:** In this feasibility study, 20 AAW will be recruited from a WIC clinic in Southeastern Wisconsin. Consented participants will receive routine WICBPC support during pregnancy. In addition, participants will receive scheduled postpartum BPC support including in-home visits. Breastfeeding practices will be recorded at hospital discharge, each home visit, and every 2 weeks post discharge for 12 weeks or until breastfeeding cessation. Feasibility will be measured based on ability to recruit and consent participants, participant retention, intervention adherence, and the overall study management. **Relevance:** It is expected that this study will demonstrate the feasibility in implementing a scheduled postpartum BPC support program for women who, historically, are least likely to initiate and continue breastfeeding. This study will provide the foundation needed for securing federal funding (R21) to test the intervention in a large randomized clinical trial.

#### **Scheidt, Robert**

Professor, Biomedical Engineering  
RRG Award Amount: \$6,000

### **Control of Arm Posture and Movement Following Stroke**

This project will obtain preliminary neuroimaging data needed to maximize competitiveness of an upcoming NIH R01 renewal application. Specifically, we seek to use robotics-enhanced functional MR imaging (re-fMRI) to advance understanding of the neural mechanisms contributing to sensorimotor control of limb posture and movement and the extent to which these control actions are differentially impacted by stroke. Our previous studies have shown that distributed networks of brain regions are actively engaged in the control of separate limb trajectory and limb posture tasks. The upcoming R01 project will explore how activities within those networks are normally coordinated during the control of limb trajectory and posture, and how stroke-related lesions of the central nervous system disrupt those networks. Such knowledge will be critically important for determining how best to provide lesion-specific rehabilitation to future stroke survivors.

Here, we propose to pilot a new set of experiments wherein we combine wrist stabilization and movement tasks into a single scanning session, thus identifying the neural networks mediating the two control actions within the same subjects, and quantifying the extent to which the two neural networks do or do not overlap. We will also extend the subject population to include survivors of middle cerebral artery stroke, allowing us to determine how lesions of the left and right hemisphere impact control of wrist posture and movement after stroke. We expect that the proposed activities will demonstrate that our approach is both feasible and well-tolerated by stroke survivors, thereby strengthening the renewal R01 application.

**Singer, Simcha**

Assistant Professor, Mechanical Engineering  
RRG Award Amount: \$6,000

**Hybrid Models to Reduce the Computational Cost of Simulating Energy Conversion Processes**

Concerns about the effects of the increasing carbon dioxide concentration in the atmosphere have led to proposals to utilize fossil fuels like coal and natural gas in a more environmentally-friendly manner. Oxy-combustion and chemical looping combustion are promising technologies that enable carbon dioxide to be captured from energy conversion processes at a reduced cost compared to current technologies. The proposed research aims to develop and validate a numerical stimulation tool that can accurately stimulate certain oxy-combustion and chemical looping combustion processes with reduced computational expense. The method to be developed will take a hybrid approach to reducing the computational cost. In particular regions where simplifying assumptions about the geometry are invalid, the geometry will be faithfully reproduced, and in all other regions, the stimulation will be simplified. The two regions which are treated with differing levels of complexity will be coupled together within a single hybrid simulation. It is hypothesized that the hybrid approach will improve predictions of process-scale variables of interest while maintaining a reasonable computation cost.

**Strakhov, Yelizaveta**

Assistant Professor, English  
RRG Award Amount: \$1,100

**Politics in Translation: Lyric Form and the Francophone Author in Late Medieval Europe (chapter two)**

For this project I will be conducting archival research on fourteenth- and fifteenth-century poetic and musical manuscripts in the UK, the Netherlands, Northern Italy, and the Czech Republic. This research will allow me to complete the second chapter of my book project. This chapter investigates the cross-European transmission and circulation of a crucial, but little-studied late medieval lyric genre, known as the *formes fixes*, by recovering a lost network of manuscripts which contain this genre. My research will focus on understanding the complex textual relationship between these scattered manuscripts. By investigating this relationship, my chapter will set up the rest of my argument concerning the fundamental importance of the *formes fixes* genre to late medieval poetic discourse surrounding the proto-nationalist identity politics in a period of major conflict for Western Europe, known as the Hundred Years War (1337-1454).

My overall book project argues that the medieval field of the Anglo-French studies has been, in its nationalist emphasis on the "Anglo" and the "French," overly reductive. My critique is suggested to me by the Hundred Years War, which simultaneously promoted and complicated protonationalist sentiments. I offer *cross-Channel studies* and *the Francophone* as alternative categories. The project demonstrates the need for these categories by uncovering a previously unknown discourse, conducted in the *formes fixes* genre that meditated on the fracturing of cross-European Francophone identity by newfound wartime political and protonationalist faction. I thus offer a new approach towards understanding the effects of literary exchange on wartime communities.

**Van Hecke, Amy**

Associate Professor, Psychology  
RRG Award Amount: \$6,000

**Neural Change due to Intervention in Autism: Pilot MRI Data Collection**

Autism spectrum disorder (ASD) is a life-long neurodevelopment condition with effects on language, social functioning, and behavior. Although there is agreement that neurological disturbance is seminal to ASD, there is no consensus as to the etiologies of those disturbances. Further, little is known about the range of individual differences in responsiveness to treatments, and whether interventions later in life can have a positive impact. However, recent research including my own EEG study, seeks to determine the potential for interventional neural rehabilitation in ASD, finding evidence of neuroplasticity in adult and adolescents with ASD in response to clinical interventions. *This proposal aims to extend my previous work by examining, with a higher-resolution imaging technique, whether the function and structure of neural systems supporting social behavior in adolescents with ASD are affected by an empirically validated relationship-development intervention.* The methods utilized in this proposal consist of 1) functional Magnetic Resonance Imaging (fMRI) to measure brain activity, and 2) Diffusion Tensor Imaging (DTI) to measure brain structure. The experimental manipulation utilized in this proposal consists of a randomized controlled trial (RCT) of the Program for the Education and Enrichment of Relational Skills (PEERS) intervention for adolescents with ASD. This outpatient treatment is specifically tailored for adolescents with ASD, and improves social skills and friendships. The overarching goal of the research program is to understand how the remediation of chronic isolation, via the development of social relationships, affects the course of brain development in individuals with ASD.

**Woda, Amiee**

Assistant Professor, Nursing  
RRG Award Amount: \$4,070

**The Impact of High Fidelity Human Simulation on Newly Licensed Registered Nurses Perception of Competency, Work Stress, and Job Satisfaction**

Challenges exist for nursing students as they transition to their role as newly licensed registered nurses (NLRN) due to a mismatch between their perceived readiness and role competency, and the demands of the practice environment. The addition of simulation learning experiences (SLE) using high fidelity simulations (HFS) within nursing curricula may be one teaching strategy to better prepare students for the transition to the role of a practicing nurse. There is a need to determine how to best integrate SLE with traditional hospital-based learning experiences in nursing curricula. The National Council of State Boards of Nursing identified that 50% of traditional hospital based practicums (HBP) can be substituted with SLE rendering no statistically significant difference in clinical competency or readiness for practice (Hayden et al., 2014). However, it is unknown whether the use of HFS practicums to supplement HBP produces additional effects on clinical competency, which may decrease work stress, and increase job satisfaction among the NLRN in the workplace. The optimal amount of HFS needed in coordination with HBP experiences has yet to be determined.

The purpose of this study is to determine if supplementing HBP with SLE, vs substituting HBP with SLE has an impact on NLRN perception of competence, work stress, and job satisfaction. A quasi-experimental design will be utilized to compare two groups of NLRN at six months of practice; In Group 1, SLE were substituted for HBP; in Group 2, SLE were used to supplement HBP.