

## **2021-2022 Research Innovation and Scholarly Excellence (RISE) Awards**

U.S. First Ladies Policy Agendas Project

Submitter: Mary Anderson, Co-Investigator: Jonathan Lewallen

The study of women and politics tends to focus on accomplishments of elected women office holders. We know less about unelected women as policymakers, particularly the US First Ladies and how they balance gender roles and expectations with their status as members of the executive branch. First Ladies historically have been expected to serve as “the nation’s social hostess” and an example for American women, but since the latter half of the 20th century they increasingly are participating in the policy arena both domestically and internationally. While the responsibilities and duties of the First Lady are not mentioned formally in the US Constitution or any founding document, women have used the position and title to effect change and First Ladies have had official resources through the Executive Office of the President since 1977. Our project seeks to better understand how First Ladies balance the gender roles and norms expected of their position with their status as members of the presidential administration who spearhead their own policy initiatives by collecting and coding data from First Ladies public speeches and statements. This study can help us understand how First Ladies interact with the public, other institutional actors, and their own personal ambitions. Support of this project will be used for faculty summer stipends for research and to fund a research assistant to collect and code speeches and statements.

Distance-two Network Partitions

Submitter: Angela Angeleska

The project is joint work with Dr. Nikoloski, a professor at University of Potsdam, Germany, and members of his research group. We have had a long and fruitful collaboration, but recently we started working on network-clustering problems (complex processes of organizing data or objects). We introduced a new type of network partition, called a coherent network partition (published in the peer-reviewed journal “Discrete Applied Mathematics” in 2019). Inspired from the theoretical results, we formulated a new set of problems to be addressed and solved in future, such as the algorithm design for finding coherent partitions in a network and the implementation of the design in the prediction of protein complexes. In addition to its relevance to our previous research in bioinformatics, the clustering problem has variety of applications including data mining, machine learning, social networks, neural networks, etc. I will work towards setting up a mathematical formulation of the problems and proving the underlying properties and computational complexities, while the members of the group will concentrate on the algorithmic implementation based on my theoretical findings. A paper based on this research will be submitted to the peer-reviewed journal “Theoretical Computer Science” (TCS) no later than September 2021. A second potential peer-reviewed journal where we can submit the paper is “Discrete Applied Mathematics”. In addition, we intend to present the paper at the peer-reviewed 52nd International Conference on Graph Theory, Combinatorics and Computing in Boca Raton, Florida in March 2022.

Prudence, Morality, and Justice: A Unified Theory for Business Ethics  
Submitter: Marcus Arvan

Business ethics has traditionally focused on applying ethical reasoning to business practice. However, scientific research indicates that ethical reasoning has little motivational efficacy. We routinely see this problem in business, where numerous scandals have resulted from individuals and corporations simply disregarding ethics for profit. This suggests that business ethics must better theorize the relationship between ethics, prudential self-interest, and justice. In two books, I use scientific research to defend a new unified theory of prudence, morality, and justice, showing how moral and just behavior arise from prudent risk-aversion, where people avoid unethical and unjust behavior due to the risks of social punishment and regret. This RISE Grant project will consist of a short book showing that because business practice commonly rewards risk-taking, my theory systematically explains the history of business scandals, while revealing that unethical business behavior can be best prevented via: 1. Legal-regulatory reforms to better monitor and punish unethical business behavior. 2. Socioeconomic justice reforms ensuring a fairer distribution of opportunities, income, and wealth, lessening power differentials that lead to moral risk-taking. 3. Business practices linking executive compensation to compliance with ethical norms. 4. Increased focus in childhood, adolescent, and adult education, and visible reminders in the workplace on the potentially catastrophic costs of unethical behavior, viz. self-interest. 5. Workplace interventions and technologies, such as virtual-reality (VR) simulations of profit losses from unethical behavior, to encourage aversion to risking unethical behavior. 6. Cultivation of spiritual/religious beliefs in 'divine justice', i.e. eternal reward for good and punishment for evil.

Game Theory and Screening Devices: The Case of Retention Rates in Private Universities  
Submitter: Karla Borja

About 28.3% of first-year students at private universities in the United States did not return for their sophomore year in 2018 (ACT Report, 2019). This early drop out is particularly distressing among small-to-medium sized private universities because it creates a mismatch between revenues and expenses, jeopardizing the long-term financial sustainability of these organizations. Colleges use high school GPA to predict early dropout rates; however, other key predicting factors that have not been addressed by the literature are those related to non-academic skills such as self-confidence, and adaptability to connect with peers, faculty, and community. The problem is that non-academic skills are difficult to evaluate among college applicants and no standard scale is available to measure them. Supported by the economic theory of asymmetry of information and screening devices, I will develop a model on how to improve retention rates among private universities. Then, I will publish my findings in a case-study. A case-study is a pedagogical tool extensively used in the upper division business courses and graduate business programs. It involves all components of a research document, but it focuses on a specific industry or company. The contribution of my research is to use economic theory to assist universities in recognizing students at-risk by identifying non-academic skills. The identification occurs during the admission process, allowing institutions to focus resources on those students early in their first semester, and improving their probability of academic success.

"Progress" (a Co-creative Documentary Film)

Submitter: Christopher Boulton

“Progress” will be a short documentary film produced in a co-creative manner with Larry and Charlie Schiller, owners of Schiller's Architectural and Design Salvage, a 30-yr-old Tampa institution located just under a mile from UT. In addition to interviews, the approximately ten minute film will show the couple at work and use archival footage to trace the lineage of one of the more unusual items on offer: a French hand-operated fire truck from the 1700's. By explaining how and why this historical object was originally used, “Progress” will take stock of how far we've come, and ask what has been lost and gained in the process. A RISE grant would support the creation of the film, the worldwide licensing of relevant archival footage from “The Firefighter's Progress” (1936) and “Farmyard Fire” (1905) through British Pathé, and distribution and exhibition at regional, national, and international film festivals that are peer reviewed and curated by professionals in the field.

Diffusion inhibitors in catalyst particles for growth of ultra-long Carbon Nanotubes (CNTs)  
Submitter: Michael Bronikowski

This work will continue my ongoing research into growth of Carbon Nanotubes (CNTs) to lengths longer than currently achievable, and ultimately to lengths sufficient for use in materials applications. CNTs are tubes of pure carbon with diameters of approximately 1 nanometer (one billionth of a meter). CNTs consist of single or multiple layers of carbon atoms, arranged in layers. CNTs have remarkable materials properties including high strength, stiffness, and hardness. Large-scale wires and cables made of CNTs are predicted to have a strength-to-weight ratio that exceeds that of steel by a factor of 100. Thus, there is considerable interest in using CNTs for manufacture of materials including cables, wires and composites. However, CNTs can currently be grown to only a few millimeters in length. To realize the full advantages of CNTs' properties, it will be necessary to produce large-scale quantities of CNTs with lengths comparable to the macroscopic sizes (many centimeters or more) of the envisioned applications. In this research, my group will investigate methods to grow CNTs to much longer lengths than currently available, ultimately to centimeters or meters in length, thereby allowing the full materials potential carbon nanotubes to be achieved. We will do this by investigating and understanding the chemical mechanisms by which CNT growth starts, continues, and eventually stops, and by finding ways to extend the growth time, and thus the ultimate length, achieved by the CNTs.

Evaluating the Impact and Effectiveness of Implementation of the Department of Nursing  
RICHE ~ Student Success, Retention, and Enrichment Initiative  
Submitter: MaryAnn D'Alesandro

Increased rigor and expectations of the Bachelor of Science in Nursing (BSN) program necessitate an academic success and retention support program. The RICHE is a conceptual model that proposes that nursing specific academic, psychosocial, functional, and intellectual support provided in an inclusive learning environment (nursing department) incorporating retention strategies will enhance and support multidimensional nursing student success. The RICHE ~ Student Success, Retention, and Enrichment Program is a Nursing Department

initiative that provides undergraduate nursing student specific success strategies to reduce attrition, improve retention and progression, is comprehensive, employs holistic strategies including academic and non-academic factors, creates an inclusive learning environment, and assists in meeting student learning outcomes. While nursing publications have reported programs using a success program, there are few that have reported on a dedicated long-standing program with evaluative metrics for success. Most programs were put together rapidly due to an immediate need without preparation and ended once faculty or resources became unavailable. The purpose of this study is to evaluate the effectiveness of specific success, retention, and enrichment strategies by both nursing students and faculty. To evaluate this program, both current undergraduate nursing students and faculty will complete surveys including demographic, situational (non-academic), academic, and self-reporting data (personality characteristics). This study will provide data to support the necessity of a nursing specific success and retention support program. Findings from this study will be submitted to nursing peer-reviewed journals and conferences. While nursing specific, it is anticipated that replication of foundational strategies could be accomplished.

Developing a Method for the Determination of Uranium Concentrations in Tampa Bay Waters  
Submitter: Kelly Deister

Uranium is a naturally occurring, radioactive element that is commonly associated with phosphate deposits. A large region of central Florida is actively mined for phosphate to produce fertilizer, and therefore may contain elevated levels of uranium. The primary pathway for the uranium in these deposits to be transported to the rivers is via groundwater. The rivers that discharge into Tampa Bay are directly fed by several springs that are connected to this groundwater. The goal of this project is to survey the Hillsborough and the Alafia Rivers, and their associated springs, for their uranium distributions. Two sampling trips will be conducted on each river: one during the dry season when uranium concentrations are expected to be higher, and one during the wet season when concentrations may be lower. Because the riverine concentrations of uranium are below the detection limit of the inductively coupled plasma-atomic emission spectrometer located at UT, a preconcentration method must first be tested and then applied to the samples. This method will increase the elemental concentration by extracting the uranium from a larger volume to a smaller volume using a specialized resin. An undergraduate research student will be actively involved with establishing this method and the subsequent surveys of the two rivers for their uranium concentrations.

Pandemics, Paradigms, and Disruptive Technologies: Exploring Student Learning with a Dynamic Discussion Community Building Platform Designed with Social Presence, Engagement, Interaction, and Gamification  
Submitter: Suzanne Ensmann, Co-Investigator: Aimee Whiteside

Drs. Ensmann and Whiteside at UT are teaming up as teacher-scholars to explore the connections, if any, among social presence, disruption, engagement, and gamification. We plan to study, through a unique combination of disruptive innovation and social presence, the possibilities of a community-building platform called Yellowdig when coupled with pedagogy, research, and practice. Yellowdig was recently highlighted by the internationally-renown Online Learning Consortium (OLC) at its annual conference where we presented our research findings

from our May 2020 study, *The Impact of COVID-19 Pandemic on Teaching and Learning*, which explored UT's disruptive shift to emergency remote learning. This study consisted of an interdisciplinary team of faculty and garnered 711 student responses. It revealed an underlying paradigm shift in the move to emergency remote learning whereby students became accountable for their learning and discovered connectivity and engagement through various technologies. In this new proposed study, we employ disruptive innovation theory as a lens, which posits that these disruptive technologies foster positive changes caused by unforeseen interruptions to traditional learning. Yellowdig is one such disruptive technology that shows promise in our respective research areas: gamification and social presence. Through a careful mix of surveys, focus groups, interviews, and qualitative coding, we plan a one-year study to explore the potential for social presence and engagement with this unique discussion board tool. This tool, designed with gamification elements, will be carefully and purposefully incorporated into courses to improve learners' self-regulation, cognition, and satisfaction.

#### Cloning, Expression and Purification of Retinal Visual Pigments from Fish Inhabiting Tampa Bay

Submitter: Jeffry Fasick

Visual pigments are the light absorbing molecules in the rod and cone photoreceptors responsible for vision. Visual pigments from a variety of Tampa Bay fish species have previously been examined in my lab with regards to their spectral sensitivities (e.g. the color of light they are most sensitive to – blue, green, red, etc.). This was accomplished by using computer models that predict the most sensitive color based on the amino acid composition found in each pigment. To confirm these predicted values, I plan to manufacture each visual pigment in cell culture and directly measure their spectral sensitivities in the laboratory. I am proposing to: 1) construct specialized DNA sequences that contain the genes for each visual pigment and then clone (make billions of copies) these sequences; 2) introduce the cloned sequences into mammalian cells and allow the cells to manufacture the visual pigment proteins; 3) collect the visual pigments from the cells and measure the visual pigments' spectral sensitivity using simple instrumentation.

#### Value-Directed Memory

Submitter: Sara Festini

Certain information is especially important to remember, such as computer passwords or the special ingredient for a new recipe. Fortunately, people tend to have better memory for high value information relative to low value information. For instance, in a list-learning task, words assigned 10 points are recalled better than words assigned 1 point (e.g., Castel et al., 2011). This ability to prioritize information in memory requires strategic mental processing, and is an example of "executive control," analogous to how the executive of a company prioritizes, strategizes, and plans. Value-directed remembering has been primarily studied within long-term memory (i.e., with long lists of items and memory tests after long delays). I am interested in further examining value-directed remembering in working memory (i.e., what one is currently thinking about), with short lists and brief intervals before memory evaluation. I plan to conduct a series of experiments, where, over repeated assessments, participants study a small number of words assigned either high or low values. After a brief delay of several seconds, their memory will be tested. I aim to determine whether participants' responses are faster and more accurate for high-value information held within working memory. I also aim to determine if high-value

information is more susceptible to proactive interference, a type of memory interference in which familiar, recent information disrupts current performance, such as when one mistakenly enters an old computer password instead of the new password. The results of this experimental research will be submitted for publication in a peer-reviewed psychology journal.

Examining the relationship among pathogenic bacteria in Tampa Bay  
Submitter: Bridgette Froeschke

The Tampa Bay Estuary Program recognizes the value of identifying water quality indicator bacteria species (primarily *Enterococcus faecalis*) associated with human pollution. However, we do not have a solid understanding of human risk to other pathogenic species of bacteria when levels of *E. faecalis* are high. We aim to better understand the relationship of additional pathogenic bacteria *Staphylococcus aureus* and *Vibrio* sp. with *E. faecalis* due to water and sediment discharge patterns. The proposed work aims to examine the relationship on the quantity of *S. aureus*, *Vibrio* sp, with *E. faecalis* during four rain events (greater than 1 inch in 24 hours) and four dry events (no rain within 48 hours). This study will focus on comparing rain and dry events because previous studies have suggested substantial increase of pathogenic bacteria with discharge. Furthermore, this project will allow us to understand the risk on human health to better educate the public of a variety of human infections. Most people are not familiar with common pathogenic bacteria in our watersheds. *Staphylococcus aureus* causes staph infections, *Vibrio vulnificus* eats our skin, *Vibrio cholerae* causes Cholera, and *E. faecalis* causes digestive issues. More specifically, this project identifies sources of contamination and hot spots of *Staphylococcus aureus* and *Vibrio* compared to *E. faecalis*. All of this information is important for water research as well as educating the public on ways to assist with lowering contamination levels.

Women Stand Up: Contemporary Comedians and Their Stories of Subverting Inequality  
Submitter: Sarah Fryett

The thematic approach taken by *Women Stand Up* examines issues addressed by contemporary women in stand-up comedy. Through an examination of over thirty comedy acts across five streaming platforms and numerous social media posts, the book offers a survey of how women in comedy are engaging in feminist discourse, specifically in relation to gender roles, family life, motherhood, trauma, aging, bodies, media, and relationships. Comedians such as Amy Schumer, Katherine Ryan, Wanda Sykes, Hannah Gadsby, Tiffany Haddish, Ali Wong, Flame Monroe, Tig Nataro, and Aparna Nancharla, among others, trend toward humorous autobiographical performances as a way to subvert the institutions of patriarchy and heteronormativity while also challenging racism, classism, homophobia, transphobia, ageism, and sexism among other oppressive systems. We explore how these comedians narrate their experiences through an in-depth textual analysis in order to argue that they speak a feminist project that advocates for equality, encourages visibility, challenges reigning norms, and fights oppression. Elayne Boosler, an American comedian, astutely noted: “The best who stand up, stand up for something,” and the women analyzed here do exactly that.

Kinesthetic Earworms and the Subtle Teachings of Movement: A Philosophy of Chinese  
Contemplative Body Practices  
Submitter: Steven Geisz

It is commonplace, at least in some circles, to talk about “embodied knowledge,” although it is sometimes unclear exactly how knowledge can be “in” or “of” the body. In this book, I examine Chinese contemplative body practices such as qigong (i.e., Chinese-style yoga), various meditation techniques and Chinese internal martial arts (e.g., taijiquan). I argue that the movements and visualizations of these practices can be ways of thinking, knowing and doing philosophy, especially when the movements and visualizations are combined with the mythic narratives and background metaphysical theories that often accompany the transmission and ongoing performance of these practices. At a key point in the argument, I consider musical earworms—that is, bits of “involuntary musical imagery” or examples of “a song running through one’s mind”—and I argue that there are kinesthetic equivalents of musical earworms that are sometimes created by performing ritualized, contemplative, mind-body practices. These “kinesthetic earworms” (or, more properly but less memorably, “semi-voluntary kinesthetic imaginings”) are multimodal and contentful in much the same way that musical earworms are. They constitute or give rise to knowledge that straddles the knowing-how/knowing-that distinction, and they can help us understand how knowledge can be embodied—not just in the case of Chinese mind-body practices, but also in a wide variety of other activities. The book concludes with reflections on the proper (and sometimes underappreciated) role of body practices, ritual, repetition and even rote learning as components of a liberal arts education that emphasizes critical engagement with the world.

Leveraging connections: Using social media for professional networking, academic support and self-branding

Submitter: Lina Gomez-Vasquez, Co-Investigator: Enilda Romero-Hall

This research project explores how scholars use social media for professional networking, academic support and self-professional branding. Facebook, Instagram, LinkedIn and Twitter communities are employed among academics to learn, connect, interact, collaborate and belong. However, very little research has focused on examining how social media is used by academics and the gratifications they obtained from engaging in these online professional communities. We are particularly interested in the #AcademicTwitter online community. #AcademicTwitter is an educator-driven professional community on Twitter that attracts professors, researchers, professionals and graduate students to connect and engage. Considering the uses and gratifications (U&G) theory of using social media, this project aims to better understand academics’ a) motivations for using social media for teaching, academic support and professional exposure, b) benefits and challenges experienced when using these platforms and engaging on online social media communities, and c) communication patterns and user roles within the #AcademicTwitter community. We will use a mixed-methods approach (including an electronic survey, in-depth interviews, social network analysis and content analysis of public social media posts) to provide a comprehensive picture of social media use by academics. Our project will focus on three groups of participants: academics who are active in the #AcademicTwitter community, University of Tampa (UT) faculty and UT graduate students who are active social media users for professional purposes. Our study aims to identify best practices

for scholars (faculty and graduate students) who want to engage in professional networking, academic support and self-professional branding in online professional communities.

The Impact of Management Control Systems on Distributed Teams

Submitter: Elena Klevisky

The COVID-19 pandemic has forced organizations to suspend co-located (i.e., face-to-face) collaboration and replace it with distributed (i.e. remote) collaboration. Distributed teams face unique challenges that may trigger conflict and hinder their ability to perform as well as co-located groups. Since even co-located teams succumb to the collective information sharing bias, whereby they focus on common information and discount unique information, distributed teams may have great difficulty solving a hidden profile task where different team members have different information. However, management controls over team interaction may potentially alleviate this problem. For example, connectors — people predisposed to creating and shaping relationships between others — have been shown, in the co-located setting, to develop a healthy team culture, enhance team experience and increase creativity on less cooperative teams. A competing management control, Meeting Mediator, not only measures but also provides real-time feedback on group engagement and conversational turn-taking. Despite lack of evidence that Meeting Mediator improves group performance on creativity and problem-solving tasks, prior research suggests that it does improve the team experience. If Meeting Mediator functions similarly to a connector, it may be a reasonable substitute for using the connector as a management control. Consequently, we plan to perform an experiment in the distributed team setting to test whether connectors or Meeting Mediators on less cooperative teams will enhance the sharing of unique information and thereby decision quality on a hidden profile task.

Taiwan can help! Corporate responses to the COVID-19 pandemic

Submitter: Ru-Shiun Liou

The global pandemic injected a sense of urgency for corporations to examine and signal their willingness to take responsible actions by altering various business practices. Situational crisis communication theory suggests organizations can protect the public from harm through instructing and adjusting information. Driven by the duties to serve citizens and the public, the government organizations emphasized providing information and guidelines about how to respond to the public health crisis. However, it is less clear in terms of corporations' responsibility during a public crisis event, and hence, there is limited understanding of corporate responses to the global pandemic. Drawn by Taiwan's success in reducing community spread, I aim to study the corporate social responsibility (CSR) activities conducted by Taiwanese firms during the COVID-19 pandemic. As one major emerging economy, Taiwan has advanced its economic and technological development in the past several decades. In 2020, Taiwan experienced great success in forming a public-private partnership to cope with geopolitical and public health risks. An ethnographic approach of collecting and coding the company's annual reports and news reports will be employed to study Taiwanese firms' CSR activities. The findings of this research will not only contribute to the basic scholarship of stakeholder management literature but also benefit business executives and students around the globe.

Investigating Carbazoles as Photocatalysts to Form New Carbon–Carbon Bonds



Submitter: Ashley Longstreet

Human-made organic molecules are major components in essential industries. Building organic molecules requires organic reactions that are efficient by utilizing inexpensive, non-toxic reagents and producing minimal waste. Radical reactions are useful to organic chemists due to their ability to construct important bonds, such as carbon-carbon bonds. In a radical reaction, a reagent is required to produce a radical, any atom with an unpaired electron. The radical generated can then form new bonds to enable chemists to piece together large molecules from smaller fragments. Traditional reagents used to produce radicals are highly toxic and generate significant amounts of waste due to requiring large quantities of the reagent material. Recently, the field of photoredox catalysis has emerged to replace the traditional radical forming reagents with photocatalysts. Photocatalysts are less toxic with the ability to produce radicals in small quantities to minimize waste production. The most common photocatalysts used are commercially available metal complexes. These are typically expensive and using metal complexes could lead to undesirable metal contamination. Rather than rely on metal photocatalysts, our research aims to demonstrate how organic molecules called carbazoles, which are inexpensive and contain no metals, could be used as a better alternative. Undergraduate students who work on this project will continue to develop and refine reactions that utilize carbazoles as photocatalysts to form new carbon-carbon bonds between two small organic molecules. By working on this project, undergraduates will gain valuable skills in critical thinking and laboratory skills.

Diversity of Heterobranch Sea Slugs in Greater Tampa Bay

Submitter: Michael Middlebrooks

Sea slugs are a fascinating, but generally understudied, group of marine organisms. For most species, little scientific information exists beyond a brief species description in the literature. In fact, for most species, basic information, such as diet and geographic range, is either generally unknown or poorly understood. Currently there are very poor to non-existent records of the diversity of sea slugs that live within the Gulf of Mexico. This project is designed to create a record and catalog the diversity of heterobranch sea slug species living within the greater Tampa Bay area. I propose to search for, collect, identify and catalog the diversity of these organisms to our local area. This work will ultimately serve multiple purposes including supporting a taxonomic workshop that I will be teaching in Fall 2021, a peer-reviewed manuscript that will be a valuable resource for other researchers and serving a basis for developing future research projects. This work will also involve UT undergraduates providing them with valuable training and experience.

Unearthing Tampa's African American History: Forgotten Cemeteries and Public Memory

Submitter: Julie Nelson

With the recent discovery of Tampa's first African American cemetery amid city apartments and parking lots, we are called to reckon with forgotten and marginalized histories. In rhetoric studies, cemeteries are understood rhetorically—they communicate history, mark cultural

importance and affirm public memories. The “disappearance” of a cemetery exposes the transgressions of the past; thus, this project aims to recover the rhetorical and cultural significance of Zion Cemetery. While rhetoric scholarship has established the value of cemeteries, it has not yet considered the material and race-related implications of cemetery discoveries. Thus, in a scholarly article, I consider Zion Cemetery as a case study, integrating recent theories from embodied and cultural rhetorics, which highlight the materiality, social positionalities, methodologies and ethics of this case. The article argues that embodied and cultural rhetoric theories best elucidate the complexity of cemeteries as rhetorical sites. Given the local, ongoing impact of the discovery of Zion Cemetery, the culminating outcome of the project is a digital public memorial that features historical to contemporary artifacts and reflections on African American influence in Tampa. Students will participate in primary and secondary research to contribute to the memorial website, gaining historical knowledge and experience writing for local public audiences. Both outcomes of this project aim to rearticulate public memory of African American people who have greatly impacted the Tampa we know today.

Understanding Proneness to Boredom in College Students with ADHD  
Submitter: Sarah Orban

Boredom, a common human experience, is defined as an aversive state in which a person desires to be engaged in an activity, but is unable to successfully. People often attribute the state of boredom externally, to a situation or particular activity (e.g., “I can’t focus on this book because it is boring!”). However, theories of boredom also attribute the state of boredom to internal causes, such as a sense of emptiness, a lack of motivation, poor attention control and difficulties with executive functioning (i.e., higher order mental control processes). Indeed, the reason why an individual experiences boredom varies from person to person. Individuals with attention deficit hyperactivity disorder (ADHD) have been reported to experience boredom to a greater extent than their non-ADHD peers. Given that individuals with ADHD experience difficulties with attention regulation, their frequently reported experience of boredom may be due to weaknesses of executive functioning and attention. The purpose of the current study is to examine if poor attention control and difficulties with executive functioning explain the association between ADHD symptoms and proneness to boredom among college students. College students will be recruited to complete self-report rating scales of ADHD and proneness to boredom as well as performance-based computerized tasks of attention control and working memory. This research will help to elucidate the potential mechanisms of proneness to boredom among college students with ADHD. The findings from this research will be submitted to a peer-reviewed psychology journal.

Ballasts of the Entrepreneurial Ecosystem  
Submitter: Thomas Pittz

Policy-makers, scholars and regional development experts routinely consider methods for catalyzing entrepreneurial activity by investing in the regional entrepreneurial ecosystem. Extant frameworks and models are of two types: those that place the entrepreneur at the center of study and those that consider normative ecosystem characteristics. Despite theoretical convergence on some of these ideas, however, entrepreneurial ecosystem research has achieved only modest results for stimulating regional entrepreneurial activity in practice. This research posits that the

lack of practical application of the entrepreneurial ecosystem research stream is largely due to current models providing opaque targets for policymakers to focus their energies. This research project takes an alternative approach to focus on what will be called “ballasts” of regional entrepreneurial ecosystems, which are institutions that can serve as a focal point for policymakers seeking to bolster regional entrepreneurial performance. These ecosystem ballasts perform four key roles within a vibrant entrepreneurial ecosystem: serving as a connector between elements of the ecosystem, as vectors of talent and ideas, as chroniclers of entrepreneurial culture and as promoters of regional heterogeneity. Acting in this fashion, ballasts help to build human capital, venture-friendly markets, infrastructural supports, availability of financing, governmental policies and a conducive culture for entrepreneurship. As entrepreneurial success occurs in a region, these ecosystem ballasts are reinforced and the regional entrepreneurial ecosystem is fed. Over time, the variables that generate entrepreneurial success become self-reinforcing and government involvement in their promotion can be significantly reduced.

Intelligent Action: A History of Artistic Research, Aesthetic Experience and Artists in Academia  
Submitter: Tim Ridlen

This project involves completion, revision and developmental editing of a single-author book titled "Intelligent Action: A History of Artistic Research, Aesthetic Experience, and Artists in Academia." My research addresses questions that have arisen with the proliferation of new graduate degree programs for artists as well as questions that persist the more higher education is thrown into turmoil. Why do artists enter institutions of higher education? What does the American university want from them? And what happens to them when they get there? These questions are answered through an examination of artists who have gone into the research university, the liberal arts college and the art school. Through archival research and analysis of artworks by Gyorgy Kepes, Allan Kaprow, Mel Bochner and Suzanne Lacy, among others, my study sets out to examine how these artists brought alternatives to dominant conceptions of research and knowledge production. Works discussed were produced between 1957 and 1975, a moment when boundaries between media were breaking down. In the context of academia, these artistic practices have taken up the look, feel or language of various research practices. In some cases, artists bent to the demands of the Cold War research university, while in others artists developed new modes of practice and pedagogy. In addition to fulfilling a need for such a history of artistic research, this book offers an alternative reading of American art of the 1960s and 1970s beyond the museum and gallery world, a reading suited to the world of media arts convergence today.

Dissident Fictions and the Metropolitan Public Sphere  
Submitter: Nicole Schrag

This project is an article examining how London-based novelists, filmmakers and playwrights have contributed to popular understandings of politics in the period from Margaret Thatcher's premiership to the UK's departure from the European Union. It is commonplace in literary and film criticism of this period (1979-2020) to identify metropolitan British artists as “leftist,” especially as many resisted both the government's scaling back of welfare starting in the 1980s

and the Labour Party's increasing openness to free market policies that culminated in the rebranding of "New Labour" under Tony Blair. However, leftist artists' shared resistance contains a diversity of political positions that have not been fully explored, especially because of the disciplinary boundaries between literary and film studies. This article uses public sphere theory to establish how London-based artists self-identifying as "leftist" have used their public platforms to comment on politics by theorizing their fictional representations of the city in political terms. The article further argues that such an analysis allows us to trace how these artists' fictions develop a shared urban cultural identity that is broadly understood as politically progressive, but increasingly casts political values in ethical terms (of, for example, caring for strangers) and is largely disconnected from traditional socialist political policies. I conclude that this ethical turn reflects the decades-long struggle of the Labour Party to develop a coherent and compelling party platform and helps to historically contextualize the widespread (though not universal) shock within the British left in response to the results of the Brexit referendum.

Identifying Moving Group Stars in the Gaia Catalog

Submitter: Simon Schuler

A main goal of astronomical research is to understand our origins, from the origin of life on Earth to the origin of the Universe itself. A major aspect of these studies is the origin and evolution of our Milky Way Galaxy. While stars only make up about 5% of the total mass of the galaxy, understanding how and where stars form and their subsequent kinematics (motions) is a critical component to recovering its evolutionary history. Collaborating with colleagues at institutions in the USA and abroad, I am working to identify stars with similar galactic kinematics, known as moving groups, and analyzing their compositions in order to put constraints on their formation and kinematic histories. We are using the Gaia catalog — a database of positions and three-dimensional motions of about one billion stars in the galaxy — to identify stars with similar kinematics, which may indicate that the stars share a common origin. We then are using spectroscopic data obtained with large professional astronomical telescopes to determine the compositions of the stars; stars that formed together are expected to have similar compositions. Combining the kinematic and compositional data of potential moving group stars can place potentially strong constraints on the formation history of the stars and the galaxy. This proposal is a request for continued support for my work on this project, which has included four UT students thus far and presents an opportunity for additional students in the future.

A Contentious Politics Account of Why Terror Attacks Differ across Countries

Submitter: Ryan Welch

Why do some countries, in some years, experience a larger number of terror attacks than others? A considerable cross-national statistical literature addresses that question, and this book will expose, and remedy, several important flaws in that body of research. In brief, the existing literature privileges structural rather than behavioral causes. We argue that focusing on economic and governmental institutions can only explain so much. We adopt a contentious politics approach and begin our theoretical account at the level of tactical decisions made by dissident groups, then theorize about how the decisions of multiple such groups will manifest in different levels of attacks at the country level of analysis. Simply put, the actions of the government and other dissident groups affect a group's tactical decision about whether or not to engage in terror.

Doing so provides a substantially richer theoretical account of terror, explaining several disparate and heretofore unconnected strands of the literature, including those that focus on structure and institutions. We will test several hypotheses implied by our theory using a statistical model well-suited for the challenges found in a cross-national dataset on terror. Specifically, we will use Bayesian statistics rather than the much more common classical frequentist statistics used in most analyses. This will allow us to overcome the challenges of noisy data, complex concepts not easily measured with one indicator (e.g. quality of life), and missing data. We expect government and dissident behavior will exhibit more explanatory power than the structural concepts and measures that dominate existing research.

The grooming behaviors of semi-terrestrial crabs: a comparative study comparing fiddler crabs and ghost crabs with grooming behaviors of fully submerged crustaceans  
Submitter: Jen Wortham

Grooming behaviors are an important aspect of marine crustacean health by removing fouling agents. Grooming in crabs has been mostly studied using crabs that are fully submerged. Ghost crabs and fiddler crabs are semi-terrestrial crabs that build burrows in the sediment, can live out of the water, and are common prey for birds and mammals. Little is known about the grooming behaviors of any semiterrestrial crab. This study will examine the grooming behaviors, with the goal of comparing this research to grooming research on fully submerged decapods, such as other crab and shrimp species. Crabs will be collected in Florida and be purchased. Crabs in a laboratory will be observed in two experiments: 1) 24-hour study and 2) isolation behavioral study. Grooming behaviors will be documented, such as appendages used to groom, areas where grooming occurs, types of grooming behaviors and a time budget for grooming. The objectives of this research study are to 1) document the grooming behaviors of these semi-terrestrial crabs and 2) compare these grooming behaviors with research on other fully submerged decapod crustaceans. It is predicted that: 1) these crabs will groom their bodies more than fully-submerged decapods which are bathed constantly in water and removes debris, and 2) ghost crabs are predicted to groom more frequently than fiddler crabs. The data will be analyzed, submitted for publication in a peer-reviewed journal and presented at conferences/symposia.

Assessing students' self-efficacy and learning effectiveness using gamification in cybersecurity courses  
Submitter: Chen Zhong, Co-Investigator: Joo Baek Kim

As cybersecurity has become a national priority, universities share the mission to grow a trained cybersecurity workforce. Cybersecurity education must be grounded in effective hands-on experience to prepare students with a deep understanding of the subjects and essential skills for addressing real-world challenges. Our proposed work aims to incorporate gamification into cybersecurity hands-on labs and to assess the impacts of gamification mechanics on students' self-efficacy and learning effectiveness. We have designed eight hands-on labs, and each lab focuses on a specific skill set. We plan to embed gamification mechanics into the labs, including weekly mission, task points and dashboard. These labs with gamification will be delivered during the fall and spring semesters to the students enrolled in an undergraduate cybersecurity course. Throughout each semester, we will collect longitudinal data by conducting a series of surveys to assess (1) whether adding gamification can improve students' engagement and

consolidate their knowledge, and (2) which gamification mechanics have the most significant impacts on students' self-efficacy and learning efficiency. Besides, we will measure students' behavior and attitude change over time. The investigation of the research questions will produce new knowledge on how to effectively enhance cybersecurity learning using gamification. It will also expand our current understanding of effective pedagogical approaches in cybersecurity education. More broadly, our study aims to unveil specific gamification mechanics that contribute to the expected success. It will lay the groundwork for the future implementation of innovative cybersecurity training at an institutional level.

2020-2021 Professional Development Awards

### **Reflective Morality for Teaching Ethics**

**Submitter: Carter Hardy**

Many of our ethical decisions are made reactively and with little reflection, which is worsened by the sheer number of ethical decisions we need to make and balance every day. This is true in both our personal and our professional lives. In order to improve our students' abilities to address these ethical issues, I will design a course with educational aids that can be learned and applied both inside and outside the classroom. These aids will include worksheets, a database of ethical cases and an ethics tracker. The worksheets will be used to train students to respond to problems with consistent ethical reasoning, while the tracker will help students to keep track of their past decisions, reflect on the consequences of those decisions, and receive guidance on the moral principles and values that relate to their decisions. The cases will then be used to apply the worksheets and tracker, so that students learn over the course of the semester how to apply these in their personal and professional lives. By the end of this project, I will have developed a course and aids that can be easily adapted to different ethical topics, including medical ethics, environmental ethics and business ethics.

### **Self-Portraits of the Broadcasting House: Literary Culture at the BBC, 1922-1955**

**Submitter: Jeremy Lakoff**

Jeremy Lakoff's monograph, "Self-Portraits of the Broadcasting House: Literary Culture at the BBC, 1922-1955," explores how radio practitioners in the early 20th century conceived of their labor as being akin to that of the adjacent literary field. Early broadcasting in Britain was partly shaped by authors who worked part-time at the BBC and who imported modernist techniques and sensibilities to radio. Using unpublished archival materials at the BBC Written Archives Centre, this project uncovers how author-broadcasters crafted a culture of literary broadcasting, as well as their own professional identities as radio artists. Through the corporation's memos, personnel files, scripts and publications, one can trace an emerging awareness of the crosscurrents between the literary arts and broadcasting. This book argues that the radio studio — a live, polyvocal workshop — was a site where these writers imagined and promoted a new vision of collaborative artistic creation, helping to shift attitudes away from the traditional valorization of individual genius. In novels, radio dramas, talks, articles, memoirs and handbooks for both insiders and wider publics, author-broadcasters depicted the studio's technologies and

professional hierarchies in order to argue for, and illustrate, the medium's possible future. In other words, self-referential depictions of broadcasting itself helped solidify its position as a new, technically complex and interdisciplinary artform. By returning to this early era of radio, *Self-Portraits of the Broadcasting House* not only illuminates how different fields of artistic production were intertwined, but also how burgeoning institutions of mass mediation were key sites for conceptualizing modern artistic professionalism.