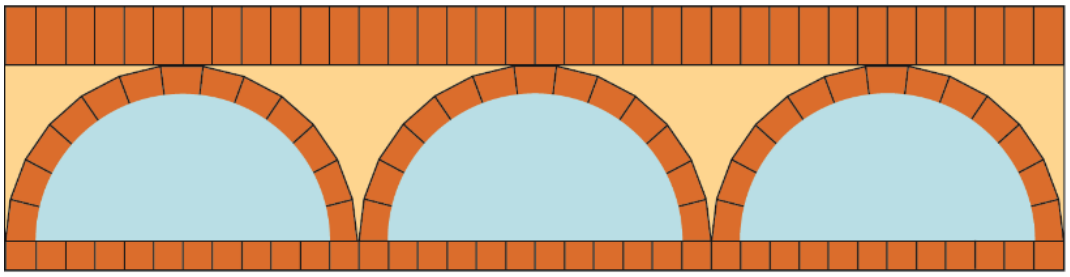

HONORS COLLEGE

The University of Texas at Arlington

Honors Research Symposium
Poster Presentation
Abstracts

April 23, 2021

COLLEGES OF ARCHITECTURE, BUSINESS, HONORS, LIBERAL ARTS, AND SOCIAL WORK

10:00 AM – 12:00 PM

ANISSE BOUMARAF, ACCOUNTING

The Effect of Standardization on Sustainability Reporting Completeness Over Time and Across Industries as well as its Implementation Should it Prove Necessary

Faculty Mentor: Stephanie Rasmussen

This project's goal is to determine if the government should mandate sustainability reporting (SR) and if so, what that would look like. A stratified random sample of SR reports is collected across multiple industries. Some conform with the Global Reporting Initiative's (GRI) standards and some do not. Another sample consisting of two companies in the same industry, one exclusively GRI and the other non-GRI is gathered to account for this. Every key-performance indicator (KPI) in the reports is assigned a grade on a scale from 1 to 5 on its usefulness. Converting the SR reports into numbers allows data analysis to be used on them. The results made clear that following GRI standards led to more complete SR, but even then KPIs are less than optimal and so the government should be involved in the formulation of industry-specific SR statements that accompany financial statements.

MEGAN BUDNIK, ECONOMICS

How Do Free Universal School Meals Impact Standardize Test Scores?

Faculty Mentor: Dr. Timothy Wunder

In the state of Texas since 2010, the percent of children facing food insecurity has decreased while the number of students receiving free or reduced priced lunches through the National School Lunch Program (NSLP) has increased. This work presents the economic impact school lunches have on the health and wellness of public-school students in grades K-12. The Community Eligibility Provision (CEP) of the NSLP allows eligible schools to provide USDA school meals at no charge to all students in high-poverty schools. Student demographic data was collected using school report cards from the Texas Education Agency and lunch data was collected from the Food Research and Action Center. Statistical analysis is presented using OLS regression describing the significance schools participating in the CEP program has on academic test scores. The schools with the highest school-level identified student percentage in the district were found to be significantly associated with CEP participation.

DANIELA GUERRA, INTERDISCIPLINARY STUDIES

An Ethnography of the Summer Institute of Linguistics in Colombia

Faculty Mentor: Dr. Josephine Ryan

The Summer Institute of Linguistics (SIL) operates in Colombia doing linguistic and anthropological work in order to translate the Bible into indigenous languages, and also to provide for the physical, spiritual and educational well-being of individuals living in the villages they serve. An ethnography of Bible translators, and other personnel working for SIL in Colombia was conducted in order to better understand the culture of the organization from the 1960s until the present day. The lives of SIL workers were studied through conducting interviews online through Zoom and library research, including biographies and memoirs of the lay missionaries. Key themes include the development of the SIL Lomalinda Center, the challenges of translation work in indigenous villages, enduring faith, terrorism from anti-American Marxists, and mixed relations with the state. Overall, the Summer Institute of Linguistics in Colombia proved to be a unique group significantly impacting Colombia's indigenous communities.

CALANDRIA HERRING, ACCOUNTING
GAAP Convergence with IFRS: Likelihood of Adoption and Effects of LIFO Disallowance
Faculty Mentor: Dr. David Rosser

International Financial Reporting Standards (IFRS) were created to address the lack of a standard global financial reporting language. This work examines whether a push for convergence with or the adoption of IFRS will occur in the United States. It additionally examines the effects on companies switching from the Last-In-First-Out (LIFO), a method prohibited by IFRS but allowed by the United States Generally Accepted Accounting Principles (GAAP), to First-In-First-Out (FIFO). The first question is answered from a sample of comment letters responding to the Securities Exchange Commission's 2008 proposal for adopting IFRS. The second question is answered using hypothetical figures to illustrate the effects of a change from LIFO to FIFO on an income statement. The findings of this research are that most parties' welcome improvements to IFRS and GAAP through convergence, but adoption is unpopular. It is unlikely the U.S. will adopt IFRS, but convergence on small-scale projects will continue.

DOMINIQUE LANGE, INTERDISCIPLINARY STUDIES
From Oppression to Power: African American Women Voters on College Campuses
Faulty Mentors: Dr. Stephanie Cole and Dr. Rebecca Deen

Black sororities increased African American women's political participation and confronted problems associated with women of color's underrepresentation on college campuses. These sisterhood organizations helped grow African American women's electoral power, who now turn out to vote in larger numbers than almost every other demographic in America. This qualitative research study details the role of sororities in the progression of voter education and participation in the political process. Qualitative interviews were conducted with a variety of African American professional women working at UT Arlington. This small case study using focused interviews of African American professional women on campus helped to extrapolate opinions and views about African American women's political participation, Black sororities, and higher education in a holistic viewpoint. Given the qualitative study results, the findings indicate that age and religious affiliation inform African American women's views and political expressions.

RACHEL LOVELL, ENGLISH
Dissecting the Effects of Mental Illnesses through Creative Profiling
Faculty Mentor: Dr. Amy Bernhard

Although conversations surrounding mental disorders have become increasingly accessible in the 21st century, the stigma surrounding mental health persists. More than 50% of the U.S. population will be diagnosed with at least one mental illness within a lifespan. As these numbers continue to rise, confronting mental illness is essential to preserving the longevity of our country, but in order to confront it, we must understand it. This project is the product of personal experiences, interviews, documentaries, and professional observations that provide researched and factual insights into these illnesses. While the research reveals the often debilitating and life-altering effects of mental illness, it also emphasizes the hope that is found in empathetic communication and acceptance. By dissecting these illnesses through twenty personal, raw and informative pieces, this project adds to the conversation through a lens of creative vulnerability.

NEHA MEHAR, ACCOUNTING
Corporate Budgeting Practices
Faculty Mentor: Dr. Nandu Nagarajan

Budgeting and planning are an integral part of any merchandising and manufacturing organization. Effective budgeting practices enable a firm to project sales and control purchases. The purpose of this research was to identify processes suitable to the corporate budgeting practices of small firms. This includes helping them cut down on budgeting costs and using cost-effective methods to reduce the number of cycles in the process, forecast demand accurately and streamline feedback processes. It is common for businesses to use Excel as their primary tool. However, for merchandising firms, it was found that recording levels of inventory using a barcode reader is extremely important. Any computerized software or Excel will only be able to make correct projections only if the current levels of physical inventory are accurate and there is minimum leakage. Manufacturing firms claim budgeting practices have enabled them to identify redundant activities which are eliminated as a result.

PATRICIA MORIEL, ARCHITECTURE
Moving Toward a Sustainable City for Residents of Arlington, Texas and Surrounding Metroplexes
Faculty Mentor: Dr. Hyesun Jeong

In Arlington, Tx there is a need for the city to start to accommodate the needs of its residents instead of the residents adapting to the changes made which have subsequently resulted in a city without transportation or places to convene. There is the opportunity for growth in Arlington to transition to a more sustainable city, however all the steps the city has taken thus far have spawned a city that is not pedestrian friendly, automobile dependent and has a paucity of green spaces. Here, by analyzing current conditions of Arlington, scholarly journals, literature, and the infrastructure of Paris, Barcelona, Copenhagen and Dallas, this thesis examines an opportunity for change. Therefore, this paper will conduct case studies of four cities and propose design strategies for Arlington that incorporate transportation systems, increase of density, natural preserves, plazas, and entertainment amenities in sustainable and inclusive format.

SIREEN NADAF, ECONOMICS
Different Industries Responses to Common Economic Shocks with a Focus on Corporate Debt
Faculty Mentor: Dr. Chi-Young Choi

Different industries respond differently to common economic shocks. This study examines how different industries in the U.S. were affected by two major economic events, the Global Financial Crisis (GFC) and the recent COVID pandemic, by focusing on popular measures of firms' debt, such as debt to equity ratios, Altman's Z-scores, and short-term debt ratios. By analyzing leading firms in six selected industries, ranging from auto industry to IT industry, for the period 2006-2020, this study finds that the impact of common shocks varies widely not only across industries, but also within industries. The heterogeneous impacts are also found in the effect of policy actions taken in response to the common shocks. The results showed varied accounts of financial distress between the financial crisis and the coronavirus outbreak with the industries most affected being the transportation, FIRE (finance and insurance), and automobile and the least affected are healthcare, entertainment, and IT.

SOPHIA RADKE, INTERDISCIPLINARY STUDIES
Contrastive Analysis Predictions for Arabic ESL Learners Consonant Production
Faculty Mentors: Dr. Ivy Hauser and Reem Shishakly

Native-level proficiency in a second language is difficult to attain, especially in pronunciation. Many learners have a "foreign accent" no matter how fluent they are. This paper focuses on the pronunciation (phonological) challenges that adult native speakers of Arabic experience with the consonants of American English. The study applies the predictions of the Contrastive Analysis Hypothesis, which claims that a language learner will have the most difficulty pronouncing sounds that are most different from any sounds that exist in their first language. The findings are that Arabic speakers will have no problem pronouncing sounds that exist in both languages, but sounds that don't exist in Arabic at all, such as /tʃ/ ("ch") will be difficult. Other sounds, including /p/, /v/, /g/, will be difficult based on the surrounding sounds. The level of difficulty should vary based on whether the sound exists and where the sound occurs in Arabic vs. English.

BROOKE SHERRELL, CRITICAL LANGUAGES AND INTERNATIONAL STUDIES
The L2 Acquisition of Mandarin Alveolo-Palatal Phonemes by Native English Speakers
Faculty Mentor: Dr. Neal Szu-Yen Liang

This study investigated the acquisition of Mandarin alveolo-palatal phonemes [tɕ, tɕʰ, ɕ] by English L1 learners of Mandarin. The acquisition of these phonemes is often difficult for English speakers as the alveolo-palatal place of articulation is not found in English, but this acquisition has not been extensively studied. This study consisted of two perception tasks and one production task. The first perception task was an AX discrimination task to determine participants' ability to distinguish between Mandarin and English phonemes. This task was followed by an identification task. The production task collected auditory data, which was analyzed with Praat and compared to two native Mandarin speakers' production. The results of the perception tasks showed that learners had difficulty identifying the [tɕʰ] phoneme but not the [tɕ] and [ɕ] phonemes, which confirmed a previous study. The acoustic analysis confirmed the hypothesis that learners' production of the alveolo-palatal phonemes was not native-like.

ANUSHKA SHRESTHA, ACCOUNTING
Does Mandatory Auditor Tenure Disclosure Improve Audit Quality?
Faculty Mentor: Dr. David Rosser

The Public Company Accounting Oversight Board (PCAOB) recently made a significant change to the audit report. It requires auditors to disclose their tenure, called the auditor tenure disclosure, by the company under audit. It became effective for audits of fiscal years ending on or after December 12, 2017. The purpose of this research is to investigate how the mandatory disclosure of auditor tenure affects audit quality. The topic was researched on the internet using library databases and data obtained from Compustat. The measures of discretionary accruals and the likelihood of financial misstatements of proxy for audit quality were also used. Results showed that the disclosure of auditor tenure improved audit quality, as the coefficient on post was negative and highly significant.

REBECCA STEWART, SOCIAL WORK
Future Time Perspective and Participation in Group Activities in Assisted Living Facilities using Socioemotional Selectivity Theory
Faculty Mentor: Dr. Rebecca Mauldin

In assisted living facilities (ALF), participation in group activities is promoted and encouraged due to the knowledge we have thus far on the benefits of social engagement. Socioemotional Selectivity Theory, a popular social engagement theory, suggests that how long a person feels they have left to live (also known as their Future Time Perspective) determines how they utilize their remaining time. Using this theory, it is presumed that an ALF resident with a low future time perspective will participate in fewer group activities offered within the ALF. After controlling for residents without cognitive impairments, a quantitative secondary data analysis was conducted on data collected by Dr. Rebecca Mauldin for 33 residents of a Houston, Texas ALF. Upon completion of a multiple regression chart, it was found that the relationship between residents' future time perspective and participation in group activities was not significant.

COLLEGE OF ENGINEERING

12:30 PM – 2:00 PM

NAHIAN ALAM, COMPUTER SCIENCE

PotSpot

Faculty Mentor: Dr. Christopher Conly

PotSpot is a cross platform mobile application that allows users to grow a garden of their own in available empty such as their backyards. In this application, the user can point their phone camera to a location where they desire to grow their crops/plants. When the location is pinpointed, the user will be able to see the location of the sun throughout the day. In addition to that, the user will also be able to learn about how much sunlight that area is receiving and the amount of light being block by obstacles. To gather these data, different libraries have been used that use the current location's latitude, and latitude to get the potential location of the sun, and the amount of light intensity received in that area given the conditions. The sun's path is then drawn on the screen, and the corresponding values are shown next to it.

BILAL ALAMERI, MECHANICAL ENGINEERING

Vibration Reduction in Drone Imaging Design

Faculty Mentor: Dr. Raul Fernandez

The objective of this project was to provide advice to the drone design team that leads to more efficient proformas; therefore, research was done in three main areas. First, research had to be conducted to find the best material to help absorb vibration. Despite being a brittle material and hard to machine, carbon fiber is the most suitable material to use in this project rather than other materials such as aluminum or thermoplastics. Next, this project sought to ascertain the weaknesses of the current mount design that may generate or amplify vibration. The mount was redesigned to help avoid those weaknesses and reduce the vibration to an achievable level. The final area of research was to find the most efficient methods and techniques to assemble the drone and mount the LiDar and the battery.

HENRY J. BARAHONA MIRANDA, AEROSPACE ENGINEERING

Parametric Sizing of a RBCC SSTO Space Tourism Vehicle

Faculty Mentor: Dr. Bernd Chudoba

Virgin Galactic is attempting to become the first company to provide commercial sub-orbital space tourism by starting its flight program as early as the first quarter of 2022. But why stop here? This work presents the analysis of the next challenge: a single-stage-to-orbit (SSTO) space access vehicle. Specifically, this work presents the parametric sizing analysis of a SSTO space access vehicle with a rocket-based combined-cycle (RBCC) engine and horizontal takeoff horizontal landing (HTHL) capabilities. This analysis was performed through the synthesis framework of hypersonic convergence. With hypersonic convergence, the wing planform area is iterated until the weight and volume budgets of the vehicle converge to define the takeoff gross weight. Consequently, the main results of this analysis were the solution-space screening of the takeoff gross weight versus planform area for an array of inputs (such as the slenderness of the vehicle) and the comparison with other space tourism vehicle designs.

JAMES BRADY, COMPUTER SCIENCE

Gitraffe: Designing Intuitive User Interactions for a Simpler Git Experience

Faculty Mentor: Dr. Christopher Conly

When multiple software developers collaborate on a project, there must be a system in place to track the history of files, reconcile changes made by different developers, and maintain a centralized codebase. Many companies, open-source projects, and personal developers have turned to Git to facilitate collaboration. Although Git is a powerful and useful tool, it includes a steep learning curve for new users and subjects them to unnecessary complexity. This is the motivation for the creation of Gitraffe, which is a cross-platform application that aims to simplify interaction with various Git commands and the onboarding process for new users. This work focuses on the development of the Gitraffe interface, including a feature analysis of existing Git clients, steps taken for component optimization, and the User Experience design process. The results show that there is a need for an economical, feature-rich Git client and describe how Gitraffe can fill this void.

ALAINA BURGE, MECHANICAL ENGINEERING
Development of a Computer Vision Module for Identifying the Presence of Humans
Faculty Mentor: Dr. Raul Fernandez

The Vertically Enabled Cargo Transfer Robot (VECTR) was designed to carry heavy loads along staircases, a task that can be hazardous for humans. The main VECTR project focused on the mechanics of the robot, with basic obstacle avoidance via ultrasonic sensors providing the robot's only means of autonomous navigation. This extended project explored computer vision as a means of making future versions of VECTR more autonomous. The final computer vision module specifically focuses on identifying the presence of humans, since this ability is especially valuable for safe navigation. A combination of the Python language and the OpenCV library was used to create the module. Two object identification techniques were investigated: the Histogram of Oriented Gradients (HOG) algorithm and the deep learning-based You Only Look Once (YOLO) technique. It is expected that HOG will be less consistent in object identification, but less computationally expensive than YOLO.

SANDESH KOIRALA, COMPUTER SCIENCE
Evaluation of various Classification Models for use in an Automated Document Classification System using Machine Learning
Faculty Mentor: Dr. Christopher McMurrough

Commercial document processing is very expensive and prone to human errors. Despite the presence of various machine learning algorithms for object classification, their performance and feasibility can vary widely, based on their implementation and case use. This paper encompasses the performance evaluation of various classification algorithms for use in an automated electronic document classification system. The subject algorithms were used to classify approximately 1000 vectorized documents in an iterative environment. Various performance measures such as accuracy, precision, and F-measure were used to evaluate these algorithms. It was found that most algorithms obtained more than 90% accuracy. However, KNN was chosen as a final model because of the consistent overall performance of more than 95% accuracy.

SCOTT LANDERS, CIVIL ENGINEERING
Biological Phosphorus Removal: Existing Research and Design Process for a Wastewater Treatment Plant Expansion
Faculty Mentor: Dr. Andrew Kruzic

High levels of phosphorus in effluent wastewater can lead to eutrophication, the excessive growth of algae from high levels of nutrients which can choke out other aquatic life, of receiving waters if the wastewater is not treated through biological or chemical phosphorus removal. Enhanced biological phosphorus removal (EBPR) is a process through which phosphorus accumulating organisms (PAOs) take up and store phosphorus which is contained in influent wastewater during wastewater treatment. The PAOs are wasted from the system through a waste activated sludge system, and therefore the phosphorus is removed from the wastewater. For the design of an expansion to the Pflugerville Central Wastewater Treatment Plant, an A^2O process was designed using a kinetic approach, where three basins in sequence allow for biological phosphorus removal of influent wastewater to meet the permit standard of 1 mg/L phosphorus in the effluent wastewater.

RHEA POTTATHUPARAMBIL, COMPUTER SCIENCE
Design and Implementation for Estate Management System
Faculty Mentor: Dr. Christopher McMurrough

The Estate Management system is based on IOT (Internet of Things). The Estate Management system tracks and updates the status of various devices of an institution and provides a graphical user interface to display their status. Many design choices were carefully evaluated for each subsystem. These evaluations were done by comparing the constraints, ramifications, and advantages of each model. The design and implementation of front-end layer of the project is also discussed. Regular client meetings were held to better understand the project and gather the system requirements. Tools such as React, HTML, and CSS were used to design and develop the dashboard for the project.

JOSUE VAZQUEZ, AEROSPACE ENGINEERING
Parametric Sizing Analysis of Single-Stage-to-Orbit and Two-Stage-to-Sub-Orbit Space Tourism Vehicles
Faculty Mentor: Dr. Bernd Chudoba

Space tourism is one of the fastest growing sectors of the aerospace industry. Both orbital and sub-orbital platforms are being considered to market to the public. The goal of this project is to perform a Parametric Sizing (PS) analysis for a Two-Stage-to-Sub-Orbit (TSTSO) and Single-Stage-to-Orbit (SSTO) rocket powered system. PS is the starting point from where an idea, the planned mission, and a blank slate are shaped by designers into a solution space and final design point for the vehicle. The Hypersonic Convergence (HC) method was chosen because of its integrated approach to sizing the vehicle by solving a weight budget equation and iterating vehicle geometry for a specified mission. The results show that the individual TSTSO vehicles are smaller and lighter than the SSTO. However, the complexity and cost for a SSTO system is expected to be less compared to the TSTSO platform.

COLLEGE OF NURSING AND HEALTH INNOVATIONS

3:00 PM – 4:30 PM

LAURA AGOSTINO, PUBLIC HEALTH

How COVID-19 Can Affect Long-Term Health

Faculty Mentor: Dr. Erin Carlson

COVID-19 has identified many different challenges, including whether or not there are lasting symptoms once someone tests positive. According to WHO, 20% of people who tested positive for COVID-19 could develop lasting symptoms like chronic fatigue, POTS, and trouble breathing (WHO 2020). One main issue is trying to understand the type and duration of symptoms are affecting people aged 18 to 60 in the Dallas-Fort Worth area. The data was collected through surveys completed over a month apart to analyze the change in symptoms over time. While testing positive, 40% of people were bedridden and an additional 16% had to be hospitalized due to their symptoms. All participants are currently negative but 56% claim to have lasting symptoms due to COVID-19. This baseline result shows that there could be a correlation between chronic symptoms and a positive COVID-19 result.

ANGELICA GARCIA, NURSING

The Ramification on Individuals' Physical Activity Levels at The University of Texas at Arlington During the Covid-19 Pandemic

Faculty Mentor: Dr. Marco Brotto

The rapid and wide spread of the coronavirus lead the World Health Organization to declare a new global pandemic. Public health precautions were implemented throughout the United States to prevent further spread, which developed the difficulty of maintaining a regular routine of physical activity. As it is widely known and accepted, an active lifestyle contributes to an improvement in general health. The objective of this article is to analyze the ramifications of COVID-19 on physical activity levels on students within the University. A cross-sectional survey was conducted on the students at the College of Nursing and Health Innovation at the University of Texas at Arlington. The results demonstrated that 41% of respondents had decreased physical activity levels during the pandemic. Majority of respondents rated their activity intensity as moderate (37.1%) and mild (28.7%). This study concluded that the COVID-19 pandemic certainly increased the sedentary lifestyle, resulting in less physical activity.

MIKAYLA MASSARA, NURSING

Stress and Resilience in Pre-Nursing Students

Faculty Mentor: Dr. Regina Urban

Few studies have been published that focus on stress and resilience in pre-nursing students. Therefore, this study explores the relationships between stress and resilience in on-campus (OC) and accelerated online (AO) pre-nursing students. Using a comparative-descriptive design, 364 participants completed online questionnaires using the Perceived Stress Scale - 10 and the Resilience Scale - 14. Significant differences were noted in perceived stress (z = -2.984, p= .003) and resilience scores (z = -3.873, p= .000). The OC-intended students were statistically more likely to report higher levels of stress and lower resilience scores. The findings revealed that stress in general was negatively associated with resilience for both OC (r_o = -.370, p < .01) and the AO students (r_o = -.402, p < .01). As a result, educators should consider implementing stress management and resilience training in pre-nursing courses to prepare them for the demands of nursing school.

ZOE MURRAY, NURSING

Biological Age and Functional Status Variables as Indicators of Aging in Older Adults

Faculty Mentor: Dr. Thomas Dombrowsky

Biological age is a term to describe an individual's physiological and psychological health, socioeconomic factors, and ability to take partake in desired activities. Functional status looks at whether a person can perform daily activities necessary to meet basic needs. These concepts recognized globally, but the definition of biological age lacks consistency in varying cultural contexts. This study uses variables from biological age and functional status to analyze whether they can be indicative of aging. Using R programming and the National Health & Aging Trends Study, a multi-variant cox regression looked at activities of daily living and instrumental activities of daily living, age-related changes, risk factors, and health history in relation to mortality over 7 years in people at least 65-year-old. Overall, this study looks at the effects of age-related changes and risk factors on a person's health and functioning.

SARAH NELSON, NURSING

Titrating Glucose Concentrations in C2C12 Cell Media: Quantifying the Impact of Hyperglycemia on Skeletal Myocyte Development

Faculty Mentor: Dr. Marco Brotto

Insulin deficiency and insulin resistance are common etiologic traits associated with the diagnosis of type II diabetes and result in an increased risk for the subsequent development of age-related compositional bodily changes. Of these progressive bodily changes, sarcopenia, an age-associated disease marked by a gradual reduction in skeletal muscle mass and functionality, has been noted to be positively correlated with the high degrees of insulin resistance observed in type II diabetic older adults. This quantitative, experimental study was designed to assess the impact of graded glucose concentration titrations (100 mg/dL, 275 mg/dL, 450 mg/dL, and 625 mg/dL) in murine cell media on the metabolism, development, and acclimation of C2C12 skeletal myocytes. The results of this study established an associative relationship between hyperglycemic (625 mg/dL) and hypoglycemic (100 mg/dL) states and impaired myotube formation, which can be used in guiding future glycemic control protocols in nursing practice.

LINDA NGUYEN, NURSING

The Difference Between County-Level Healthcare Resources of Urban and Rural Counties Related to the Mortality Rate of Cerebrovascular Disease in Texas

Faculty Mentor: Dr. Jessica Smith

Cerebrovascular disease is a leading cause of death globally. It is not clear if cerebrovascular disease mortality, and human and material resources that could affect it, differ across rural and urban Texas counties. The purpose of the study was to determine county-level differences between rural-urban cerebrovascular disease mortality in Texas and how differences were correlated with human and material resources. Human resources included rates of neurologists, neurosurgeons, physician assistants, registered nurses, and nurse practitioners. Material resources included rates of beds, hospitals with intensive care units, and hospitals with cardiac intensive care units. Bivariate scatterplots and Spearman's correlations indicated a weak, negative association with a high degree of heteroskedasticity between cerebrovascular disease and human or material resources in rural and urban counties. Studies including additional human and material variables and advanced statistical techniques should be conducted to investigate potential factors related to cerebrovascular disease mortality in rural and urban Texas counties.

SANA QURAISHI, NURSING

The Effect of Cardiac Diseases on Cognitive Function

Faculty Mentor: Dr. Thomas Dombrowsky

In the United States, over thirty million Americans have received a heart disease diagnosis. The purpose of this work is to explore the lesser researched effects heart conditions have on other parts of the body, specifically regarding cognitive function. Using data with participants 65 years and older, individuals with a diagnosis of either a heart attack or heart disease were looked at to see what effect their heart condition(s) had on their cognitive function. This was determined through five tests assessing various cognitive abilities including a rating of their own memory, asking today's date, asking the president and vice president, immediate and delayed recall, and a clock drawing. Using a programming language, "R", multiple linear and logistic regressions were computed. The regressions showed cognitive function was significantly affected by a cardiac history in every category, with the exception of the clock drawing.

LYDIA SEAGRAVES, NURSING

Describing the Relationship Between County-Level Rates of Nursing Personnel and Rate of Inpatient Days in Different Community Contexts

Faculty Mentor: Dr. Jessica Smith

Rural communities are challenged due to fewer healthcare resources compared to urban communities. There are limited studies addressing how the availability of nurses may influence inpatient days depending on the community context. The purpose of this study was to determine the relationship of county-level nursing personnel and inpatient days depending on rural or urban location. This was a cross-sectional study using secondary data about 45 Texas counties from the Area Health Resources File. In rural and urban counties there is a strong positive correlation between inpatient days and Registered Nurses. In urban counties there was a strong positive correlation between Advanced Practice Nurses and inpatient days but not in rural counties. This suggests that having an adequate number of Registered Nurses is an important factor in being able to provide inpatient care. More information on Texas counties would be helpful to understand the acute healthcare needs of residents across Texas.

BAILEE SNOW, EXERCISE SCIENCE
An Examination of Differences in Personality Characteristics Between Non-Athletes and Athletes
Faculty Mentor: Dr. Abu Yilla

The long-accepted personality differences between athletes and non-athletes were researched and discussed in this paper. In the field of kinesiology, athletes are often held to different standards due to assumed pre-notions of their nature. Using purposeful stratified sampling, classes containing new Kinesiology majors were surveyed to include the potential athlete subjects as well as classes that were unlikely to include Kinesiology majors to represent the non-athletes in the subject pool. Applying the "Big 5 Personality Test," which measures levels of openness, conscientiousness, extraversion, agreeableness, and neuroticism by self-survey, it was found that athletes do not score similarly to non-athletes. Athletes had slightly higher levels of neuroticism, extroversion, and conscientiousness while having similar levels of openness or agreeableness when compared to non-athletes. Therefore, athletes should be held to a particular distinction compared to their student-peers at the University of Texas at Arlington. Overall, athletes and non-athletes have slightly differing personality characteristics.

ALAINA WILLIAMS, NURSING
Nurses' Lived Experiences Working Through Pandemics
Faculty Mentor: Dr. Deborah Behan

This research project investigates the severity of hardship and adversity health care professionals are facing during the COVID pandemic. The aim is to understand how working during this outbreak has posed physiological and psychological threats to nurses. This study has a mixed method study design. An online survey/questionnaire was used. Potential participants were contacted via email over the course of 6 months to share their thoughts and feelings regarding working during the COVID-19 epidemic. The survey obtained demographic data, measuring the participants' self-perception of personal health and wellness. Additionally, there were open-ended questions to obtain the perspective of the participants about their experiences. The findings of the study conclude that nurses are enduring stress, anxiety, fear, and significant hardships in their nursing experiences while working through COVID-19. Nurses need an outlet to voice these challenges. A call to attention to these unvoiced struggles is warranted and necessary.