

ABSTRACTS OF
THESIS PROJECTS

SPRING 2020

The Honors Program
and
University Scholars



Baylor University®

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G. Jon Abel, University Scholars

Sam Perry, mentor

Blood at the Root: Donald Trump and the Rhetoric of White Supremacy

This thesis examines and elaborates on the connection between the rhetoric of President Donald Trump, and the ideologies and rhetorical appeals of white supremacists, both contemporarily and throughout American History. *Blood at the Root* examines two case studies of Donald Trump's rhetoric as candidate and president, and traces the appeals of these words to their origins in white supremacist, anti-Semitic, and anti-immigrant rhetoric in the United States. We also show that these connections are unlikely to be coincidental, and that either Trump himself or those around him are aware of the racial signaling that pervades Trump's political rhetoric. Finally, *Blood at the Root* demonstrates that Trump is aware of and seeks to capitalize on racial tensions in the modern United States, as evidenced by the tailoring of his rhetoric to the language of White Supremacy today. In summary, Donald Trump uses old modes of racial signaling in ways that appeal to new, racist constituencies. President Trump capitalizes on modern racial tensions by invoking old racial tensions, framed through modern issues such as globalism, trade, and illegal immigration.

J. Arthur Adams, Philosophy

Francis Beckwith, mentor

Newgenics: The Principle of Procreative Beneficence and the Revival of Heredity-Conditional Fundamental Rights Analysis

The word "eugenics" has been revived in the language of contemporary bioethics with the advent of novel reproductive technologies. The eugenic selection of embryos *ex utero* has been made possible by the artificial reproductive processes of *in vitro* fertilization (IVF) and pre-implantation genetic diagnosis (PGD). This thesis examines the aims, means, and ends of pre-implantation embryonic interventions through the lens of historical eugenics. Professor Julian Savulescu's principle of *procreative beneficence* (PPB) is juxtaposed with the political and jurisprudential defenses for eugenic interventions advanced in the interwar period in the United Kingdom and the United States. It is submitted that contemporary advocates for eugenic embryonic intervention rely upon philosophical assumptions analogous to those of the historical eugenics movement. It is demonstrated that both require the rejection of a theory of individual rights based on human agency, advocating instead for a distributive model of individual rights regulated by the subjective evaluation of inherent genetic worth.

Ndidi Isabella Akahara, Economics

Sarah Walden, mentor

African Women's Lives: Historical Narratives and Literary Depictions in Post-Colonial Fiction

This thesis analyzes the impact that literary works by female African authors have had on the lived experiences of African people. Most of their works depict life in the early post-colonial and colonial periods in Sub-Saharan Africa. I argue that through their depictions of women's lives, they address themes concerning the individual's relation to the collective. By placing the novels within their historical context, I show that issues of gender equality, class, culture and politics are at the forefront of these works. Their approach to women's rhetoric uplifts, projects and

dignifies the voices and lives of ordinary African women. We as readers, historians, literary critics and scholars have much to learn from the deeply complex works of these women. As authors, they invoke the sympathetic imagination within us, as women, they are symbols of history, dignity and the ultimate triumph of the human spirit. This thesis is therefore not just a testament to their characters, but also to their persons.

Jessica Mary Alexander, Finance

Charles McDaniel, mentor

An Examination of Social Impact Bonds from an Aquinian Viewpoint

The Social Impact Bond (SIB) is a recent innovation which attempts to bridge the gap between private financial markets and charitable causes. The SIB is a financial instrument intended to raise revenue for a charitable cause, while supplying an equitable return for investors. In practice, many SIBs have fallen short of economic ideas of justice expounded by Thomas Aquinas centuries ago. This thesis surveys the St Mungo's and Goldman Sachs Utah SIBs which were set up with the laudatory goals of reducing homelessness and promoting preschool literacy yet have disappointing results. Both used simple performance metrics to calculate financial payouts which had the effect of reducing people to numbers on a spreadsheet. In particular, the St Mungo's SIB had little benefit for their homeless clients, while providing an ample return for investors. To Aquinas, these bonds would be deemed unjust because they did not serve their clientele well, and more seriously, lacked "regulated self-control" as they put profits before people. In contrast, the Denver Homelessness SIB is discussed that was set up by the city to reduce homelessness. The payout scheme was simple and unambiguous as the city would pay an amount for each day a "rough-sleeper" was in stable housing. This SIB fulfils the Aquinian ethic by being fair to both its clientele and investors. In all, SIBs can live up to Aquinian virtues, but must be constructed carefully so their charitable aim is not lost by reductionist payout methods.

S. Blake Allan, Mathematics and Physics

Fritz Gesztesy, mentor

On Critical Dipoles in Dimensions $n > 3$

We consider generalizations of Hardy's inequality corresponding to the case of (point) dipole potentials $V_\gamma(x) = \gamma(u, x)|x|^{-3}$, $x \in \mathbb{R}^n \setminus \{0\}$, $\gamma \in [0, \infty)$, $n \in \mathbb{N}$, $n \geq 3$. More precisely, for $n \geq 3$, we prove the existence of a critical dipole coupling constant $\gamma_{c,n} > 0$ such that

for all $\gamma \in [0, \gamma_{c,n}]$,

$$\int_{\mathbb{R}^n} d^n x |(\nabla f)(x)|^2 \geq \gamma \int_{\mathbb{R}^n} d^n x (u, x)|x|^{-3}|f(x)|^2, \quad f \in C_0^\infty(\mathbb{R}^n \setminus \{0\}).$$

Here $\gamma_{c,n}$ is optimal, that is, the largest possible such constant, and we discuss a numerical scheme for its computation. This quadratic form inequality will be a consequence of the fact,

$$\overline{-\Delta + \gamma(u, x)|x|^{-3}}|_{C_0^\infty(\mathbb{R}^n \setminus \{0\})} \geq 0 \quad \text{if and only if} \quad 0 \leq \gamma \leq \gamma_{c,n},$$

where $\overline{}$ represents the operator closure in $L^2(\mathbb{R}^n; d^n x)$. This is based on joint work with F. Gesztesy.

Joshua Baker, Baylor Business Fellows, Economics, and Biology

Renee Umstattd Meyer, mentor

An Evaluation of Group Prenatal Care for High-Risk Patients: A Matched Cohort Comparison

It is well documented that infant health is associated with the utilization of prenatal care and that inadequate prenatal care can have adverse short and long-term effects. While interventions can mitigate these effects during childhood, preventive interventions implemented prior to birth have the potential to improve health outcomes and reduce healthcare expenditures. This study will analyze group prenatal care as an effective model of preventive treatment capable of (1) improving health outcomes and (2) decreasing healthcare expenditures. Specifically, the authors will study an implementation of group prenatal care referred to as CenteringPregnancy (CP), which was the first implemented group prenatal care program and is the most widely studied model of group prenatal care to date. Previous studies have indicated that CP achieves both of the aforementioned objectives for low-risk obstetric patients, for which the program was originally designed. However, preventive treatments are not always generalizable necessitating inquiries into the efficacy of a treatment with regard to various subpopulations. This study seeks to expand the literature by analyzing the effects of CP for a subpopulation of patients that are classified as high-risk by analyzing patient records collected at a community health center in Central Texas.

Meagan Bean, Biology and Spanish

Jan Evans, mentor

A New Look at the Role of the Female in Twentieth Century Spain: Understanding Maternal Love in the Works of Miguel de Unamuno

During the late nineteenth century into the early twentieth century, the idealization of the domestic woman as “el ángel del hogar” (the angel of the home), circulated in Spain and throughout the world. The Spanish author, Miguel de Unamuno, lived during this era. Many of his essays and fictional works reflect his view of the inherent quality of maternal love possessed by women. Unamuno believed maternal love to be beautiful, necessary, and empowering. This thesis examines Unamuno’s view of women in both his essays and two of his fictional works, “Dos madres” (“Two Mothers”) and La tía Tula (Aunt Tula), to better understand women’s role in society in relation to the sociohistorical context and the problems associated with distortions to this role.

Andrew Bellamy, History

Daniel Barish, mentor

The Empire Writes Back: Reconsidering British Discourse on the Macartney Embassy in the Narrative of Britain's Road to War with Qing China

The Treaty of Nanjing (1842), which ended the First Opium War (1839-1842), represented the triumph of imperial Britain's “universal” truth of free trade over the Qing Empire’s “unnatural” restriction of foreign commerce under the Canton System (ca. 1757-1842). Popular and academic historians alike have upheld the Macartney Embassy (1792-1794), Britain’s first failed attempt at conducting diplomacy with the Qing Government to “open” China to free foreign trade, as a crucial step in Britain’s path toward war with the Qing. In contrast, I argue that despite its roots in an eighteenth-century intellectual and philosophical tradition that valued free trade as the overarching and universal standard of cultural legitimacy, the Macartney Embassy gave rise to a discourse in which political figures conveyed optimism in the future of Anglo-Chinese relations and in which public discourse weaponized Lord Macartney's failure for domestic political criticisms. Thus, these positive images of China and the Qing that circulated in the Embassy's aftermath suggest that notions of a linear, causal relationship between the Macartney Embassy and the Opium War should be reconsidered.

Brandt Bergeron, Baylor Business Fellows, Finance, and Economics
Michael Stegemoller, mentor

Financing Sustainable Agriculture in the United States: Observations and Innovations

Agriculture in the United States is on the whole an industrial enterprise, as reflected by institutional treatment and established practice. Drawing upon the work of agrarian author Wendell Berry, this paper contends that the status quo of an industrial and scientific approach to agriculture is leading to disastrous long-term effects for farming communities, land quality, and end consumers. This trend has been worsened by the loss of local and regional agricultural marketplaces and a lack of external, non-governmental investment in sustainable farms. Moreover, there is substantial evidence which indicates that farms lack appropriate sources of capital because of a persistent information gap created by farmers' lack of fluency in institutional finance, the inapplicability of traditional financial models to small farming, and the hesitancy of financial institutions to underwrite agricultural investments. Rather than searching for answers in agricultural innovation, this paper examines potential financial innovations to address the issue. This paper advocates for various structural improvements within agricultural finance, using a case study of a berry farm in Hillsboro, Oregon to inductively discuss such solutions. A primary conclusion of this paper is that if appropriately-structured equity capital and technical assistance were made available to small farmers who espouse sustainable farming practices, substantial gains could be achieved in the health and long-term stability of small farming operations and local farming economies.

Sneha Bhavanasi, Baylor Business Fellows and Finance
James Marcum, mentor

An expansion on Protein PEGylation for cancer therapeutics: from bench to bedside

PEGylation is a biochemical modification of biomolecules using polyethylene glycol (PEG) that confers several desirable properties to the modified biomolecule. It has been shown to improve stability, solubility, increase half-life and reduce immunogenicity of biological molecules like proteins, enzymes and nanomolecules. PEGylation then is a good means for possibly improving drug therapeutics. The process of PEGylation is complex and has undergone many changes and improvements. The first chapter of this thesis is a review article I published with a cancer research lab. It explored the first and second generation methods of PEGylation including the chemistry, synthesis, benefits, and pitfalls of PEGylation. It also listed some of the marketed PEGylated therapeutics in use at the time. The second chapter is an expansion of that review article almost three years later. It explores the third generation of PEGylation, the efficacy and current use of the therapeutics listed in the first chapter and explores the possible future of PEGylation.

Abigail Block, University Scholars
Andrew Hogue, mentor

The Importance of Balance: An Analysis of Labor Trafficking in Texas

Though there exists a widespread modern movement in the aim to end human trafficking, a lack of reliable empirical data has cultivated an imbalanced approach toward this end. A heightened focus on emotional appeals has dissipated energies and emphasis that otherwise would be directed at research and policy, which more effectively combat human trafficking. This thesis serves as a call to rebalance current trafficking efforts by adding an empirical lens to a movement which has primarily been driven by emotions. Texas provides a helpful view into this reality as it is at the forefront of both the problem and the solution. Through a discussion of labor trafficking in Texas, I propose a rebalancing of efforts to incite a data-driven business model that ensures root-level change and effectively mitigates trafficking.

Kaitleigh Booth, Economics

Steven W. Bradley, mentor

Factors Influencing Individual Business Success in Microcredit Loans

In this study, I will examine the composition of microcredit groups and determine which configurations of composition promote optimal outcomes. Currently, microcredit groups self-select their members without a set-strategy. There are five factors that lead to member selection, which will be addressed in this analysis: homophily, functionality, status, network and ecological constraint. I will use a Fuzzy Set Qualitative Comparative Analysis (fsQCA) to find configurations of previously listed factors that lead to optimal group outcomes.

Jessica Bost, University Scholars

Natalie Carnes, mentor

Addressing Racism in the Church: A Historical, Sociological, Theological, and Practical Account

In the past decade, a growing body of literature has examined the pernicious relationship between racism and Christianity, making it an increasingly pressing issue for modern-day ministers to address. However, many are either ill-equipped or unmotivated to take practical steps to address racial injustice and inequality in their church and community. This thesis is an interdisciplinary synthesis of cultural commentary on racism's structural embeddedness in American history and systems, and theological consideration of the church's complicity. The American church has discarded Scripture's robust understanding of God's redemptive Kingdom, embodied in Jesus' holistic ministry, for a hyper-individualized and disembodied theology unable to address the realities of racism in America. In doing so, the church has not only enabled, but historically supported racial ideology that is fundamentally opposed to the Gospel of reconciliation. Through critical study of racism's roots and modern ecclesial attempts to rectify its effects, this thesis suggests accessible and effective ways forward that account for common pitfalls, and go beyond well-intentioned colorblind approaches.

Caroline Boylan, Baylor Business Fellows, Economics, and Finance

Charles M. North, mentor

Analysis of Criminal Court Case Outcomes Among Indigent Defendants in McLennan County, Texas

The indigent defense system in the United States has been criticized for its unfair treatment of criminal defendants below a certain poverty level. This thesis employs statistical methods to analyze whether or not indigent defendants in McLennan County are dealt worse consequences than defendants who can afford to hire an attorney. I utilize ordinary least squares, logistic, and probit regressions in order to analyze the effect of various variables on sentence length, conviction rates, and the likelihood of a plea agreement. I specifically analyze the effect of indigence on these outcome variables. I also conduct a regression discontinuity design to explore whether defendants on either side of the indigence cutoff face longer sentence lengths and more convictions. My results indicate that indigent defendants may in fact encounter worse outcomes than non-indigent defendants, showing that our indigent defense system may be in need of some substantial change.

Maren Brady, Communication Sciences and Disorders

Jason Whitt, mentor

Roman Catholic Church Teaching and Abortion: A Historical View from the Early Church to Modern Day

The Catholic Church is known today to be staunchly opposed to any practice that violates the dignity of human life, including vehemently opposing abortion. While the Catechism refers to this teaching as constant and unchanging since the first century of the church, many scholars have questioned whether the Church always fully opposed abortion, especially in the early stages of pregnancy due to conversations surrounding theories of ensoulment and animation. In this thesis, I will argue that the Catholic Church has always embraced a respect for unborn human life from conception by opposing direct abortion. To do so, I trace the development of the Church's current canon law and magisterial teaching pertaining to direct abortion from the early church to the 21st century by examining the writings of prominent theologians, papal documents, and previous collections of canon law.

Mackenzie Brock, University Scholars

Melanie Sekeres, mentor

The Effects of Chemotherapy on Affect and Behavior in Mice

Chemotherapy has been shown to disrupt cognition in breast cancer patients, referred to as chemotherapy-induced cognitive impairment (CICI). CICI may be caused by inflammatory cytokines or decreased hippocampal neurogenesis as a result of chemotherapy toxicity, but exercise has been shown to be successful in reducing these effects. CICI is also accompanied by affective disruption, but has not been as extensively studied. This study uses behavioral tests to examine the effects of chemotherapy and exercise on anxiety-like and depressive-like behaviors in mice. The results indicate that chemotherapy causes affective disturbance in mice, meaning that it may be causing anxiety and depression in breast cancer patients. The results also show that exercise may be preventative against breast cancer patients developing anxiety and depression.

Natalie Bush, Biochemistry and Classics

Daniel Hanchey, mentor

Studying the Poetic Function and Scientific Accuracy of Ancient Agricultural Treatises

Roman agricultural treatises, written from 160 BCE to 60 CE, describe Roman agriculture and the structural organization of the Latin farm. Vergil's *Georgics*, Columella's *Res Rustica*, and Varro's *De Re Rustica* are all nontraditional examples of agricultural treatises, calling into question their scientific accuracy. Variance from such accuracy may prove their political or poetic intentions. Experimental and literary analysis was conducted on these treatises to test their scientific merit and poetic intentions. Studies tested the efficacy of ancient farming techniques, such as rolling, tarping, crop burning, organic fertilizing, and mulching. All were proven effective modern forms of agricultural techniques that successfully prevented weed growth, maximized nutrients, and promoted plant growth in scientific studies. A farming management handout was produced in the style of Varro's treatise and compared to modern best management practices. Despite their varied intentions and vagueness, these works contain astounding scientific truth that is far beyond their time.

Kendra Cameron, University Scholars

Lizbeth Souza-Fuertes, mentor

Accessible Translations for an English-Speaking Audience

This thesis presents five short stories that have been translated from the original Spanish versions into English. Though some of these short stories are widely known and celebrated throughout the Spanish-speaking world, these small insights into cultures and experiences of Spanish speakers throughout the world remains largely unfamiliar to most native English speakers. Therefore, this sampling of short stories from different authors, different time periods, and different countries is designed to give the English reader a brief and general overview into the breadth of culture and experience that the Spanish language encompasses in a manner that is easily understandable and enjoyable to read.

William Chan, University Scholars

Bill Neilson, mentor

A Spatiotemporal and Sociodemographic Analysis of Nonmedical Vaccine Exemptions for Texas Kindergarteners

Across the United States, rates of nonmedical vaccine exemptions for schoolchildren have risen. Public health research has linked certain sociodemographic and school characteristics to higher nonmedical exemption rates. In Texas, analysis of change in nonmedical exemption rates and of associated risk factors has not been done at the school district level. This thesis analyzes data from the 2017 American Community Survey, the Texas Education Agency, and the Immunizations Epidemiology branch of the Texas Department of State Health Services to establish relationships between nonmedical exemption rates, sociodemographic characteristics, and school or school district characteristics. The data support our hypotheses: that nonmedical exemption rates in Texas are rising, and that they are positively associated with the proportion of non-Hispanic Caucasian students, median family income, educational attainment, rural schools, private schools, and charter schools. However, the exact details of the mechanisms influencing these trends and relationships have yet to be elucidated.

Mackenzie Kathryn Chandler, University Scholars

Michael Long, mentor

A Translation of Two Synchronic Russian Linguistic Articles: A Commentary on Their Functions

Within current morphosyntactic theory, the ability for a rule or taxonomy to be universal is crucial. By translating two linguistic articles, I present findings relevant to current linguistic theory within modern Russian. I demonstrate, therefore, that their findings may contribute to the universality of current morphosyntactic theory. The first article articulates a new delineation of collective numerals and their functions. Nakonečnaja-Lalanne (2013) argues that a speaker's choice between a collective and a cardinal numeral is often semantic in nature, not random as previous scholars have argued. The second article argues that the existing taxonomy for analytical adjectives in modern Russian is not sound. Through an analysis of written corpora, Gorbov (2016) provides a detailed account against current theory from Panov (1971). Therefore, both articles which I have translated seriously affect current morphosyntactic theory regarding enumeration and modification within inflectional languages. In the conclusions, I discuss the impact of both articles and ways in which their research could improve.

Katie Chilton, University Scholars

Charity Anderson, mentor

Hidden Face: An examination of how artistic lament can address the evidential problem of divine hiddenness

The philosophical problem of divine hiddenness questions the existence of a divine being on the basis of what seems to be a lack of evidence to support reasonable theistic belief. This question, which troubles both atheists and theists alike, is often cited alongside the problem of evil as a defeater for the Christian faith. This thesis explores how the practice of artistic lament within the context of Christianity can act as a means of accessing God's comfort, voicing one's grievances, and possibly receiving supporting evidence to bolster the individual's belief in God. The three mediums of narrative, poetry, and music are explored throughout this thesis as examples of artistic lament, each presenting a unique value to the individual's search for evidence. Artists examined within this work include C.S. Lewis, Mother Teresa, Dostoevsky, George Herbert, Gerard Manley Hopkins, Louise Glück, Samuel Barber, and Tchaikovsky. The argument of this thesis is that works such as these have the potential to facilitate a cathartic process of expression that may in turn produce supporting evidence for the existence of God, thus enabling the individual to at least partially overcome the problem of divine hiddenness.

Riley Grace Coleman, History

Julie deGraffenried, mentor

The Development and Transformation of the Juvenile Justice System in the United States

This thesis analyzes the evolution of the juvenile justice system in America tracing its developments, reforms, and failures from the Progressive Era into the 'Kids are Different' Era. The transformation of the juvenile justice system can be examined sociologically, politically, economically, and legally, yet the purpose of this work is to consider the history of the system itself and the role that mainstream media has had in the perception of juvenile delinquency throughout the system's lifetime. To further examine the impact of the system on a particular demographic from the nineteenth century into the twenty-first, this thesis considers and evaluates individual examples of print material discussing female juvenile delinquency in Texas and uncovers the pervasiveness and danger of attaching lifetime labels to young women. Throughout this survey it is apparent that the difficulty in defining and explaining 'juvenile delinquency' combined with the diverse definitions of 'childhood' complicate the system's effectiveness and further contribute to the perpetuation of myths describing 'killer kids' and 'wild girls' to the public. The erosive power possessed by the media is evident in this overview of the system's history and although it has been detrimental to the rights of children and the portrayal of young females in the past, moving forward it maintains the influence to deconstruct these narratives of child 'super-predators' and educate the public about the importance of trauma-based therapy for offenders.

Sylvia Conatser, University Scholars

Adrienne Harris, mentor

Orthographic Reform and Language Planning in Russian History

An oft-neglected topic of book history and culture, both in histories of writing development generally and in cultural histories of Russia and Eastern Europe, is the rich history of orthographic reform and language planning in Russian and Slavic history. Even more neglected are the cultural, religious, and political drivers of language planning and the relationship of identity to writing systems. This thesis aims to correct this oversight by synthesizing histories on the development of written Russian until its codification by Peter the Great in the early 18th century as well as the language reforms accomplished under the Bolsheviks in the 20th century. It will present analysis on motivations for these two periods of language reform as well as impulses behind resistance thereof; the resulting evidence will demonstrate the close ties of political and cultural, particularly religious, identity to the use of written systems as illustrated by the relationship of Eastern Orthodoxy to the Cyrillic alphabet.

Savannah Cone, University Scholars

Tara Foley, mentor

Through the Looking Glass; The Influence of 18th Century Child Theorists on 19th Century Children's Literature

In this thesis, I argue that we can see the influence of 18th century child theorists in 19th century children's literature. *Through the Looking Glass* examines three theorists and three children's novels. The theorists are John Locke, Jean-Jacques Rousseau, and William Wordsworth. The novels are *Alice's Adventures in Wonderland* by Lewis Carroll, *The Princess and the Goblin* by George MacDonald, and *Peter Pan* by J.M. Barrie. Each author takes a different approach to creating the child which stems from different combinations of the theorists. In doing so, the authors argue for various opinions on society's influence on child development. The child protagonists serve as manifestations of the author's beliefs on the nature of childhood.

Claire Crites, University Scholars

Andrew Hogue, mentor

The Innovation of McLennan County: Law Enforcement Approaches to Human Trafficking

The aim of this thesis is to analyze traditional approaches to human trafficking and how these common approaches have been ultimately ineffective in responding to the crime of human trafficking. This is then contrasted with the innovative approach that McLennan County has adopted, which has led to McLennan County being ranked fourth in the United States for human trafficking arrests. The first chapter highlights ineffective yet historically common theoretical responses to human trafficking. These faulty approaches will later be contrasted to McLennan County's policies to showcase their ineffectiveness. The second chapter then outlines the scope of the problem of human trafficking within McLennan County by providing population and demographic data. The third chapter proceeds to delineate the original and successful approach to human trafficking that McLennan County has adopted. This includes an analysis of the cultural climate these policies originated in and the success rate of these approaches. Finally, the fourth chapter discusses the law enforcement educational campaigns that have resulted from McLennan County's effective response to human trafficking as well as improvements that can be made to McLennan County human trafficking policies.

Kasia Cross, Anthropology and Environmental Studies

Carol Macaulay, mentor

Stylistic and Compositional Analysis of the Red Beene Shelter (41VV0951) Pecos River Style Rock Art

While Pecos River style (PRS) rock art remains one of the most-studied rock art styles of the Lower Pecos, extant scholarship seldom considers the insights granted from an analytical art history perspective. With radiocarbon data suggesting a genesis of production in the Middle-to-Late Archaic, PRS spans an immense temporal range of three millennia with marked stylistic coherence. A stylistic analysis of the PRS pictographs of the Red Beene Shelter (41VV0951) reveals the morphology of formal artistic elements and the compositional complexity of the site's panel. The study of line, color, location, spacing, depth, rhythm, and incorporation suggests the aesthetic and functional usage of artistic elements to both depict and animate complex cosmological narratives via intricate stylistic schemas that codify iconographic motifs of supramundane figures.

Madison Fe Crow, History

Davide Zori, mentor

Fetal and Infant Burial in the Italian Middle Ages: Between Text and Practice

The burial of unbaptized fetuses and infants, as seen in texts and archaeology, exposes friction between the institutional Church and medieval Italy's laity. The Catholic Church's theology of Original Sin, baptism, and salvation left young children especially vulnerable to dying unbaptized and being denied a Christian burial in consecrated grounds. Narrative accounts and testimonies from canonization proceedings reveal that after exhausting the accepted measures of appealing for divine help, laypeople turned to folk religion or violated canon law when struggling or deceased fetuses and infants were in danger of being buried in unhallowed ground apart from the Christian community. The archaeological literature confirms that parental concern often clashed with ecclesiastical burial regulations. As a result, unbaptized children were occasionally buried in consecrated grounds in religiously symbolic placements. Ultimately, the textual and archaeological record of fetal and infant burial in medieval Italy serves as a material legacy for how laypeople interpreted and reacted to the church's theology and regulation of baptism and burial.

Rachel Cummins, University Scholars

Kelly R. Ylitalo, mentor

Screening for Adverse Childhood Experiences (ACEs) at the Family Health Center

The relationship between societal conditions and health is longstanding. A growing body of research suggests that adverse childhood experiences (ACEs) negatively affect health risk behavior and disease in adulthood. While most of the literature surrounding ACEs focuses on population-level data and youth, fewer studies center around screening adults for ACEs in the primary care setting. The purpose of this research is twofold: first, to identify existing research related to this topic to inform screening at the Family Health Center (FHC); and second, to analyze and interpret ACEs screening data from FHC patients to inform its Medical-Legal Partnership (MLP) with Greater Waco Legal Services (GWLS).

Kyle Desrosiers, University Scholars

Mia Moody-Ramirez, mentor

Things Broken and Things Made New: An Oral History of HIV/AIDS and Spirituality

This project is a contemporary collection, analysis, and presentation of oral histories from HIV-positive persons in America. Approximately 10 persons from diverse backgrounds have been interviewed by this author in conjunction with the Baylor Institute of Oral History, in order to collect qualitative information about their lifetime experiences regarding religion, family, community belonging, health, spirituality, sexuality, and changes in worldview and faith. Though the central theme investigated is the relationship between HIV-positive status and the trappings of religion and spirituality, because the project investigates a wide range of life experiences, many significant narratives from both religious and secular spaces are presented. The participants have been interviewed about personal development, relationship to others, and internal worldview changes. Additionally, participants reported histories about advocacy, identity, culture, and other qualities that relate to the search for spiritual and secular meaning and purpose over one's lifetime. The methodology of this project is influenced by existing literature regarding the nature of HIV/AIDS and religion, other oral history projects, and the interview processes used by the Baylor Oral History Institute. This project reports unique similarities among the way that various individuals living with HIV have used spirituality and worldview to navigate life as HIV-positive persons.

Peter Doe, Baylor Business Fellows and Economics

Jason Aimone, mentor

Nudging Towards Socially Efficient Norms: An Experimental Laboratory Study

Within groups, members must coordinate on similar levels of effort in order to finish their tasks at the same time. In group coordination games with multiple Nash equilibria such as the minimum effort game (MEG), which equilibrium will prevail is difficult to predict. The MEG models group coordination by rewarding all players for higher group minimum effort levels, but punishes players for expending effort above the minimum effort of all group members. In most laboratory experiments involving the MEG, participants fail to coordinate on the Pareto-efficient Nash equilibrium. Here we show that ‘nudge’ periods in which coordination is facilitated are effective at reducing the amount of coordination failure. We also show that structuring these ‘nudge’ periods in continuous time (rather than discrete time) increases the persistence of successful coordination as continuous time provides subjects the opportunity to change strategies mid-round and reduce uncertainty. We advance previous research into group coordination by testing ‘nudges’ in continuous time games. Our experimental results demonstrate that a period of induced efficient coordination develops a focal equilibrium that persists even when the incentives to coordinate are weakened. An artificial learning environment allows group members to learn to work together.

Hannah Dorward, University Scholars

Clark Baker, mentor

Oak Cliff: A Series of Environmental Portraits

This work focuses on five individuals from Oak Cliff, a neighborhood in Dallas. These five people all live within a few blocks of one another and their stories are meant to serve as a representation for the neighborhood as a whole. For each of these individuals, I created a black and white photo series. These series consist solely of environmental portraits which are intended to provide insight into the person's daily life. I found inspiration in the work of William Gedney, Shelby Lee Adams, Sally Mann, and Vaughn Sills. Their black and white photography, whether in the realm of journalism or the fine arts, showcases how photographs can be made both beautiful and meaningful especially when the subjects and photographer have an established relationship or emotional connection. Ultimately, I created this work with the intent to document stories that are often overlooked and undervalued. These stories help to show how people and place are intertwined, forever influencing one another.

Mitchell Thomas Elequin, Baylor Business Fellows, Religion, and Accounting

Mike Whinton, mentor

A Dungeon Master's Guide to the Satanic Panic:

The history, sociology, and rhetoric of conservative Christianity and Dungeons and Dragons

The Satanic Panic of the 1980s and its relationship with *Dungeons and Dragons* has captured the curiosity of historians, sociologists, folklorists, religion scholars, and geeks for decades. Heralded as a return to form by conservative Christians, the Satanic Panic ousted occult undertones lurking in the shadows of America's popular culture. Conservative Christians subjected *Dungeons and Dragons*, a tabletop roleplaying game set in a fantasy universe, to the burning stake of this modern day witch hunt. This paper investigates the “why” and “how” of the Satanic Panic. Applying an interdisciplinary approach, this paper presents primary texts and historical documents of the Satanic Panic, then proceeding to address the Satanic Panic sociologically. Finally, this thesis will perform ideological criticism on an anti-*Dungeons and Dragons* text to demonstrate historical, sociological, and ideological trends in real-time.

Grace Elliott, Psychology

Christine Limbers, mentor

Relationship between gratitude and quality of life in adolescents

I collected responses to a questionnaire from two local high schools. The questionnaire included a demographic questionnaire, a measure of gratitude, and a measure of quality of life. In addition, I collected parent-report gratitude measures from a smaller sample of high school students who completed the questionnaire. 52 students completed the questionnaire and 18 returned the parent-report questionnaire. Correlational analysis was conducted and there was a strong relationship between gratitude and quality of life.

Suzi Elnaggar, Classics

Julia Hejduk, mentor

Howling: Hecuba in Ovid's Metamorphoses XIII and Beyond

Hecuba, the ill-fated Queen of Troy, appears in significant literature from Homer's *Iliad* to Shakespeare's *Hamlet*. While the Hecuba of Euripidean tragedy has warranted much attention, Ovid's rendering of her in epic poetry is rather overlooked; this thesis appraises both Euripides' and Ovid's version of the Hecuba narrative. By codifying heroic vagueness in the Euripidean tragedies, *Hecuba* and *The Trojan Women*, and analyzing the differing depictions of Hecuba in each, the first chapter establishes why Hecuba has remained a compelling figure. Next, by noting Ovid's change from tragedy to epic, the second chapter considers the influences on the Ovidian approach in *Metamorphoses* 13.399-57 and compares this approach directly to Euripides'. Through a close reading of the text in Latin, the third chapter discusses the three-fold identity of Hecuba through her three slaughtered children: Hector, Polyxena, and Polydorus. Finally, by considering other instances in Roman poetry, the fourth chapter evaluates the importance of the transformation of Hecuba into a dog in Ovid's *Metamorphoses* 13. This thesis concludes that this beastly transfiguration, and the Ovidian Hecuba narrative as a whole, can be read as a commentary on maternal grief, female rage, and feral madness.

Conner Fastenau, University Scholars

Todd Juras, mentor

Belief and Credence: A Defense of the Vague Reduction

An epistemological issue garnering increasingly more interest is the relation between the doxastic taxonomies of traditional and formal epistemology, and especially the relation between rational, outright belief and credence. Proposed solutions to this issue fall into one of three classes, *viz.* eliminativism, non-reductionism, and reductionism. In this thesis, I introduce and subsequently defend my own variation of the traditional reductionist view, which I call the Vague Reduction. To do so, I consider a score of eliminativist and non-reductionist objections to reductionism, and argue that they all fail; the upshot is that eliminativism is deemed untenable, non-reductionism unfounded, and traditional reductionist views implausible. In turn, I suggest that the Vague Reduction naturally recommends itself as an attractive and viable theory governing the relation between rational belief and credence.

Libby Feray, University Scholars

Elizabeth Corey, mentor

What Mean Ye by These Stones?": The Origins and Architecture of the First Baptist Church of Amarillo

The First Baptist Church of Amarillo is an architectural treasure that resembles the great cathedrals of Europe. How did such a beautiful church come to exist on the Panhandle of Texas at the beginning of the Great Depression? And why did a congregation of Southern Baptists, part of a denomination that tends to deemphasize the role of architectural beauty in worship, undertake such a costly project? This thesis seeks to answer these questions by exploring the early history of the church alongside the historical, economic, and social context in which it was built. Additionally, the thesis identifies a variety of influences on the church's architecture and aesthetics and examines recent building projects undertaken by the current congregation to preserve the church's beauty for future members. Throughout, I argue that FBCA stands as a unique example of a marriage between Baptist sensibilities and a traditional Christian emphasis on beauty.

Stefan Fitting, University Scholars

Andrew Clayton, mentor

*Modern American and Japanese Religious Law:
Exploring the Paths and Development between Two Linked Constitutions*

During the post-war occupation era in Japan, Allied powers added a constitution that resembled the Constitution of the United States to the Japanese Meiji constitution. Among other things, the amended constitution included protections for religious liberty and the establishment of a Supreme Court. However, despite all the similarities in the organization of the new Japanese judicial system, the religious jurisprudence in America and Japan took wildly different paths in subsequent years. The two countries' different judicial responses to religious controversies is explored through analysis of American case law and religion-based controversies in Japan. The different theories for the cause of this divergence will be evaluated in order to best understand why the divergence occurred.

Emily Flinchpaugh, Marketing

Randy Hacker, mentor

Purpose Marketing: A Genuine Way for Companies to Advocate for Change or a Deceitful Sales Tactic?

This thesis explores the implementation of purpose marketing in modern day advertising. Studies have shown that consumers are willing to switch to brands that support causes they believe in, and brands have started to capitalize on this trend. In particular, I will analyze brands that have released controversial ad campaigns and attempt to uncover the motives behind their seemingly philanthropic efforts. Advertising today is under high levels of scrutiny due to the internet and the prevalence of social media, so if a campaign comes across as inauthentic or inconsistent with a brand's identity, customers can lose trust in the brand. I will then examine brands that are commended for their purpose marketing, evaluate why their campaigns are received well, and point out how other brands can learn from them.

Noelle Flores, Communication

Christina Crenshaw, mentor

An Assault on Unalienable Rights: Exposing the hidden realm of modern-day slavery

Human trafficking is a multibillion-dollar enterprise that ranks as one of the world's top criminal industries. It is a vast, widespread business practiced in many forms in several countries around the globe, including the United States. Yet it remains a distant concept to much of the developed world. Mainstream media coverage of modern-day slavery distorts the reality of it, and its perpetrators are skilled in disguising and hiding the crime's horrific nature. Despite efforts to raise awareness of this assault on human rights, and though much progress has been made to hinder it, human trafficking has yet to be completely eradicated. To resist this crime, international governments and nonprofit organizations have been working to give people the resources and tools they need to be informed on the issue and encouraged to take a stand against it. Their invaluable contributions have equipped nations to fight back and given society the responsibility of being a voice of hope for the victims and survivors of slavery today. This injustice has been ignored long enough - no matter the capacity, we all have a role to play in abolishing human trafficking.

Katherine Galvin, University Scholars

Kayla Rhidenour, mentor

*Freedom for, Freedom from, and Freedom of Religion:
An Analysis of Religious Liberty in Israel, France and the United States*

This thesis analyzes the idea of religious freedom by taking a closer look at how three countries, Israel, France and the United States, have implemented the notion of separation of church and state. I propose that the separation of religion from government is not a binary issue, but has instead produced three main interpretations which we will call freedom for, freedom from, and freedom of religion. Within each of these countries, I examine the history, legislation and judicial decisions that have brought them to their current conceptualization of religious freedom and how these policies affect the daily lives of those living within their domain.

Anna Catherine Gibbs, Anthropology - Archaeology

Davide Zori, mentor

A Study of Medieval Intrasite Find Distribution on the San Giuliano Plateau

The San Giuliano Archaeological Research Project (SGARP) excavates a site in Lazio, Italy known as San Giuliano, which has an occupation history spanning from the Bronze Age to the medieval period. The project has been active from 2016 to 2019 and aims to understand the long-term transitions and habitation patterns of the societies that occupied the region. The medieval component of the San Giuliano site is a local manifestation of the widespread, but still poorly understood "incastellamento" process (the relocation of large parts of the medieval Italian population into defensible, fortified sites between AD 700 and 1200). This paper presents a GIS analysis artifact location and attributes within the medieval fortification excavation atop the San Giuliano plateau. By employing ArcGIS to run statistical analyses of artifact distribution patterns and their associated features within the medieval castle zone, analyses reveal artifact densities and patterning related to site use and refuse deposition throughout the fortification. The interrelationship of finds and archaeological features reveal key transitions in the use of space atop the fortified plateau. GIS analysis of the finds ultimately provides an integrated view of the spatial and social dynamics of an Italian castle and contributes to our understanding the wider process of incastellamento.

Stephanie R. Gilbert, Biology

Thomas McGrath, mentor

Caffeine's Origin, Chemistry, and Systemic Effects

This thesis examines the structure of caffeine: its chemistry, its mechanisms of action in the body, and ultimately, how that plays into its impact on the oral cavity. The opening chapter serves as an introduction, providing a historical account of coffee and a discussion of its chemical components, creating a foundation for the paper to highlight its well-known component: caffeine. In the second chapter, caffeine's impact on glucose metabolism and Type 2 Diabetes is addressed. The third chapter investigates caffeine's effects on cognitive performance, alertness, and its mode of action in the brain, and the fourth chapter analyzes the association of caffeine intake and the development of periodontal disease. Finally, the fifth chapter will discuss caffeine's role in dental staining. This research serves to educate readers on caffeine's impacts on metabolism, psyche, and dentition.

Caleb Graham, University Scholars

Rizalia Klausmeyer, mentor

The Importance of Proper Status Assignment on Medicare Observation Patients

Observation Units are ultimately intended to give hospitals greater time to more accurately diagnose patients admitted through the Emergency Department (ED), both freeing up ED beds and avoiding unnecessary admissions. However, the changes in the way Medicare reimburses hospitals for observation versus inpatient status has created a growing number of observation cases that yield a lower reimbursement rate for many hospital systems. By assessing the length of stay and net income from Medicare patients and interviews from those working with patient status, it has been shown that Observation Units are not being run optimally as a result of misplaced status. Improving physician education and Utilization Review will increase the revenue received by the hospital.

Ashlin Gray, University Scholars

Victor Hinojosa, mentor

Building Trust Amidst Trauma: Trust-Based Relational Intervention (TBRI) and its Applicability to Unaccompanied Child Immigrants from the Northern Triangle

This thesis examines the trauma-informed method Trust Based Relational Intervention (TBRI) and its potential applicability to the population of unaccompanied child immigrants from the Northern Triangle of Central America. This population has demonstrated high levels of severe interpersonal trauma due to adverse experiences before, during, upon, and after immigration to the United States. The TBRI method has not been utilized to assist this population in the past, as the literature has mainly focused on the populations of adopted children and children in foster care. It was found that the incidence and severity of trauma in unaccompanied child immigrants is comparable to that of children who have benefitted from TBRI. Thus, a variety of case studies were conducted to examine the applicability of TBRI into existing settings of practice. TBRI may need cultural adaptation, but presents strong potential benefit to unaccompanied child immigrants in its core principles and child development values.

Megan Green, Instrumental Music

Robin Wallace, mentor

Existentialism and Modern Music

This thesis comments on both philosophy and music by drawing parallels between the two. Existentialism helps explain the trends in musical development, shows the direct correlation of composer life-views and their compositions, and motivates listeners to find the *why* behind every musical decision. Alternatively, modern music

shows that existentialism's commentary on the human condition extends beyond general morality and identity into all facets of life. I begin by comparing Friedrich Nietzsche's Three Metamorphoses and George Rochberg's compositional evolution through his string quartets. Then, I analyze Soren Kierkegaard's Dizziness of Freedom - with respect to Milton Babbitt's finite total serialism and John Cage's infinite aleatoricism - and Transcendental Faith - the equivalent of which is found in a variety of composers. Finally, I outline Steve Reich's musical development through Jean-Paul Sartre's concept of Freedom as a comment on Authenticity. Throughout, I argue the unique insights of interdisciplinary study in the hopes of starting a larger conversation between the two disciplines.

Bryce Griffin, University Scholars
Francis Beckwith, mentor

Better is One Day

Every court case is a story, a drama played out before peer and judge. Characters move on and off stage amid recitations of scripted lines. Too often, the casual observer ignores the real people with unique stories and motivations who comprise these cases, and instead focuses on the decision alone. Based loosely on the Supreme Court case *Masterpiece Cakeshop v Colorado Civil Rights Commission*, "Better is One Day" follows the story of Patrice Monohan, a disgraced trial lawyer trying to find work in the legal field. Dogged by the memories of her abusive and intensely religious father, Patrice struggles to find meaning in her professional, personal, and spiritual life. A chance at a redemption lands in her lap in the form of a Supreme Court bound religious liberty case but it might just be at the cost of her conscience. Faced with impossible decisions and gut-wrenching doubts, Patrice is tried in the jurisdiction of every court.

Clifton Haacker, Neuroscience
Erika Abel, mentor

The Effects of Prior Exposure to Methylphenidate on Later Methamphetamine Self-Administration

Methylphenidate is the most common stimulant drug of choice for the treatment of Attention Deficit Hyperactivity Disorder. Research implicates that prior exposure to stimulant medication may play a role in later psychostimulant use. With a growing ADHD population, there is concern of over-diagnosis that may lead to the inappropriate use of stimulant medication. This has major implications in the misuse of Methylphenidate by those who do not have ADHD. There is also concern over the effects that prior exposure to stimulant medication may have on later substance use, particularly illicit stimulants. This study demonstrates, both through experimentation and a review of the literature, how prior stimulant exposure may impact Methamphetamine self-administration. Further research is needed to fully assess the impact that Methylphenidate use has in the general population regarding methamphetamine use. It also proposes comparative studies for ADHD populations and possible age-related effects of Methylphenidate use.

Gage Matthew Hallbauer, University Scholars
Perry Glanzer, mentor

Cheating at Baylor

In the Fall of 2018, Baylor University announced changes to its honor code that it made in order to combat the rise of internet cheating. This thesis project is a phenomenological study, and it explores the motivations, self-justifications, and methods that Baylor students use to cheat in their classes using semi-structured interviews with current Baylor students. Through a coded analysis of the interviews, examined through the lens of the current academic integrity literature, I found, among other trends, that some Baylor students believe in the mutual exclusivity of cheating and learning and that they use such a belief in order to justify behavior that their professors

would likely consider to be academic integrity violations. Using my qualitative data directly from current students, I suggest to Baylor and the Office of Academic Integrity changes to make to classroom and university policy that would work to decrease internet cheating as well as the current disillusionment with the honor code.

Amy Hammerton, University Scholars

Ginger Hanchey, mentor

The Limitations of Language as an Intellectual and Visual Artform

This thesis explores moments when language alone is not enough to adequately communicate. Through a combination of research and creative writing, it highlights both the power and limitations of language. Each chapter focuses on a different aspect of language that can either prohibit or promote meaningful communication. The first chapter focuses on white space as a visual tool that the writer can use to complement or confuse meaning. The second chapter addresses access to language as a factor that limits the potential for communication between individuals. The third chapter focuses on the effects of overabundant language represented visually through the use of overlapping text. The final chapter focuses on typography as a method of augmenting what can be communicated through language.

Sam Haug, University Scholars

Robert J. Marks II, mentor

Linear Complexity Yields Compounding Exponential Contingencies: The Additional Variable Explosion

In the pursuit of an optimum design, prototypes fail and must be redesigned in order to progress. In complex projects an uninformed designer must expend countless resources to improve upon the design. We organize information pertinent to a complex design project into a matrix and examine its applications both in the design process and describing how domain expertise can help to navigate this ever-increasing complexity of design. Some scenarios require only moderate tweaking to solve an issue, but some require a complete reworking of the designer's mindset concerning the project. Ever increasing complexity of the project at hand makes progression difficult, and potentially impossible without a creative designer with considerable domain expertise.

Sarah Henn, University Scholars

Steve Watters, mentor

A Preliminary Phonological Analysis of Lowa (loy)

This thesis is a preliminary description of the phonetics and phonology of Lowa (loy), a Tibeto-Burman language of the Bodish branch spoken in the Upper Mustang district of Nepal. Drawing on a data corpus of approximately 1,200 words elicited from two mother tongue language informants, this phonological sketch introduces many of the basic features of Lowa, including its phonemes and several major phonological processes. After introducing the language, its people, and the methodology, consonants and vowels are discussed with regard to their phonemic contrasts, phonotactic constraints, and related phonological processes. Then follows a discussion of register with specific attention paid to pitch contrasts. The conclusion notes some concerns regarding the present-day orthography in light of the previous findings, touching on the long-term impact of this research.

Sarah Anne Hill, Professional Writing and Rhetoric

Coretta Pittman, mentor

Inaugural Addresses in Relation to Technology:

How the Rhetoric of United States' Presidents has Evolved with Technological Innovation

Presidential rhetoric represents one of the highest levels of formality and eloquence in the United States, and has existed for over two centuries. Using Aristotle's rules for rhetoric, inaugural addresses are considered a subgenre of epideictic rhetoric; a style of rhetoric used for events involving praise or blame. From the first president to the forty-fifth president, language has changed alongside the available forms of technological communication. With each new advancement in technology, the president has had to adapt the rhetoric of their inaugural address and maintain communication with their constituents despite the challenges these advancements may have. This thesis will study the inaugural addresses of Presidents Lincoln, Kennedy, and Obama, and the rhetorical choices they made based on the technology available to them. Creating a chronological timeline of presidential rhetoric will aid in discovering whether or not the advancement of technology has negatively or positively impacted the level of eloquence present in inaugural addresses. While language has certainly regressed in many aspects, this does not mean that the presidents are not performing rhetorically to the highest possible standard. The rhetoric and level of eloquence President Lincoln used may differ from that of President Obama, but does this mean Obama is less articulate and not as well-spoken? Using President Lincoln's inaugural address as the foundation for rhetorical comparison in this thesis, I will display how impactful technology is on communication techniques and prove that Aristotle's rules for rhetoric are still in use.

Joy M. Hoang, University Scholars

Adrienne Harris, mentor

Vaccination Back in the USSR: A Historical Analysis of Soviet Vaccination

Vaccines are a hotly debated topic in many communities around the world, including those in Eastern Europe. Additionally, Eastern Europe is a region that has experienced outbreaks of various infectious diseases, such as measles, in recent years. This thesis aims to investigate the forces behind these phenomena, as well as explore the potential connections between Soviet history, Eastern European culture, current disease outbreaks, and modern-day vaccine hesitancy. Modern outbreaks and vaccine hesitancy in Eastern Europe are connected and influenced by historical Soviet vaccination practices. As such, it is necessary to conduct a historical overview and analysis of Soviet vaccination campaigns, rhetoric, and governmental policy in order to better understand how and why these circumstances developed. In particular, this thesis will examine three vaccination campaigns (smallpox, polio, and measles) that took place across three different periods of Soviet history and connect historical events with their contemporary consequences. In doing so, the epidemiologic situation in Eastern Europe will be elucidated through an exploration of historical, cultural, and political factors.

Hayden Holman, University Scholars

Arna Hemenway, mentor

Misty Eyes in the Secret Forest / Ojos brumosos en el bosque secreto

This is the account of the brother and sister Damián and Leticia Martínez del Castillo, and their adventures in El Fuerte, Sinaloa, Mexico. Living out their lives as best they can amidst poverty and a changing society, with danger never too far off, the children must grow up quickly and learn to take matters into their own hands. They also learn that with a little wonder and imagination, reality is more magical than it may seem. "Misty Eyes in the Secret Forest" is an 8 chapter work of fiction that is meant to showcase a little of what life could be like for two children growing up in rural western Mexico, and to honor the Spanish language and Mexican culture. By combining

realistic fiction with an occasional element of fantasy, this story also intends to pay homage to the Latin American tradition of magical realism.

Colton Hoover, University Scholars

Sarah-Jane Murray, mentor

The Keeper's Temple

The Keeper's Temple is a screenplay about Martin, a young man born into a family of storytellers, who lives in a monastery that worships the Great Dragon of Creation. When his grandfather is exiled from the temple, Martin struggles to accept the rigidity of his faith community. He leaves his home in search of a truth that was hidden away long ago, and along the way wrestles with doubt about whether the Great Dragon ever existed at all. Written in a three-act structure, this screenplay explores the core human experience of letting go of old stories to make room for something new. With a little luck, good friends, and abounding grace, going into the unknown can allow us to return home with a full heart and an open mind. Ultimately, *The Keeper's Temple* reinforces that truth is to be fearlessly pursued, and that grace is to be freely given.

Rebecca Howard, Medical Humanities

Jason Whitt, mentor

Physician Burnout: The Need for Medical Humanities

While the U.S. health care system aims to cure patients efficiently, the way in which society approaches the practice of medicine dehumanizes both physicians and patients. This thesis looks at the issue of physician burnout while claiming that in order to restore the broken system, medical education needs to balance the humanities with the sciences within the medical curriculum. Both the content and pedagogy of medical education needs to form the characters of future physicians. Educating in this way may provide a strong foundation for professionalism that is grounded in the virtues. Chapter one provides an overview of the United States' current health care system. Chapter two is a literary review of physician burnout. This chapter summarizes the data available about physician burnout including its factors, consequences, costs, and current solutions implemented in hospitals. Chapter three presents a potential solution to physician burnout beginning in undergraduate pre-medical education.

Benjamin Hunt, University Scholars

Matthew Quade, mentor

The San Antonio Spurs: A Case Study in Organizational Culture

In this thesis, I analyze the organizational culture of the San Antonio Spurs in order to determine what makes the Spurs successful. An in-depth film analysis, statistical breakdowns, first-person interviews, and a comparison of the many books and articles written about the Spurs reveal one theme that unites each member of the Spurs organization, players, coaching staff, and owners alike: a team before individual mindset. From the X's and O's on the court, to the organization's core principles off the court, it is evident that each individual within the Spurs organization commits to put the team's goals ahead of his or her own. By understanding how the Spurs created and maintain this type of culture, organizations of all kinds can emulate the Spurs' example, taking lessons from the basketball court and applying them to the boardroom, classroom, or any other workplace. In so doing, organizations will increase their efficiency, consistency, and sustainability, thereby assuring greater organizational success.

David Robert Hunter, University Scholars

Patrick J. Farmer, mentor

The Formation of Sulfur Oxoacid Generators and the Effects of Dimedone on the Breakdown of Disulfiram

Cardiovascular disease (CVD) is the second largest cause of death in the United States. Drugs that generate the small gaseous molecule Nitric Oxide (NO) have been used for hundreds of years to treat cardiovascular disease. Recently, Hydrogen Sulfide (H₂S), another small gaseous molecule has been shown to have similar effects in the cardio vasculature; both NO and H₂S affect the cGMP pathway by inhibiting PDE, a cardiovascular signaling molecule that decyclizes cGMP. Multiple drugs have been developed to release H₂S in cells. The Farmer lab has identified small oxoacids of sulfur (SOS) as endogenously produced metabolites of H₂S, which may play a role in its activity. The lab has also identified several families of compounds which release these metabolites, and these compounds show unusual activity in models of CVD. In this work, attempts were made to expand and improve the syntheses of these compounds, which include N,N'-(1,2,4,5-tetrathiane-3,6-diylidene)bis(N-ethylethanamine) dication (BITT²⁺) and diethyldithiocarbamate mono/di-oxide anions (DeDTCO_{1/2}⁻). Additional experiments were performed to assess if the SOS generation were important in the known activity of disulfiram and BITT²⁺ against melanoma in cell culture. Specifically, whether trapping SOS chemically inhibited generation of a toxic Cu(DeDTC)₂ complex. Only initial experiments on the formation of the Cu(DeDTC)₂ complex while trapping SOS could be completed.

Elizabeth C. Hunter, Biology

Diane Hartman, mentor

Dental Practitioner Knowledge, Perception and Understanding of E-Cigarettes in Waco, TX

Increased usage of e-cigarettes by youth and adults constitutes an imminent cause for concern among dental practitioners who have the ability to impact clinical care and affect patient's decision making. While research is currently shifting focus to quantify the long term effects of e-cigarettes, the present knowledge and perceptions of e-cigarettes among dental practitioners is vastly under-researched. The goal of this study was to obtain a better understanding of dentist's perception and knowledge of e-cigarettes and assess whether those factors influenced patient care. Dental practitioners (n=30) in Waco, Texas completed a 15-item Qualtrics survey to convey their knowledge, perception and subsequent clinical behavior among patients who use and those who do not use e-cigarettes. A Fishers test and factor analysis were performed. Additionally, this study compared data to that of a similar study performed in Baltimore, Maryland. There is a significant relationship between one's dental specialty and whether the dentist includes questions about patients' e-cigarette usage on medical history forms. Factor analysis indicated that dentists who feel ill-informed about the risks of e-cigarettes do not discuss the risks of adverse effects on oral health caused by e-cigarettes with patients actively using e-cigarettes, and also tended to believe that e-cigarettes were safer than conventional cigarettes. Additionally, the percentage of dentists in Waco, TX who explicitly ask patients about the use of e-cigarettes or conventional cigarettes is quite comparable to that found in the Baltimore, MD study. According to this study of Waco, TX dentists, definitive knowledge of e-cigarette risks on oral health is lacking and this influences patient interaction. This research identifies the importance of educating dental practitioners on the evidence of e-cigarette's effect on oral health, so that they can inform patients of potential health risks and positively impact clinical care.

Ekenemolisa A. Isiakpona, Economics

John M. Ssozi, mentor

Determinants of Total Factor Productivity in Sub-Saharan African Countries

In the current decade, African countries intend to increase economic growth by improving their productivity. Since limited research is conducted on the continent, productivity growth must come from emulating technology from developed countries. The ability to emulate technology is determined by contact variables and absorptive capacities. Contact variables allow countries to access technology from other countries while absorptive capacities control how well technology is assimilated into an economy. This paper uses the fixed effects model to analyze the direction of the correlation between the Total Factor Productivity (TFP) growth of Sub-Saharan African countries and these two types of determinants. The results show that the direction of correlation between contact variables and TFP growth depends on the unique characteristics of countries like income levels, geography, and political institutions. For absorptive capacities, the direction of the correlation between human capital and TFP growth depends on the unique characteristics of each country while economic institutions have a positive correlation with TFP growth overall.

Grayson Jackson, University Scholars

Bill Neilson, mentor

The American Anti-Vaccine Movement: An Investigation of Populism, Polarization, and Public Policy

Populism, animated in part by the distrust of elite authority, can be found across the spectrum of American political ideology. From Donald Trump and his “drain the swamp” rhetoric to Bernie Sanders and his denunciations of corporate greed, this contagious, populist skepticism has invaded contemporary American political culture. Unfortunately, this sentiment has also plagued the medical and scientific communities, with government agencies, pharmaceutical industry giants, and experts encountering growing distrust, especially concerning the safety and efficacy of vaccines. Whereas measles outbreaks occur with increasing frequency across the United States and the rates of non-medical vaccine exemptions are rising to dangerous levels, Americans face a veritable public health crisis. This thesis will trace the roots of populism and political partisanship in order to evaluate their influence on the anti-vaccine movement in the United States, with further attention paid to the specific public health risks of and policy prescriptions for vaccine hesitancy.

Maya Johnson, University Scholars

Monique Ingalls, mentor

From Self to Society to Divinity: A Relational Ontology of Music

Since ancient times, mankind has been in the process of analyzing and understanding consciousness. Especially in recent research, art has been crucial in both expressing and forming consciousness, with different types of art playing different roles in the understanding of consciousness. Within this context, the thesis will examine music and how its unique relation to consciousness sets it apart from the other arts. Since antiquity, indigenous peoples and Classical civilizations alike have expressed wonder at the power of music to both integrate and transcend. Across time and culture, music has been used for self-expression and social cohesion, as the primary medium for worship, and as a means of connection with the spiritual realms. Modern academic disciplines have engaged in the study of music and its many properties, struggling to address music’s complexity and to explain how music acts upon the individual, the collective, and the spiritual consciousnesses. In this thesis, I draw from research in sociology, psychology, neuroscience, philosophy, ethnomusicology, and music history to demonstrate how music’s unique psychological, sociological, philosophical, scientific, and aesthetic properties set it apart from the other arts. First, I examine music’s ability to develop individual consciousness and insight; secondly, I study music’s

properties that signify and strengthen collective consciousness; lastly, I describe music's power to mediate between the individual and the collective spheres of consciousness. Although each of us has our own background with music, a comprehensive understanding of music and its relation to the self, society, and spiritual consciousnesses is invaluable. Not only does it provide greater understanding beyond personal experience or intradisciplinary education; its relational ontology allows us, through music, to experience an integrated perspective of all mankind.

Sarah Jones, University Scholars

Victor Hinojosa, mentor

"Who is the Other?": The Intersection of Anthropological and Theological Discourse on U.S. Relations with Latin American Refugees

The existence of oneself logically necessitates the existence of another, for being able to define what one *is* requires that one differentiates from what one *is not*. This is referred to as the self-other dichotomy. The tendency to differentiate between oneself and another, or the Self and the Other, is not uncommon, and is apparent in nearly all manifestations of identity and within human societies. Yet within Western civilization, this dichotomy has been unjustly utilized as an epistemological framework for Western ideologies to exalt the West as superior in comparison to non-Western nations, establishing what the discipline of anthropology refers to as the Anthropological Other. This term is utilized to consolidate any reference to cultures that exist outside of the Western tradition, with the Western tradition in contrast becoming known as the Self. Such a dichotomy has served to establish an "us-vs-them" mentality within United States relations with Latin American refugees, thereby begging the question as to the root of such dehumanized interactions. By examining the root of this othering dichotomy within Western civilization, this research unravels the question, "Who is the Other?" explicated through both the discipline of anthropology and theology. For, as this thesis seeks to demonstrate, at the intersection of anthropological and theological inquiries lies a true explication of the Other, which transcends the discourse of each discipline independently.

Chandler Jordan, University Scholars

Jeff Fish, mentor

*If only We were Ageless and Immortal:
Human Existence under the Immanence and Transcendence of the Gods of the Iliad*

Homer's portrayal of the gods in the *Iliad* has long been a source of scandal. The traditionally problematic depictions of the gods have been those that attest to their divine immanence, their similarity to human beings in character and behavior. While the gods of Homer's *Iliad* are undeniably immanent by modern standards, they are also notably transcendent, that is, immune to the consequences of their interventions in the human world and sharply differentiated from human beings in their ontology. This simultaneous presence of both divine immanence and divine transcendence has significant consequences for the gods' relation to the human characters of the epic. The gods, because of their immanence, share many of humanity's values and thus engage with humans frequently where these values are at play. However, because of their transcendence, the gods enjoy special ontological privileges that always disadvantage humans in these interactions. This theology makes the primary crisis of the epic, the inhibition of the best from becoming what he or she was meant to be, the primary crisis of all humanity in the epic. Though the human characters of the epic recognize the tragedy of this condition, they do not condemn it as morally unjust, but accept it. This resigned acceptance follows from Homer's theology and reveals the power only a few ontological facts about gods and humans hold in the world of the epic.

Alyssa Kaser, Psychology

Sara Dolan, mentor

The Influence of Neurofeedback Training on Verbal Episodic Memory in a TBI Sample

Traumatic brain injuries (TBI) are commonly characterized by neural changes that impair physical, behavioral, and cognitive functioning across diverse ages and demographics. Cognitive complaints frequently include memory difficulties, with deficits in episodic memory greatly impairing daily functioning. Although various interventions and rehabilitation techniques have been implemented for TBI, limited treatment options are available for TBI-driven memory complaints. In this double-blind, placebo-controlled pilot study, the use of EEG neurofeedback training (NFT) on verbal episodic memory was explored in 12 veterans with TBI. As measured by the California Verbal Learning Task-II and, to investigate potential underlying mechanisms, resting-state functional connectivity, results suggest improvements in immediate recall scores and increased connectivity between the ventromedial prefrontal cortex and the inferior temporal lobe following NFT. These exploratory findings may hold promise for future research on the use of NFT for memory enhancement in various populations.

Carson Kent, Professional Writing and Rhetoric

Sarah-Jane Murray, mentor

Our Final Resting Place

Employing the use of traditional storytelling techniques from writers and scholars such as Richard Walter, John Truby, and Sarah-Jane Murray, *Our Final Resting Place* is a full-length screenplay examining the relationship of two estranged brothers after the sudden death of their father leaves them the only two remaining members of their family. Reuniting together to take their father's ashes across the country, this screenplay examines the complicated dynamics of familial betrayal, the battle between hate and forgiveness, overcoming personal and relational barriers, and acceptance of one's past and its consequences. Using techniques employed by generations of storytellers, this thesis is part of the long-standing tradition of examining our lives, relationships, and the human condition through story.

Rochak Khatri, Biology

Kenneth Jones, mentor

Monumental Medicine: The Practicality of Physicians and Public Health in Late Republican to Early Imperial Rome

Roman society was uniquely suited to be a perfect crucible of public health experiments – they had access to the records of previous civilizations, a large population, and a set of pathological tests that needed to all be contended with. This thesis investigates the practicality of Roman medicine through first, an identification of common ailments and detrimental conditions, followed by the addressing of these issues in various fields. Diseases and disabilities were addressed in the military through advancement in the science of surgery and trauma care and eventually resulted in the formation of a specialized group of healer-soldiers, the *medici*. Simultaneously with physician developments in the military, physicians began to specialize in order to better address unique medical concerns among the populace. The rise of specialization in the military and civilian fields allowed for medical care to progress from a purely *domus-to-domus* domain. Finally, monuments such as aqueducts functioned as public health agents because they could provide a public resource in a large enough amount and at a high enough quality to bring a good to the most citizens. The combination of military and domestic personnel alongside physical constructions allowed for Roman society to enjoy a level of public healthcare that was the envy of pre-modern civilizations.

Esther Wonjin Kim, Linguistics and German

Clay Butler, mentor

Analysis of Synchronicity Discernment in Text Conversations

One of the fundamental differences between spoken and written conversation is that synchronicity is optional in written conversations. In other words, while spoken conversations must proceed continuously in real time, written conversations may proceed periodically if chosen to be so by the interlocutors. Other crucial differences such as the lack of paralinguistic cues (e.g. body language, tone, rate of speech) in textual communication change the construction of expectations in the conversation among the interlocutors compared to conventional oral conversation. In conversations where the expectation of synchronicity has not been clearly established, texters implicitly discern whether a conversation is meant to be synchronous or asynchronous. This thesis analyzes sets of text message conversations using the conversation analysis approach to examine the ways in which the texters strategically judge the synchronicity of the conversation. While the success of the discernment was evaluated in terms of Burgoon and Hale's Expectation Violation Theory (1988) and Brown and Levinson's politeness theory (1987), the main factors of contribution to the discernment showed to be the urgency, goal, and spontaneity of the conversation.

Zara Kintz, University Scholars

David Corey, mentor

Four Questions about Marriage

This thesis is an exploration of several loosely related questions centering on marriage. What is the current state of marriage? What is marriage, and what are the common philosophical conceptions of it? Which conception is better? How does public policy play a role in the institution of marriage? To answer these questions, I employ an array of different sources: U.S. Census data, philosophical works by John Locke and Thomas Aquinas, Karol Wojtyła's work *Love and Responsibility*, and a variety of reports, blog posts, and books about marriage and public policy. Ultimately, this thesis aims to give readers a deeper understanding of marriage and to use that understanding to throw light on the current state of marriage, both statistically and philosophically. Since my chapters explore unique questions, I offer a variety of arguments. There is no single argument that runs through the entire thesis. However, one of the most important insights I reach is that the general understanding of marriage today is basically Lockean, while the orthodox Christian conception is much more philosophically and theologically deep. It is also better at encouraging fidelity. Because I find this conception so attractive, I spend a chapter digging into its conception of love through the work of Karol Józef Wojtyła, *Love and Responsibility*. I close with a survey of the way public policy has tried to bolster the institution of marriage, but I find that its impact has been minimal. Still, I argue that marriage should not be penalized by public policy.

Amy Kliewer, Medical Humanities

William G. Hoy, mentor

The Secret Sauce of Clarehouse: A Grounded Theory Analysis of Social Model Hospice

The purpose of this research is to enhance and clarify the reasons behind the successful observations and responses of guests and family members throughout Clarehouse's social model hospice program. Social model hospice is a 24 hour, community-based home for individuals whose end-of-life care cannot be fully maintained by their available support network (Grant & Scott, 2015). This thesis specifically uses the classic Grounded Theory methodology, a qualitative research method. Through a series of semi-structured interviews with staff, volunteers,

community members, family members, and guests, distinct patterns began to emerge. These themes include the physical attributes of the home, the volunteer base, the attention to detail, the structure of accountability, and the practice of compassionate honesty. Each factor or “ingredient” is a necessary element in creating the “secret sauce” of Clarehouse.

Niharika Koka, University Scholars

Moisés Park, mentor

The Evolution of Feminism in Film:

How the Last Decade (2010-2019) Became the Turning Point for Female Representation

Female representation in movies has seen tremendous growth and change during the history of film, but it has seen ground-breaking success only within the last decade. The top-grossing movies from 2010-2019 with a female lead or co-lead show women in particularly feminist roles that depart from the traditional characterization of women as submissive, sexualized, and romantic characters only. Instead, these movies prove that there can be box-office success by putting well-rounded, independent, action-driving, and unapologetic female characters at the front and center of the screen. The feminist movement has made its mark on Hollywood by calling for greater female screen time, increased female-to-female interactions, more female filmmakers behind the scenes, and by debunking restrictive gender tropes.

David Kosa, Biochemistry

Amanda Sevcik, mentor

The Importance of Cathepsin B Research and Clinical Applications

Cathepsin B is a cysteine protease of the papain family. It plays an important role in intracellular proteolysis, but it displays exopeptidase activity due to a unique structural element called the occluding loop. There is also a large amount of evidence that cathepsin B is involved in the development and progression of cancer, Alzheimer’s disease, and pathological conditions. Throughout this thesis cathepsin B is analyzed for its role in pathology, enzyme mechanisms, and protease activity.

Kevin Kulda, Baylor Business Fellows, Computer Science, and MIS

Matthew Pirko, mentor

The Intersection of Machine Learning and Cybersecurity

This paper will examine the intersection of cybersecurity and machine learning. The use cases integrating machine learning for defensive cybersecurity will be surveyed as well as the use cases integrating machine learning for offensive cybersecurity. Attention is given to determine how machine learning is being used for defensive cybersecurity. Specifically, how is machine learning being used to protect against external threats and internal threats. To provide evidence of how machine learning is becoming prevalent in cybersecurity, this paper will look at a Prime+Probe cache side-channel attack that aims to learn which machine learning transfer model a program is running. It will be investigated how this side-channel attack may be implemented and how it can be defended against. Finally, we propose an additional method to detect and prevent this attack on an internal network.

Dylan Landis, University Scholars

Michael Foley, mentor

Sacred and Secular Affliction: Fasting in the history of the West and Western Christianity

Fasting has been a part of human history from the very beginning. Whether involuntary due to a lack of food or voluntary due to a religious practice, fasting has remained a part of human culture; now, the practice has even found its niche in the health and fitness community and is resurging in Christian circles. This thesis explores the evolution of fasting in the history of medicine and modern culture, as well as the history of western Christianity. Works from historic giants such as Hippocrates, Saint Augustine, Avicenna, Saint Thomas Aquinas, Upton Sinclair, and C.S. Lewis show that fasting is a staple of western practice. Finally, it finishes with a look at the interplay between the two realms. Fasting, common to the human experience, can be used in a variety of ways; whether one uses the practice for holy purposes or for healthy purposes depends on the intent of the agent.

Jennifer Le, Biochemistry

Jung Hyun Min, mentor

Compilation and Structural Analyses of Missense Mutations and Polymorphisms in the Xeroderma Pigmentosum C (XPC) DNA Repair Protein

The xeroderma pigmentosum C (XPC) protein complex recognizes various types of environmentally induced DNA damage from the genome to initiate the nucleotide excision repair (NER) process in eukaryotes. In this study, (1) I have made homology-directed 3D structural models of human XPC protein; (2) I compiled published missense mutations and polymorphisms in the human XPC gene, some of which cause diseases (e.g., cancer) or impair its functions *in vitro* and (3) I mapped the mutations mapped onto the homology model. Finally, I discuss how each mutation may have impacted the protein's function and bring about the observed biological outcomes.

Mallory_LeCroy, English

Elizabeth Dell, mentor

Jave and Anthina: An Exploration of Young Adult Literature

Young Adult Literature is a fast-growing genre, with both diverse readers and content. However, YA Literature has no clear, universal definition to describe the criteria for a YA novel. The first part of this paper provides a coherent definition of YA Literature as a genre, as well as a literature review of the genre Young Adult Literature. The second part of this project involves the beginning of an original YA novel. The third section provides an informal catalogue of several Young Adult novels. My purpose with this paper is to define Young Adult Literature, examine what makes a book fit into that definition or not, and provide an original example of a Young Adult book.

Tabitha Leonards, International Studies

Sarah Walden, mentor

What Fundamentalist Christian Universities Can Learn From Sex Workers About Consent Culture: A Cultural Study

At present, there remains an extensive gap in research regarding the connections between conservative Christian universities and campus rape culture. Through the lens of sex work, this thesis aims to address this disparity by analyzing the shortfalls of both United States policy in preventing the marginalization of sex workers and fundamentalist Christian universities in maintaining student safety. Studying sex work in relation to rape culture on

university campuses is a provocative but constructive approach to defining those taboo subjects—like sex, personal boundaries, and consent—which are often left out of the conversation and policies of conservative Christian universities. By highlighting the ways in which sex workers safely explore sexual intimacy through the practice of open dialogue, this thesis seeks to build an understanding of the kind of environment that is most conducive to the wellbeing and acceptance of university students.

Alyssa Liang, University Scholars

Bill Neilson, mentor

The 2014 Medicaid Expansion, Access to Care, and Heart Attack Mortality

In March 2010, the Affordable Care Act was passed by Congress, including a provision that expanded access to Medicaid to all individuals with an income of 138% of the federal poverty level or less. In *National Federation of Independent Business v. Sebelius*, the Supreme Court struck down the provision that required states to expand Medicaid or lose pre-existing funding, allowing each state to voluntarily make the decision whether to expand Medicaid or not. Medicaid expansion was implemented beginning in January 2014, and as of now 37 states have expanded Medicaid. Medicaid expansion is associated with increased access to care, including decreases in uninsurance, greater utilization of health care services, and better performance on measures of quality to care. The body of research indicated that heart attacks are sensitive to access to care. Delays in seeking care in the event of a heart attack have a significant impact in how much heart muscle can be saved, and people with worse access to care may find it more difficult to receive care in a timely manner. This study used data from the Health Care Utilization Project to investigate the impact of Medicaid expansion on the proportion of heart attacks that were fatal. Ultimately, data analysis found that from 2013 to 2016, the proportion of heart attacks that were fatal decreased significantly in expansion states but did not decrease in non-expansion states, suggesting that Medicaid expansion reduced the proportion of heart attacks that were fatal.

Ella Liu, University Scholars

Alden Smith and David White, mentors

Tiber Queen: The Wrath of Clodia Metelli

This thesis is a historical fiction narrating the interactions of Clodia Metelli and Marcus Tullius Cicero from 59 to 56 BC through a series of letters. It will cover the election of Clodius Pulcher as Tribune of the Plebs, Cicero's exile, and the burning down of his house. The letters also go through Cicero's triumphant return and the trial of Marcus Caelius Rufus, all explained through a series of letters between Cicero and Clodia. Because this is a fictitious account, Clodia Metelli's influence and involvement are exaggerated to better fit the historical events of the narrative. The letters aim to imitate the style of Cicero, though other aspects of his writing are also exaggerated. Through these letters, I hope to explore the dynamic of a public orator and an aristocratic female who would not have had as much voice in the late Roman Republic.

Taylor Luster, University Scholars

Bill Neilson, mentor

Response to Increasing Healthcare Costs in a Northern Indiana Amish Population

This thesis addresses concerns of access to healthcare within the Amish population. The Amish of Northern Indiana are presented with many challenges in regard to medical care: specifically, the high rates of learning and physical disabilities, apprehension to receiving preventative care, and lack of personalized and privatized insurance. A

survey was distributed throughout the Old Order Amish community of Northern Indiana and a comparative survey was distributed to the general United States population through the Amazon Mechanical TURK. The two survey sets were compared, and it was determined that the Amish reported easier access to healthcare, increased efficacy of care, as well as greater satisfaction with medical services. However, greater learning/physical disabilities and a decreased frequency in physician visits were reported by the Amish respondents.

Hugh Mair, University Scholars

Matt Bradshaw, mentor

Camp John Marc and the Partnership Model

Camping for children with chronic illnesses and physical challenges has become an established part of the industry with several different models of operation being created. Research has confirmed that camp experiences benefit the patients that participate in them. In 1987, the process of creating Camp John Marc was started. Along with a new camp for this population, they created a new model of operating, the partnership model. They partnered with pediatric hospitals and community organizations to provide the best experience possible. Since then, the partnerships, the programming, and the facility have continued to develop to best serve the campers. Presented is a profile of the development and history of the partnership model and how Camp John Marc operates within this context. Special attention is given to describing the model in context, the facility, the programming, and the team members needed for implementation. Consideration is then given to the benefits that campers experience with participation, including confidence, independence, and comradery.

Madeleine Mallia, University Scholars

Dennis Horton, mentor

The Effect of Religiosity on the Coping Ability of Post-Combat Service Members

There is a current gap in literature regarding individual religiosity in the military. Research in this area has the potential to help reduce the suicide rate among veterans and provide a more efficient approach to treatment. This study looks at levels of religiosity before and after combat and how this may affect coping practices in service members. The Duke University Religion Index (DUREL) was utilized to measure religiosity levels before and after combat. The Brief Religious Coping Survey (RCOPE) identified positive and negative religious coping practices after combat. Once the survey was completed, an interview was conducted to provide more elaboration on the participants' answers. Implications for the study are very limited at the time but may provide insight into the beginning of a trend.

Devin Mangold, Neuroscience

Annie T. Ginty, mentor

Religiosity and Physiological Response to Stress

The aim of this study is to investigate the relationship between religiosity or religiousness and heart rate reactivity in response to an acute psychological stress task. Religiosity or religiousness is measured using a questionnaire called 'The Attachment to God Inventory' (AGI) which assesses an individual's attachment to God along the dimensions of 'Avoidance of Intimacy' and 'Anxiety about Abandonment'. The acute psychological stress task is the Paced Auditory Serial Arithmetic Task (PASAT) which requires individuals to add numbers together that they are presented from an auditory recording. The hypothesis of this study is that those that are higher in religiosity will have a lower heart rate reactivity response to the acute psychological stressor they are presented with. Higher

heart rate reactivity responses to acute psychological stress tasks have been linked to cardiovascular disease (CVD) developing in the future. Therefore, it is hypothesized that those that have higher scores on the AGI will have a better chance of not developing CVD in the future.

David F. Marchese, History

Steve Block, mentor

The Voting Rights Act and Shelby County v. Holder: An Examination of Federalism and Reconstruction

The Fifteenth Amendment ratified during the wake of Reconstruction ensured that no man be denied equal access to the ballot based on the color of his skin. Although it took nearly a century to realize the full promises of Reconstruction, the Voting Rights Act of 1965 put the nation towards a path of a great experiment—multiracial democracy. The Act signified a federal government committed to an inclusive democracy. Intact for forty-eight years, the VRA made impressive gains in combatting laws that sought to disenfranchise or dilute the minority vote with incredible variety and persistence. In 2013, the Supreme Court ruled in the case of *Shelby County v. Holder* the VRA's coverage formula to be unconstitutional. This thesis evaluates the problems with the Court's ruling and argues for an intact, unabated VRA. The first chapter sets forth the history and inception of the VRA, as well as the pertinent provisions of the Act and majority and dissenting opinions in *Shelby County*. Next, the second chapter explores the relationship of federalism to the Reconstruction Amendments and argues that deference is owed to Congress in enacting this legislation. The third chapter explores two constitutional standards the Court could have observed when determining the Act's constitutionality. Finally, the last chapter will seek to address voting barriers enacted post-*Shelby*. Ultimately, this thesis will argue that in light of the current conditions, Congress was right to reauthorize the VRA in 2006 based on a pattern of ongoing discrimination that remained concentrated in the areas covered by the coverage formula.

Margaret McBride, Baylor Business Fellows, Finance, Accounting, and Risk Management and Insurance

Andrew Hogue, mentor

Increasing Quantitative Analysis in Baylor's Philanthropy Lab Course

This paper examines the decisions, results, and implications of Baylor's spring 2017 Philanthropy Lab class grants. The paper first outlines the research and decision making processes utilized by the class in the spring 2017 semester. Two grants made to the organizations UnBound and R Labs act as case studies for analysis of successes and failures within these grants. Both grants deviated from their original intent, and thus provide insight to process improvements. These case studies act as the foundation for an analysis of how to improve the philanthropy course and decrease the likelihood of negative outcomes. Final recommendations for the course focus on increasing quantitative analysis in the grant-making process. This includes increasing project research, analyzing organization funding sources, and researching organization and industry metrics. The primary aim of these changes is to lessen the potential downside risk of grants with more thorough thought processes.

Katherine McCullough,
William G. Hoy, mentor

*Identity and Meaning in an Unimagined Future:
The Effects of Life-Altering Physical Disability Acquired During Emerging Adulthood*

Emerging Adulthood is the term that developmental psychologists use to describe the stage of life in between adolescence and adulthood. During these years, individuals determine their core values and find their place of belonging in the world. These years are typically viewed as those with individual's highest level of beauty, physicality, and opportunity. Young adults do not imagine what their current lives would look like if they had a physical disability, something that seems to belong in a different category than youth. There is, however, a space where disability interacts with young adulthood that has yet to be fully investigated. I conducted a Grounded Theory study in order to explore ways that individuals cope, learn, and achieve with physical disabilities when they are developed during emerging adulthood. Through a series of semi-structured interviews, I gathered data directly from thirteen individuals who developed a life-altering physical disability between the ages of seventeen and twenty-nine. Through the use of constant comparison between my field notes and current literature, three major themes emerged: How does this experience change me? How does this experience change others? and How do I find meaning in this? In this thesis, I explain how these themes relate to this particular experience of disability, and I offer a unique lens with which to view the interaction of disability and young adulthood.

Austin Winfield Medley, Baylor Business Fellows and Finance
John Louis Wood, mentor

Synthesis of Chiral Tetramic Acids: Preparation of (S)-5-Benzylpyrrolidine-2,4-dione from L-Phenylalanine Methyl Ester Hydrochlorides and Synthetic Efforts Towards Dracocephalone A

The pyrrolidine-2,4-dione moiety, colloquially known as tetramic acid, is a highly versatile molecular scaffold underpinning many biologically active natural products. That is to say, natural products containing these scaffolds are known to possess an array of bioactive properties including the following: antibiotic, antiviral, antifungal, cytotoxic, and antiproliferative. Implicit in how versatile the tetramic acid containing products are in acting against biopharmaceutical interested disease classes is the necessity for a concerted, enantiospecific synthesis of these targets, and continued synthesis of their moiety containing natural products. Moreover, as part of a larger effort to develop chiral tetramic acid precursors for N-hydroxy-2,5-diketopiperazine containing natural products, hereafter referred to as DKPs, a highly enantiospecific synthesis of these tetramic acids was developed. Herein is described the synthesis of (S)-5-Benzylpyrrolidine-2,4-dione from L-Phenylalanine Methyl Ester Hydrochloride.

Emily Marie Messimore, University Scholars
Stephen Sloan, mentor

Examining and Writing the Ten-Minute Musical

Having developed a deep passion for the Vietnam War, this project was born with the hope of telling a narrative of the men of a single military company in Vietnam between 1969 and 1970. Oral history interviews were conducted with several members of Bravo Company 4/23 of the 25th Infantry Division. They told their stories bravely, opening up a narrative of the Vietnam War that starts with the draft and walks readers through the antics and the struggles of war. The interviews have been refashioned as a threaded narrative with the hopes of leading readers into a deeper understanding of what it was like to become an American soldier in Vietnam and bringing to light the deeply traumatic memories our veterans still face today.

Ari A. Montemayor, Medical Humanities

Matthew Bradshaw, mentor

*Competitive Women: A Commentary on the Female Perspective
Using Male-dominated Competition as a Case Study*

The inherent nature of a competition is an exhibition of ability in accordance with a set of circumstances and regulations to create an environment that compels competitive game play in order to best an opponent. Through a scoring mechanism unique to it, a competition assigns its values by means of wins and losses. Perhaps unknowingly, such competition unifies as well as divides. Aside from the inevitable separation of winners from losers, competition can divide men and women. In this modern era that features rising gender equality, taking a deeper look into how men and women interact in the face of competition could reveal important truths about the female perspective as a whole.

João Moraes, Religion

Noel Forlini Burt, mentor

Softly and Tenderly Jesus is Calling: A Critique of Hypermasculinity in American Christianity

This thesis analyzes the presence of hypermasculine ideals in modern Protestant circles. Since masculinity has only recently become a subject of academic study, I explore the origins of expressions such as *hypermasculinity* and the related terms, *toxic* and *hegemonic masculinity*. I draw from existing scholarship to explain some of the causes and consequences of this behavior and to describe how this phenomenon has reached Protestant Christians in the United States, focusing on modern times with an analysis of John Eldredge's *Wild at Heart*. My thesis shows that hypermasculinity is utterly incompatible with Christianity, therefore I invite churches to resist the phenomenon by constructing a model of masculinity analogous to the way of Jesus Christ.

Caroline Munsell, University Scholars

Guilherme Almeida, mentor

Mentor: Guilherme Almeida

This thesis seeks to explore and define the form of the ten-minute musical through research and through reflection upon my own creative writing process. The popularity of the ten-minute form has drastically increased over the last few decades in the United States as the theatre industry has taken strides to support new works and as society has developed a taste for what American Playwright Gary Garrison refers to as "abbreviated creativity." Despite the rise of both ten-minute play festivals and ten-minute musical festivals, there seems to be a lack of literature available on the latter form. In an attempt to address this gap, I have analyzed a range of musical, theatrical, and academic works in relation to the American Musical. I have applied this research to the themes of anxiety and toxic masculinity in order to construct my own fictional narrative told through the ten-minute musical form.

Michael C. Munson, University Scholars

James Marcum, mentor

A Complete Review of Spinal Cord Injury With a Focus in Engineering Techniques in Spinal Cord Injury Research

Spinal cord injury (SCI) is a crippling neurological disorder that yields physical, behavioral, social, and financial consequences. Globally, thousands of people suffer from SCI-inducing accidents every year. Despite SCI being studied for nearly 1700 years, research progress has led largely to palliative instead of curative care. Over the previous few decades, however, researchers have made remarkable progress in understanding the pathophysiology of SCI, therefore informing what clinical interventions may be made to alleviate the consequences of SCI. Current interventions involve intravenous methylprednisolone, surgical treatments to re-align and decompress the spine, and rehabilitation. Current experimental treatments have shown promise in delivering lower risk solutions, especially with a recent surge of computational and engineering techniques in medicine. This review offers a thorough and up-to-date account of SCI research and modern, as well as potential, clinical treatments. This review begins with an overview of spinal cord anatomy and SCI pathophysiology. It then describes, in-depth, modern clinical options for SCI and potential risks associated with such options. Lastly, this review covers cell-based and engineering therapeutic advancements that may further shift current clinical options for SCI to the curative side of care.

Taylor Nack, Biology

Dena Quigley, mentor

The Impact of Metacognition Training on Undergraduate Biology Students

Metacognition can be thought of as how individuals think about and control their own learning. Metacognitive skill has been tied to improved academic performance and thinking skills. In this study, undergraduate biology students received training in three aspects of metacognition: planning, monitoring, and evaluating. The goal of this study was to investigate if students who were explicitly taught metacognitive skills through online instructional videos and quizzes bettered their academic performance and increased metacognitive awareness. Course grades and scores on a metacognitive awareness inventory were compared between groups across one academic semester. The results showed a significant improvement in one skill set, monitoring, and students in the experimental group showed improvements in final laboratory grades in their biology course that closely approached significance. These results indicate that further testing as well as some alteration to the content of the training are warranted.

Katherine M. Napierkowski, Biology

Debra Harris, mentor

Testing the monitoring capability of ATP bioluminescence for rapid detection

Hospital acquired infections (HAIs) have been one of the most common complications of healthcare in recent years, causing upwards of 98,000 deaths per year. In order to combat these infections, hospitals have started using immediate feedback instruments like ATP bioluminescence assays (ATP) to determine the cleanliness of different surfaces. The purpose of this study was to research and determine whether or not colony forming units (CFUs) and relative light units (RLUs) were correlated and whether zero RLUs was a realistic expectation for "clean" hospital surfaces. Five different common and novel surfaces were sterilized and inoculated with MRSA to observe the cumulative bioburden on each surface type through contact plates and ATP. The surfaces were then disinfected without the addition of mechanical action and tested for CFUs and RLUs once again. These results showed that hospitals cannot reasonably expect their surfaces to register at zero RLUs as nearly every surface showed no MRSA

colonies after disinfection, but still had RLU values in the 10-20s. The copper sheet and solid surface with cupric oxide regularly produced the lowest RLU values, indicating that they are beneficial in retarding the growth of microbiological colonies. A test was also run in which the surfaces were only sterilized and tested for RLUs. These values were higher on average for almost every surface type, demonstrating that sterilization alone will not significantly alter the ATP bioburden on the different surfaces.

Benji Neel, Baylor Business Fellows, Finance, and Economics

Don Carpenter, mentor

Clearly Business Plan

Clearly, Inc. connects healthcare providers and insurers to provide prompt and accurate medical cost estimates to patients. By using Clearly's estimation software, healthcare providers can reduce estimate generation time, increase estimation accuracy, and redirect financial assistance labor. By providing timely cost estimates Clearly aims to relieve the stress of seeking medical care, ultimately representing Christ through both end products and daily operations. Clearly operates on a software as a service fee structure, charging healthcare providers a monthly fee for its estimation media. Based on financial projections supported by various primary and secondary sources, Clearly will be cashflow positive in month 30 with run rate monthly cash flow of ~\$64,000 at the end of year three. Clearly will need \$235,000 of capital over the course of two fundraising rounds to achieve this growth, representing a 100%+ internal rate of return for investors based on a 4x sales multiple.

Madeleine Nelson, University Scholars

Greg Garrett, mentor

Link

Link is a full length play that follows the early career of a young politician with a secret. As congressman Lincoln Willams navigates his first months in office, he must face the growing conflict between his convictions and the pressures placed on him by powerful external forces. In her book *Bird by Bird*, Anne Lamott asserts, "Good writing is about telling the truth. We are a species that needs and wants to understand who we are." By examining the life and choices of a man who goes to extreme lengths in pursuit of a noble goal, this play explores ideas of sacrifice, identity, and sensationalism in American society.

Harold Nguyen, Biochemistry

Robert R. Kane, mentor

Synthesis of Nitrile TAK-242 Derivatives and Gemfibrozil Analogs

TAK-242 (resatorvid) is a selective antagonist of Toll-like receptor 4 (TLR4) signaling, previously shown to improve transplantation outcomes in a mice model. To further expand the structure-activity relationship of TAK-242, we have synthesized a few analogs of TAK-242. Our approach was to start with a nitrile group in place of the ester to use as a functional handle. These new molecules contain different electron-withdrawing groups on the cyclohexene ring, synthesized from a starting nitrile. This thesis also discusses syntheses of analogs of gemfibrozil, an sGC agonist. To develop a better structure-activity relationship of sGC activators, the aromatic region and carboxylic acid were targeted. The new molecules synthesized are pending biological testing for respective TLR4 inhibition and sGC activation.

Janie Nichols, History

Andrea Turpin, mentor

The New Advocate: A History of Early Female Lawyers in the United States from 1860 to 1920

This thesis will explore the history of the first female lawyers in the United States. I will detail the struggles and successes of those women who, from 1860 to 1920, formed a sense of professional identity for American female attorneys. These women found success and overcame many social and legal limitations because of two primary factors: (1) the support of family and friends and (2) a strong personal commitment to their values concerning the practice of law. America's first female lawyers also changed the face of their communities through interacting personally with their neighbors; the woman attorney displayed her unique talents and capabilities on an individual level to those around her. Personal connections with peers, family, classmates, and others allowed the early female attorney to promote her career, enrich her society, and make a way for the female lawyers of the future.

Raquel Nunez, University Scholars

Melisa Dracos, mentor

Spanish Heritage Speakers: What Factors Influence the Use of Subjunctive in Child and Adult Heritage Speakers?

A study was conducted to examine the use of early acquired subjunctive cases in 18 adult Spanish heritage speakers compared to 29 child Spanish heritage speakers. Participants completed a language background questionnaire and language proficiency exams on their knowledge of both English and Spanish. The findings displayed a strong negative correlation between the amount of English spoken with siblings and overall subjunctive performance, specifically in adverbials and volition cases. This honors thesis examines the role of siblings in language development and raises questions for further research.

Matthew Ocenasek, Chain Management and Finance

Andrew Meyer, mentor

Sports Influence on Community During Disaster: An Examination of How Hurricane Katrina Changed The Relationship Between New Orleans and the Saints

There are numerous observable relationships between sport and community. By adhering to the external identity of the community, a sports franchise creates strong team identification with its community, increasing the loyalty and impact of its relationship. In the first several chapters, this thesis explores how and why these relationships are created between a team and its community. It examines the implications of the relationships between the team and the community, a player and the community, and fans of the team with one another. This thesis explores the effect of the relationships between sport and the community and how these relationships change after the community experiences a disaster.

Grace E. Oliver, University Scholars

Kristen Pond, mentor

Charlotte and Anne Brontë's Visions of Religion, Conventionality, and Morality

In this thesis I explore how religion shapes moral awareness and agency in Charlotte Brontë's *Jane Eyre* and Anne Brontë's *The Tenant of Wildfell Hall*. After briefly discussing the religious and philosophical framework of moral agency in the nineteenth century, I examine Jane Eyre's questioning of the relationship between religion,

conventionality, and morality by examining key passages in which Jane's most decisive actions are framed within religious language and moral awakening. In the third chapter, I explore how Helen Huntingdon's view of feminine morality affects her agency, paying particular attention to her response to definitions of femininity which limit her spiritual integrity. In the fourth chapter and conclusion I compare the endings of the two novels and examine the ways in which reading the development of the female characters' moral agency through the lens of religion expands our interpretation of their radical individuality and social critique.

Katerina A. Orgunov, Baylor Business Fellows and Accounting

Christopher Pullig, mentor

Visual Political Brand Identities in the 2018 U.S. Midterm Election

Political candidates' logos can shape voters' perceptions of the candidates and inform them of the candidate's political brand through their design. This paper explores the design elements used in logos and their relationships to the candidate and views them in terms of brand differentiators and boundary conditions. Through conducting a content analysis on a stratified sample of thirty candidate logos from the 2018 U.S. midterm election, this study found that there are significant relationships between logo elements such as colors, typefaces, and text, and candidate characteristics such as gender, political party, incumbency status, and geographic region. A semiotic analysis of the same sample further revealed how logos were often reflective of a candidate's platform or personal identity. These findings are reflective of a shift in American politics that increases the importance of branding and design in campaigns.

Melanie Pace, University Scholars

Holly Collins, mentor

French Feminists Throughout History: The Enduring Influence of Bold Women on the French Women's Rights Movement

French feminist history is marked by bold and spirited women who flouted convention and paved the way for future women's rights movements. In this thesis, I analyze four women from French history and their contributions to French feminism as it stands today. Jeanne d'Arc, Olympe de Gouges, my grandmother as a member of the Resistance in World War II, and Simone de Beauvoir left lasting legacies which forever shaped French femininity. In each chapter, I examine the actions and works of these women in order to demonstrate the gravity of past feminists to the women's rights movement today. Finally, my research illustrates the need for female solidarity and demonstrates the enduring influence of our predecessors on who we are as women and who we seek to become as feminists.

Julia Pantleo, English

Ginger Hanchey, mentor

The Journey Home

The idea of home is one that is central to a sense of identity. However, what makes someplace a home? The Journey Home is a creative thesis in which I explore the idea of home through short stories and poetry. I break down the concept of home into one's national identity, physical house, family unit, and Heavenly Home. Within each of these categories, I play with the strengths and shortcomings of each classification of home on one's sense of self. For example, I explore the detriments to personal identity that may be caused by an international or

nomadic upbringing, strained family relationships, and lack of religious faith. However, I also illustrate the benefits that come from seeing the world, building one's own house, choosing one's own family, and exploring one's own beliefs. Within *The Journey Home*, I integrate research I have done from the works of Mary Oliver, Anita R. Reidinger, Gregory Orr, Simone Weil, and Theano S. Terkeni, among others. I also draw inspiration from other authors' ideas of home, such as those from Sandra Cisneros, Margaret Atwood, Ernest Hemingway, Katherine Porter, Tillie Olson, and many others that I have been exposed to during my studies of English Literature. *The Journey Home* is a creative exploration of where to begin the search for belonging.

James Tacker Patton, Biochemistry

Bill Neilson, mentor

Transjugular hepatic venous pressure assessment and mortality risk in patients with end-stage renal disease presenting with non-cirrhotic ascites

Patients with end-stage renal disease (ESRD) maintained on hemodialysis who develop ascites are presumed to have underlying cirrhosis with portal hypertension; however, in many cases they do not have chronic liver disease and are considered to have nephrogenic ascites. Nephrogenic ascites in patients on hemodialysis may in fact be cardiogenic as a consequence of high-flow arteriovenous fistulas, although reports and characterization of this clinical presentation are limited. Retrospective cohort study of patients with ESRD on hemodialysis who presented with new onset ascites from 2011 to 2018 in a large tertiary care hepatology practice affiliated with a liver transplant program. Patients were evaluated with echocardiography, transjugular liver biopsy with hepatic venous pressure gradient (HVPG), and analysis of peritoneal fluid. Patients with intra-abdominal malignancy or infection were excluded. In patients with ESRD presenting with non-cirrhotic ascites, right-sided heart failure with passive hepatic congestion may be a major cause of ascites and mortality. Further study of the cardiovascular effects of hemodialysis in this population, including attention to high-output heart failure and arteriovenous fistula hemodynamics, may be important in defining risk and management strategies.

Sarah Person, University Scholars

Emily Smith, mentor

The Intersections of Neglected Tropical Diseases and Surgical Care in Low and Middle Income Countries

Neglected tropical diseases are a subsection of 17 diseases identified by the World Health Organization that burden approximately 1 billion people every year. The majority of the affected individuals live in low and middle-income countries (LMICs). Additionally, these conditions disproportionately affect those in poverty. Three NTDs in particular that can present a need for surgical intervention in order to fully alleviate the burden are soil-transmitted helminthiases, Buruli Ulcer, and Trachoma. However, currently, 5 billion individuals lack access to surgical care, of which LMICs also bear the largest gaps in access. A strong surgical system is vital to the success of an overall healthcare system and is a necessary part of relieving the burden of NTDs. Surgical system strengthening intersects with NTDs in such a way that it is impossible to adequately address the burden of Neglected Tropical Diseases without also placing focus on surgical system strengthening.

Kellen Petus, Biochemistry

Kevin G. Pinney, mentor

Design and Synthesis of Benzosuberene Analogs as Potential Inhibitors of Tubulin Polymerization

The natural products colchicine and combretastatin A-4 (CA4) both function as potent inhibitors of tubulin polymerization and have provided universal inspiration for a wide-range of structurally diverse small-molecule derivatives and analogs. A series of fused aryl-cycloalkyl and aryl-heterocyclic compounds were designed and synthesized by the Pinney Group with the goal of expanding structure-activity relationship considerations associated with the colchicine binding site on the tubulin heterodimer. Benzosuberene-based analogs represent one class of molecules that bear structural similarity to colchicine and CA4. A sub-set of these molecules demonstrated binding to the colchicine site and subsequent inhibition of tubulin polymerization. Exemplary within this class of molecules is a benzosuberene analog referred to as KGP18, which proved to be profoundly cytotoxic (low pM range) against a variety of human cancer cell lines (collaboration with the Trawick Laboratory). KGP18 (akin to CA4) further functioned as a proficient vascular disrupting agent (VDA), imparting selective, and presumably irreversible damage to tumor-associated vasculature in a mouse model of human cancer (collaboration with the Mason Laboratory, UT Southwestern). This current study is focused on the synthesis of a variety of KGP18 analogs designed to further investigate functional group diversity around the benzosuberene molecular core. One example of an on-going synthetic target includes a chalcone-like benzosuberene-based molecule bearing two iodo groups flanking a single methoxy moiety on the pendant aryl ring. These iodine atoms replace methoxy groups (present in KGP18) and their incorporation will allow us to investigate both structural and electronic implications in regard to colchicine site binding.

Delaney Pollard, Linguistics

Theresa Kennedy, mentor

George Sand and Her Heroines: Boundary-Breaking Women in the Age of Romanticism

The French Romantic author George Sand subverted societal gender roles in both her daily life and writing. From crossdressing in public to divorcing her husband to engaging in numerous love affairs, Sand utterly rejected gender conformity in her own life. Similarly, her works of fiction challenged modern concepts of gender and placed the female condition on display in order to fervently critique it. While a member of Romanticism, Sand stood out from her peers by manipulating elements of the genre to create strong heroines and emphasize their fight against society. This thesis will examine three of Sand's works—*Indiana*, *The Marquise*, and *Gabriel*—as well as her own life in order to explore the ways in which she and her heroines pursued female liberty. Further, it will analyze the ways that Sand manipulated literary genre and narrative strategies to place the female condition on display through her works.

Veronica Prince, Medical Humanities

Mia Moody-Ramirez, mentor

A Failing System: The Review of Maternal Health and the 7P Medical Model as They Relate to Black Women

For Black women, encountering racial bias within maternal health is commonplace. In fact, the field of Obstetrics and Gynecology was birthed from a physician's experimentations on slaves. This is the legacy of maternal health in America; a legacy that has served as a blueprint for other nations, resulting in preventable deaths that effect Black women the most. In understanding why this demographic experiences maternal death at a rate that exceeds that of any other racial group, an analysis of medicine using the testimonies of Black women, data from health organizations, Systems Biology, and the 7P medical model occurred. This analysis revealed that the frameworks from which all medicine is based does not address the medical concerns of Black mothers. Rectifying this injustice

can be achieved by modifying the frameworks of medicine and by viewing the deaths of Black mothers within America as a public health crisis.

Rachel K. Radke, Psychology

Annie T. Ginty, mentor

*Does Subjective Socioeconomic Status Relate to Health Outcomes?:
Blunted and Exaggerated Cardiovascular Responses to Stress*

Lower levels of subjective and objective socioeconomic status (SES) and stress are related to adverse cardiovascular outcomes. Individual differences in cardiovascular responses to stress has been proposed as a potential mechanism underlying this relationship. Aim: examine the relationship between cardiovascular stress reactivity and both subjective and objective SES. Study 1: 88 (67.9% female, 51.7% Caucasian and an age range = 18 to 62 years [$M = 26.9$, $SD = 10.7$]) participants completed the MacArthur Scale of Social Status, a 10-minute baseline period and a 10-minute stress task. Blood pressure (BP) and heart rate (HR) were assessed throughout the baseline and stress periods. Reactivity was calculated as: stress – average baseline for each cardiovascular parameter. Results indicated a positive relationship between both HR and systolic BP reactivity and subjective SES ($r = 0.29$, $p = .007$) and ($r = 0.24$, $p = .027$), respectively. Lower subjective SES was associated with blunted cardiovascular responses. Study 2: 123 (66.7% female, 62.6% Caucasian and an age range = 18 to 23 years [$M = 19.1$, $SD = 0.850$]) participants completed the same procedure aside from a 4-minute stress task instead of 10 minutes and the addition of a questionnaire component assessing their parents' occupational status. Both increased HR and systolic BP reactivity were related to lower objective SES ($r = -0.26$, $p = .004$) and ($r = -0.22$, $p = .020$), respectively. Individuals with lower objective SES had exaggerated cardiovascular responses; there were no significant relationships between cardiovascular responses and subjective SES. The current two study thesis contributed to competing claims regarding the directionality of the relationship between SES and cardiovascular reactivity.

Garrett Ray, University Scholars

Jason Pitts, mentor

Aedes albopictus: genome reannotation and characterization of an ionotropic carboxylic acid receptor in a competent disease vector

Chemoreception in insects is modulated by receptors expressed in sensory neurons that detect chemical cues in the environment, allowing insects to make sense of the world around them. The chemosensory machinery of the Asian tiger mosquito, *Aedes albopictus*, has been relatively understudied when considering its role as a competent disease vector and incredibly potent invasive species. Some of the greatest gaps in our current knowledge of *Ae. albopictus* chemosensation consist of the protein sequence for chemoreceptors, which of these receptors are expressed in different tissues, and what chemicals activate these receptors to modulate mosquito behavior. The present studies attempt to fill in these gaps. The first study consists of a complete manual reannotation of the *Ae. albopictus* chemosensory genome, including odorant receptors, ionotropic receptors, gustatory receptors and odorant binding proteins. In addition, this study attempts to quantify expression of genes in the tarsal segments and labellum of *Ae. albopictus* through an RNA sequencing experiment. These appendages appear to specialize in contact chemosensation due to the high concentrations of gustatory receptor transcripts present in our RNA sequencing dataset. The second study presented here is the deorphanization of an ionotropic carboxylic acid receptor using an odorant response assay in a heterologous cell system. This receptor, Aalb1R75e, is potentially activated by nonanoic acid in a concentration-dependent manner. The role of carboxylic acids in mosquito host-seeking behavior is well documented, therefore Aalb1R75e may play a role in modulating blood feeding. The reannotation of the *Ae. albopictus* genome and deorphanization of Aalb1R75e should serve as a foundation for future functional and behavioral studies of *Ae. albopictus* chemosensation.

Allison Rerick, University Scholars

Daniel Romo, mentor

Towards the Synthesis, Biological Studies, and Cellular Target Identification of Rubesanolides A and B

This work explores the effort towards a total synthesis of rubesanolides A and B, diterpenoids containing fused β -lactones. These natural products, fully characterized in 2011 by Zou and coworkers, originate from *Isodon rubescens*, a family of flowering plants native to China. It is believed that the rubesanolides may possess anti-cancer, antibacterial, or antibiofilm properties, but they have not been extensively studied. To this end, we have developed a synthetic strategy to these natural products using the concept of pharmacophore-directed retrosynthesis (PDR). We also aimed to incorporate organocascade reactions developed in the Romo lab into the total synthesis. We describe initial biological studies of congeners; proteomic studies of derivatives and ultimately probes inspired by the natural products themselves will allow for elucidation of the natural products biological activity and establish a structure-activity-relationship (SAR) of the rubesanolides.

Duncan Richards, Great Texts and Linguistics

Melisa Dracos, mentor

Exploring the Effect of Language of Instruction on Cross-Linguistic Influence In Third Language Acquisition

Foreign language learning is influenced by previously acquired languages. When people learn a second language, they only have their native language to draw on to help or hurt their language learning. But, when people know two languages and try to learn a third, which language(s) influence their acquisition is unclear. This study tested whether language of instruction and/or working memory were factors in the determination of the source of cross-linguistic influence. English-Spanish bilingual participants were taught a short PowerPoint lesson of Chinese with half instructed in English and half in Spanish. It was found that there was little difference in the two group's learning outcomes, but there may be a difference in the manner of learning difficult structures where negative transfer would be expected with learners needing to pay more attention to those structures. Overall, this study methodologically expands cross-linguistic influence research and introduces the variable of language acquisition.

Lawson Sadler, University Scholars

Victor Hinojosa, mentor

Incentivizing Immigrant Incarceration: A Replication Study of "Expanding Carceral Markets: Detention Facilities, ICE Contracts, and the Financial Interests of Punitive Immigration Policy" in the Texas Legislature

This thesis replicates the work of Loren Collingwood, Jason L. Morin, and Stephen Omar El-Khatib in their 2018 study "Expanding Carceral Markets: Detention Facilities, ICE Contracts, and the Financial Interests of Punitive Immigration Policy" in the Texas Legislature. To contextualize the original study and this replication, I offer a review of relevant history and scholarship on the American carceral state and immigration policy. I test two hypotheses – *carceral representation* and *carceral lobbying* – to examine how the prison industrial complex influences legislator behavior in regards to punitive immigration policy. I find null results for both original hypotheses, but discover an interesting correlation between private prison lobbying behavior and ICE facility representation. I discuss the implications of these findings and offer legislator case studies in discussion of how private prisons make lobbying decisions.

Lily Sandblom, Biology and Spanish

Erika Abel, mentor

Preliminary Analysis of Body Mass Index and Long-Term Health Effects of Adolescent and Young Adult Hodgkin's Lymphoma

Hodgkin's Lymphoma (HL) is most common in the adolescents and young adults (AYA). Fortunately, prognosis for HL patients is positive, and many return to normal life after treatment. Nonetheless, both radiation therapy and anthracyclines are known to cause heart damage and other health effects. The longer post-cancer survival of AYAs led us to hypothesize about the long-term treatment effects these patients experience. Through retrospective chart abstraction, the records of 147 AYA HL survivors treated at MD Anderson were examined for long-term health outcomes. Our preliminary analysis revealed that survivors are at risk of dramatic weight gain at an average of 7.58 years post-treatment, which may stress the cardiovascular system, exacerbating the heart damage associated with certain chemotherapy regimens. Greater knowledge of these risk factors will allow high-risk patients to be closely monitored by cardiologists and nutritionists to curb these negative effects of cancer treatment through early intervention and continued follow-up.

Christina Seberino, Theatre Performance

David Jortner, mentor

A Semiotic Analysis and Production of Mud by Maria Irene Fornes

Mud is a play written by the prominent Cuban playwright Maria Irene Fornes in 1983. Fornes, went on to win multiple Pulitzer Prizes for her groundbreaking work in the Off-Off Broadway Movement. Through the manipulation of language and form, Fornes was a leader in helping to cultivate a Latinx identity in America. Fornes, is an influential playwright who follows a rich Latin American theater history. I utilized a post-modern form of literary criticism called "Semiotics," to analyze and direct *Mud*. In addition, I examined *Mud* from a purely literary perspective. I assembled an all-student creative team and group of actors, to put on this production in a two-month time span with little/no budget. This thesis outlines the rehearsal and design process; and my directorial approach to Maria Irene Fornes' *Mud* performed at the Baylor Marina in the fall of 2019.

Grant M. Seiter, Baylor Business Fellows, Economics, Finance, and Mathematics

Charles M. North, mentor

Treasure in Heaven: Returns to Schooling in Clergy Labor Markets

Despite the status of religious organizations as major inputs toward nonprofit sector productivity in the United States, the study of the labor markets for clergy has been limited in the social sciences. One possible reason is that clergy are often considered to have low responsiveness to market forces; they are believed to follow a calling to a profession that has little regard for economic incentives. Even so, many congregations and denominations expect their clergy to be well-educated, with at least a bachelor's degree and often a graduate degree as well. Such expectations raise questions about career alternatives for young people considering entering the clergy. With this paper, I join a growing literature that explores the financial incentives facing members of the clergy. Using cross-sectional U.S. Census Bureau data from 1950-2010, this research provides a descriptive study of clergy compensation relative to other occupations, examining changes in returns to schooling. I find significant statistical evidence that supports a higher rate of return to schooling for non-clergy overall, and an increasing difference between clergy and non-clergy returns over the sample period. Additionally, the data suggest that the clergy could be a substitute for schooling for less educated African Americans and that the rise of women selecting into the occupation could be partially explained by decreasing opportunity cost for female clergy.

Christian Noelle Sessa, University Scholars

Stephanie Clintonia Boddie, mentor

Sowing the Seeds and REAPing the Benefits: A Study of Mission Waco's Urban REAP and the Promise of Garden-Based Education

Since its inception three years ago, Urban Renewable Energy & Agriculture Project (Urban REAP) sits on the cusp between the community's difficult past that is marked by poverty, food insecurity, and struggling schools, and its budding rejuvenation. With its desire to connect with local schools, Urban REAP has a unique opportunity to respond to the community's needs by empowering students and, in turn, their families to positively impact their community. Specifically, garden-based education at Urban REAP can provide fresh produce, promote healthy behaviors, and inspire care for creation in the students and families it serves. This thesis explores 1) The history and efficacy of garden-based education, 2) Creation care as an outcome of garden education and as integral to the Christian life, 3) Intellectual virtues as a form of creation care and a pedagogy that can excite disengaged students, and 4) The logistics in implementing garden-based education and ideas of curricula that embody creation care, intellectual virtues, and state standards.

Corrie Shrock, University Scholars

Charles Ramsey, mentor

Common Words for Common Ground: A Case Study in Muslim-Evangelical Dialogue

Interfaith dialogue is widely celebrated as the proper mode for Muslim-Christian interaction, but there is no consensus on what constitutes dialogue. Historically, fearing that 'dialogue' is code for theological compromise, evangelical Christians have shown particular reluctance to engage in it. This thesis documents renewed evangelical interest in Muslim-Christian dialogue, as demonstrated by their engagement with the highly celebrated 2007 Muslim open letter, *A Common Word Between Us and You*. In this initiative, 138 representative Muslim scholars proposed that the "golden" commandments, loving God and loving neighbor, form essential common ground for Muslims and Christians to engage in dialogue. As a case study in evangelical approaches to dialogue, I consider two evangelical responses to the Muslim letter, one by the Yale Center for Faith and Culture and the other by the World Evangelical Alliance, as representative of two polarized evangelical models for dialogue. By analysis of these three primary texts, I consider how each model deals with 1) similarity and difference, 2) separation or conflation of religious and political realms, 3) focus on love versus focus on peace, and 4) addressing multiple audiences. This study fits into a larger conversation on what is the proper Christian approach to dialogue and attempts to provide evangelicals with tools to form a model of dialogue in which they can engage with integrity.

Preston Simpson, Biology

Dwayne Simmons, mentor

Molecular Correlates of Hearing Loss: Oncomodulin and Prestin

The exquisite hearing sensitivity of mammalian hearing is due to cochlear outer hair cells (OHCs) that amplify sound signals through changes in cell membrane potential and cell length. The OHC motor protein, prestin, is responsible for this phenomenon. Oncomodulin (OCM) regulates homeostasis in OHCs by maintaining calcium levels. Because both prestin and OCM are localized in the periphery of OHCs, we hypothesize that they may interact. High-resolution confocal images indicated that *Ocm*-KO mice have abnormal prestin expression, suggesting a potential interaction. Previous studies show that long-term administration of salicylate increases prestin protein expression (Yu et al., 2008). In turn, this increased OHC electromotility and improved hearing in

mice. These results suggest that salicylate could be a compensatory mechanism for hearing loss and improve OHC electromotility by increasing prestin expression. Because OCM and prestin appear to interact, we hypothesize that increasing prestin expression with salicylate injections in *Ocm*-KO mice could potentially restore their hearing.

Elisabeth Sims, Great Texts

Michael Foley, mentor

The Catholic Witness during Memphis Yellow Fever Epidemics of the 1870s: A Description and Vindication

In the 1870s, several yellow fever epidemics struck Memphis causing a calamity that shook the entire United States. The yellow fever epidemics in Memphis were some of the deadliest and most terrifying events of American urban history, killing more people than the Chicago Fire, San Francisco earthquake, and the Johnstown flood combined. A disaster for both the city and the region with implications for medical history, social history, and economic history, the yellow fever epidemics are of interest from a variety of historical perspectives and serve as a locus of research for a variety of disciplines. This project will examine historical narratives that describe the ways in which Catholic religious groups in Memphis responded to this crisis, and it will seek to discern how the underreported Catholic narrative of epidemics contributes something distinctive to Memphis history.

Bailey Sloan, University Scholars

Alden Smith and Jeff Hunt, mentor

Girls Gone Wild: Female Authorship in Augustan Rome

It is no surprise that, based on the records that we have today, the literary field of Ancient Rome consisted almost solely of men. However, one female author survives, hidden within the Tibullan corpus. In six short elegies, Sulpicia presents herself in the roles of both the author and the authored, the lover and the beloved. The voices of female authors also appear within the Ovidian corpus, this time authored by Ovid himself in the letters of mythical and historical heroines to their absent lovers in his *Heroides*. These women struggle with the limitations of separation from their male counterparts in various ways, using writing both to show their weakness and grief, and to gain some freedom to speak their mind, all the while being authored by a man. In this thesis, I will analyze the poetry of Sulpicia and three of the letters of Ovid's heroines, those of Penelope, Hero, and Sappho, to show the complicated relationship between the female voice and authorship. I will show that authorship confuses the female identity, obscuring it with the masculine qualities inherent in elegy, while still providing a platform for the feminine voice that might not have otherwise been heard.

Ashton Smelser, Biology

Adrienne Harris, mentor

The Virus that Could Kill a Nation: An Analysis of the Impact of HIV/AIDS on the Russian Population and Factors Preventing Successful Intervention and Control

The dissolution of the Soviet Union in December of 1991 sparked the largest collapse in public health in the history of the industrialized world during peacetime, and is only rivaled in the Euro-Slavic world by the Black Death. Predictions indicated that the Russian population could plummet to as low as 80-90 million people by 2050 – which would be the smallest population the Russian Federation has seen in more than two centuries. If true, the Russian population would shrink more in 60 years than any country in the Northern Hemisphere had in all of recorded human history, including during wartime. The profound impact of the collapse of the Soviet healthcare system combined with the uncertainties of the post-Soviet era sparked one of the fastest-spreading HIV epidemics in

history. The Russian Federation is one of the only countries in the world where the rate of HIV infection is increasing, rising by a predicted 10-15% each year. The country plays a prominent role in the epidemiology of HIV on a global scale, and is estimated to account for 69% of the total number of people living with HIV globally. The first case of HIV was officially reported in 1987, but the rapid spread of HIV did not begin until 1995 when Ukrainian injection drug users migrated to industrialized regions of the Russian Federation looking for work after the dissolution of the Soviet Union – bringing along the scourge of injection drug use and HIV with them. Injection drug use quickly became the primary means by which the virus spread throughout the country. HIV then spread to commercial sex workers, men who have sex with men, prisoners, and the heterosexual population – largely due individual identification or close interaction with one or more of these groups. Each of these groups faces stigmatization and discrimination by Russian society at-large, making accessing prevention services and treatment extremely difficult, as well as generating detrimental effects on the mental health of these individuals. Additionally, the Russian government has shown both an inability and an unwillingness to address the epidemic in accordance with the recommendations of the international health community thereby inadvertently promoting the spread of HIV throughout the country. When these factors are considered together, it is clear that the Russian Federation has a bleak future if appropriate actions are not taken to mitigate the spread of HIV and provide treatment and prevention services to those in need.

Abigail Smith, University Scholars

Kevin G. Pinney, mentor

Synthesis of Vascular Disrupting Agent Payloads and Protease Specific Linkers and Their Constructs

The discovery and development of small-molecule anticancer agents that are both highly efficacious and selectively targeted remains a formidable goal and challenge. Conventional chemotherapy regimens often employ the use of cytotoxic agents which fail to differentiate between normal and cancerous tissue and are thus limited by their high degree of toxicity to normal tissue. Antibody-drug conjugates (ADCs) represent an emerging class of biopharmaceutical therapeutics that deliver highly potent anticancer agents, or payloads, selectively to tumors or components associated with the tumor microenvironment. ADCs are comprised of a drug (payload) which is joined through an appropriate linker to an antibody or engineered protein. Pairing both a high degree of selectivity through the antibody with a high degree of cytotoxicity through the payload, ADC's represent a promising therapeutic approach. Two small-molecule payloads (KGP05 and KGP18, previously discovered in the Pinney Laboratory) function as both highly potent antiproliferative agents (cytotoxins) and as highly effective vascular disrupting agents (VDAs). Details regarding the synthesis of these payloads and the preparation of drug-linker constructs tethering these payloads to the protease cleavable dipeptide linker Val-Cit-PABOH, widely used in ADC research, are presented. These drug-linker constructs have subsequently been evaluated (collaboration with the Trawick Group) for cytotoxicity, stability, and enzymatic cleavage.

Whitney Smith, University Scholars

William Weaver, mentor

The Art of Worship: Recognizing the Character of God in Human Expression

Worship is a human response to God's revelation of Himself. God's character is not relegated solely to that which is deemed holy and perfect. Rather, God is pleased to reveal Himself even amidst this broken world, and especially in human expression- both sacred and secular. In his *Cultural Liturgies* trilogy, James K. A. Smith posits an outline of desire-forming practices and habits that guide our worship. Using this structure, and drawing on works by Jean Calvin and Augustine, I analyze communal practices that influence the personal habits of three artists as seen in

their work. Georges Herbert's *The Temple*, a collection of devotional poetry, reflects the practice of prayer. Georges Rouault's copper plate print collection *Miserere et Guerre* was shaped by the story-sermons of contemporary Leon Bloy. Hozier's secular musical album *Wasteland Baby!* mirrors the sent witness of Blues music. Within the work of Herbert, Rouault, and Hozier we can see what the artists' hearts were aimed at. Following these trajectories, we discover glimpses of a God in whom we find rest, who suffers alongside the poor, and who loves a broken world. Through this project I demonstrate that human expression is an appropriate place to recognize the character of God and thus, to be invited to worship.

Daniel J. Snow, Psychology

Stanton Corley, mentor

The STEPS Process: a Hypothetical and Supplemental Therapy for Substance use Disorders in American First Responders

Despite the valiant efforts of doctors, clergy, and mental health workers in the field of Substance Use Disorder(SUD) recovery, there remain several demographics whose circumstances are overlooked by contemporary therapies and therapy developers. Rural first responders in America are one especially overlooked group, whose unique situation - and the stigmas and biases associated with SUD - makes it difficult for them to fully benefit from existing therapies. Given this issue, I propose in this Thesis a hypothetical therapy - the "STEPS Process" - intended to supplement existing SUD therapies through a combination of behavioral modification and cue exposure therapy. This combination would subvert a patient's conditioned responses to mind-altering substances into more beneficial behaviors that would facilitate recovery. In addition to describing the therapy and its intended application, this Thesis also examines the physiological and behavioral basis of SUD, as well as the specific circumstances of American rural first responders.

Aimee Solheim, Baylor Business Fellows, Economics, and Finance

Zachary Ward, mentor

Does Naturalization Increase Years of Education? Effect of IRCA on Educational Attainment of Undocumented Immigrant Children

This paper studies the effect of the 1986 Immigration Reform and Control Act ("IRCA") on the educational attainment of undocumented immigrant children. IRCA provided a path to citizenship for over 3 million undocumented immigrants who arrived in the United States. I use data from the American Community Survey 5-Year Public Use Sample for the period 2013 through 2017 to estimate the effect on completed educational attainment. Using a differences-in-differences model, I compare childhood immigrants who arrived before the 1982 cutoff to those who arrived after. The second difference compares those who were born in countries with high applications rates ("high take-up") and with low application rates ("low take-up"). Unexpectedly, I find no evidence that IRCA improved education outcomes. I even find partial evidence that IRCA decreased educational attainment, but this effect is primarily driven by Mexico. After dropping Mexico, I find a "zero" effect, making it unclear whether the relationship is due to unobservable changes in Mexican immigration or to the policy.

Stanley Oliver Soo, University Scholars

Jennifer Good, mentor

Colpa di Fulmine

Colpa di Fulmine is a artistic work that uses text and music to create an aural depiction of the struggle to determine what is true when even one's own ability to discern between truth and falsehood is subject to doubt. When the surrounding society is as polarized as it is politicized, standing in the "middle ground" in respect to a divisive topic (such as the "identity politics" regarding sexuality and gender, or the nature and degree of the authority of religious doctrine) is tantamount to standing *against* both sides of the contention. Although the work cannot truly recreate the experience that it depicts, it endeavors to give the listener a maximally true-to-life glimpse of how it is to live life while seeing the world through the particular lens that the speaker has developed as a result of their life experiences. The text —a multilingual patchwork comprised of the composer's own prose and poetry, excerpts from instant-messaging conversations, passages from the Bible, and the lyrics of the *Battle Hymn of the Republic* — is accompanied by an original musical score that invokes quotations from pre-existing works as well as original themes. The textual sources interact with and even reframe one another throughout the piece, and their interconnections convey the psychological and philosophical intricacies of the speaker's experiential reality. Likewise, motivic repetition and permutation in the score augment and provide insight into the message of the text to which it is intimately and multiply joined. Together, the two elements (text and music) form a portrait of a quest to find oneself when "identity" might be a mark of deception; of a battle between the rational mind and the apparently irrational parts of reality; and, ultimately, of hope that is held even when no hope seems to withstand scrutiny.

Darby Sorrels, Communication

Jane Damron, mentor

A Qualitative Exploration of College Students' Experience Seeking and Receiving Support from Their Parents During Times of Stress

College can be a stressful period of time for emerging adults, and these years may also be marked by changes in the parent-child relationship (Youniss and Smoller, 1985). In order to cope with stress, college students frequently turn to their parents for support (Youniss and Smoller, 1989), but it is unclear how students seek support from parents and how satisfied they are with the support they receive. In light of this, the current study examines parent-child communication during the college years, particularly as it relates to supportive communication during stressful times. This study used face-to-face interviews with 20 emerging adult college students to gain insights into this experience. Analysis revealed that college students learn to communicate with their parents in new ways while navigating issues of autonomy and that they primarily lean on their parents for emotional and informational support. In line with Expectancy Violation Theory (Burgoon, 1993), college students experienced positive and negative violations in relation to support they expected versus the support they received from their parents during this time of life. These findings contribute to our knowledge of parent-child communication during a distinctly stressful and transitional period of time.

Zachary Speciale, Medical Humanities

James Marcum, mentor

A Neglected Vital Sign in Medicine: An Examination of the Healing Role of Art in Postoperative Patients via Patient-Reported Experience Measures (PREMs)

While the connection between the studies of art and science have long been discussed, the notion of art in medicine remains primarily undeveloped with very few contemporary applications available to support the supposed beneficial relationship between the two. However, understanding that health is influenced by a wide

range of factors, many of which fall outside the conventional boundaries of medical science, we asked the question: does art have a healing role in the clinical environment? Using Patient-Reported Experience Measures (PREMs), this thesis involves evaluating how a set population of postoperative patients experience and make use of art in their hospital stays in order to better understand how art and hospital aesthetics contribute to patient outcomes. Examining how patients interact with art in hospitals creates a starting point to explore deeper questions about the nature of art in medicine, such as questions about suffering, loss, and the burden of illness. Interpreting these results will be an important way for physicians and other healthcare workers to make use of visual arts in ensuring patient satisfaction and wellbeing.

Parskevie Stathatos, Entrepreneurship and MIS

James Roberts, mentor

Starting a Relationship is Difficult: Phubbing Creates Bad Impressions and Prevents the Creation of Relationships

Phubbing is a portmanteau, or combination, of the words “phone” and “snubbing”. To be phubbed is to be snubbed, or ignored, by someone using their cell phone when in your company. This paper reviews the literature about phubbing and its impact on relationships. Results suggest that phubbing undermines attempts at creating relationships. Phubbing may foster bad impressions and poor conversation quality as perceived by the phubbed individual. The current review of the relevant literature finds that being phubbed leads to perceptions of a lack of empathy, trust, closeness, attentiveness, politeness, and care. The negative outcomes of phubbing undermine the creation of healthy relationships. This paper reviews and synthesizes previous literature written on phubbing and supports claims that phubbing can interfere with the creation of healthy relationships. Given the importance of healthy relationships to human well-being, research into the impact of phubbing on relationship creation is of vital importance.

Timothy Tatéossian-Zortian, University Scholars

Sonia Kim Uber, mentor

An Investigation of the Evolution from Old Spoken Korean to Contemporary Spoken Korean

This thesis analyzes and monitors the evolution of spoken Korean with regards to major political and social changes on the Korean peninsula. The first chapter considers significant historical events prior to 1948 and how those events affected spoken Korean. The second chapter discusses how the Korean language has changed since 1948, particularly between North Korea and South Korea. The final chapter examines how the technological revolution has impacted speech in a modern Korea. This chapter also considers modern cultural trends – such as ‘aegyo’ culture and the rise of e-games – into the forming of this dynamic language.

Margaret Thonnard, University Scholars

Elizabeth Corey, mentor

The Elephant in the Room: White Evangelicals and the 2016 Presidential Election

In 2016, 81 percent of white evangelical voters voted for Donald Trump—the demographics’ highest showing of support for any presidential candidate in over two decades. Using both existing and original research, this thesis attempts to create awareness for the historical context behind white evangelical support for Donald Trump. Topics covered include the relationships between high-profile evangelicals and presidents such as Nixon and Reagan, as well as the role of televangelists in the 2016 election. After considering the development of partisanship within the evangelical community, the thesis concludes by assessing the practical options available to evangelical voters in upcoming elections.

James M. Threet, University Scholars

Eric C. Martin, mentor

Southern Baptist and Scientific Perspectives on Creation Science and Evolution

The evolution versus creation science debate is one that consistently gives both sides fits. This thesis sets about exploring that debate from a Southern Baptist perspective, as well as from the perspective of modern scientific thought. It begins by exploring what precisely we are looking at; the pertinent history and background to these two competing ideas. From there, it transitions to exploring Southern Baptist history and theological convictions, and how those factor into an acceptance of creation science, and rejection of evolution. Following, the opposite side is looked at – what evidence leads scientists to accept evolution and reject creation science – and whether their stated reasons match their actions. Finally, it finishes by exploring one specific example of these ideas coming together, and what we can learn about the true nature of this debate from that incident.

Sarah Trammell, English

Sarah Walden, mentor

Witch Media: A Lens for Understanding Female Empowerment

From the ancient era to modern times, magic and witchcraft has both fascinated and terrified people. As magic has continued to capture the cultural imagination, witches have become a prominent figure in modern media. Books, television shows, movies, and even social media accounts use the image of the witch to represent something significant. These characters, some of whom have become essential facets of popular culture, can be boiled down to one thing: women with power. Whether intentional or not, witches in popular media, or “witch media” as I have begun to call it, communicate ideas about empowered women. Sometimes witch media expresses anxiety around women with power, sometimes it as an intense desire for it. Regardless, the world of witch media has until now remained an untapped resource for researching and understanding the complicated connection society has with empowered women. This thesis begins the necessary conversation around witches and witchcraft in movies and television by analyzing three prominent themes: sex and sexuality, horror, and feminism. Witches are heavily sexualized, exposing the desires and anxiety around sex positive empowerment culture. Witches are also made into villains, ostracizing those women who have power. And lastly, witches are often associated with feminism in media in a shallow attempt to captivate an audience and show empowered female characters. Each chapter analyzes these components separately before bringing them together in the conclusion through a new example of witch media, *Chilling Adventures of Sabrina*. Ultimately, the study of witch media serves as a new lens through which to examine our society’s views of and relationship with women and women’s empowerment.

Phillip Tyree, Biochemistry

James Marcum, mentor

Paradigms of Medical History

There have been two prominent beliefs in western medicine through history: humoralism and modern scientific medicine. Despite humoralism often being looked at as a quite aged medical practice, there are still influences from the times of antiquity, such as the well-known Hippocratic Oath. This influence has often led people to view the progression of medicine as a constant evolution, but this thesis looks into how the history of medicine is made up of several paradigms. I analyze the development of humoralism in Ancient Greece and Rome and how it overtook the prior belief based on superstitions and religion. Then, I look into the major scientific and medical discoveries from the Renaissance, Enlightenment, and up to the current times, showing the development of the scientific medicine that we now know. This allowed me to suggest that, rather than developing from each other, these paradigms of medicine developed independently, causing an incommensurable paradigm shift.

Diego Valdes, University Scholars

Daniel Romo, mentor

Pharmacophore Directed Synthesis of a Derivative of the Immunosuppressive and Neuroprotective Agent Gracilin A

Gracilin A, a natural product derived from the marine sponge, *Spongionella gracilis*, has shown promising neuroprotective and immunosuppressive properties. With the help of the molecular modeling team in the MiniPharma program, certain derivatives that have shown increased binding affinity for cyclophilin D, and increased selectivity between cyclophilins A and D have been identified. The identified derivatives show effects related to cyclosporine A through interaction with cyclophilins A and D, giving the molecules their potential neuroprotective and immunosuppressive effects. The diisobutyrate derivative of Gracilin A is being targeted for synthesis, because we believe that it will have greater stability in serum than previously synthesized derivatives. We propose that by increasing sterics around the ester functionality the rate of hydrolysis will decrease, making the molecule more stable in serum.

Elizabeth Velasquez, History and Professional Writing and Rhetoric

Victor Hinojosa, mentor

Inside the War Room: Strategies for Effective Policy Briefs from American Think Tanks

This thesis will attempt to demonstrate what constitutes an effective policy brief. First, I will look at historical attempts to measure influence, using those as a guide to define an 'effective' policy brief. Next, this thesis will apply that definition to several briefs, separating the successful from the unsuccessful. From there, a rhetorical analysis of the briefs was performed, looking specifically for common strategies and forms that appear to have a direct effect on any given brief's level of effectiveness. Think tanks hope that their policy briefs would sway policy makers toward a decision that best served the purposes of the authoring institution. Whether or not these institutions are, or even ever were successful at this goal is debatable at best. As a result, this thesis will attempt to qualify the relationship between think tanks and policy makers, especially through the use of policy briefs.

Madelaine Walker, University Scholars

Jason Whitt, mentor

Examining Disability in the Lives of Franklin D. Roosevelt, Christopher Reeve, and Joni Eareckson Tada

In today's society, disability is often viewed as a problem in need of a medical solution, and suffering is seen as an aspect of life that needs to be eliminated. This thesis examines the lives of Franklin Delano Roosevelt, Christopher Reeve, and Joni Eareckson Tada, all of whom became paralyzed, to show that disability and suffering could behold the key to how life should truly be lived, in order to develop better relationships with God. These three individuals faced many trials on their journeys, yet each ultimately became an advocate for people with disabilities, whether that be focused in disability rights, medical research, or spiritual healing. Lastly, the effect of disability on their purposes in life and on their abilities to fully accept themselves in their 'broken' bodies will be discussed.

Reynolds C. Walker, University Scholars

Alan Jacobs, mentor

Literary Models of Manhood: Forming a Foundational Understanding of Healthy Masculinity

How are we to understand healthy masculinity? My thesis attempts to answer this question and redirect the current debate about masculinity in our culture from its focus on toxic masculinity to the more productive topic of healthy masculinity by analyzing literary models of manhood. I begin with Tom Wolfe's novel *A Man in Full*, which provides an accurate depiction of toxic masculinity, and highlight the significance of moral formation for the production of healthy men. In C. S. Lewis' *The Abolition of Man* and J. R. R. Tolkien's *The Lord of the Rings*, I find healthy masculinity requires men to pursue moral formation through virtue, specifically, the virtues of honesty, humility, courage, and prudence. In turn, I discover that these virtues promote emotional vulnerability, the formation of true friendship, and the acceptance of responsibility, which each prove essential for healthy masculinity. In this way, my thesis seeks to offer a fundamental framework for men's moral formation that will guard men against toxic masculinity and allow them to flourish under a renewed masculinity.

Anna Wedler, University Scholars

James Marcum, mentor

Camping with Patients: How seeing patients outside of the clinical setting affects views on patient care

This thesis focuses on the experiences of pediatric physicians and other medical professionals who serve campers with chronic illnesses and diagnoses through illness-specific partner camps associated with Camp For All in Burton, TX. Since literature on this topic is scarce, we supplemented existing literature with personal interviews. The object of these interviews was to evaluate the effects of patient interaction in a non-traditional setting on patient-campers, medical professionals, and the patient-doctor relationship. Our findings indicate that illness-specific camps benefit patient-campers by promoting self-empowerment, disease management, and normalization of the clinical experience. Medical professionals see many personal benefits of the camp environment, including personal rejuvenation, reinforcement of vocation, professional growth, strengthened patient-doctor relationships, and increased understanding of their patients' conditions. The patient-doctor relationship is ultimately strengthened by the illness-specific camp environment.

Natalie Widdows, University Scholars

Melinda Nielsen, mentor

Lacrymarum Valle: The Christological Dynamics of Sorrow, Hope, and Beauty

The Christian tradition has long asserted that we journey *in hac lacrymarum valle*, in this valley of tears. The sorrow that touches our communities, our families, and our hearts bears witness to this. Yet Christ teaches us that our sorrows may serve as important sites for revelations of his hope and beauty: it is through the sorrow of the crucifixion that Christ gives hope to the nations and unveils the beauty of God's goodness and grace. Drawing upon Aquinas and Bonaventure, I offer a constructive theological analysis of the relationship between sorrow, hope, and beauty. I argue that, through his death and resurrection, Christ appropriates our sorrows as sites where hope is strengthened and where beauty erupts. In this thesis, I discuss both the objective and subjective relationship between sorrow, hope, and beauty. I offer reflections upon the sorrow in Lamentations, and I conclude with meditations on the Man of Sorrows himself.

Cameron Wiles, Accounting

Bill Thomas, mentor

The Volunteer Income Tax Assistance Program at University High School in Waco, Texas: A Win-Win Project for Baylor and Waco

The purpose of this thesis project is to demonstrate the impact that the Volunteer Income Tax Assistance (VITA) through the IRS has for both the volunteers involved as well as the communities served, on both the national as well as the local level. This thesis will review the background and history of the program overall, and it will then focus on the history and success of one particular VITA site at University High School in Waco, Texas. Through a series of visual aids, the thesis will then display my involvement on behalf of the Accounting Department of the Hankamer School of Business with the Ron E. Smith Academy of Business at University High School over a period of 7 months during 2019 and 2020.

Cannon Williams, University Scholars

Jeannette Marsh, mentor

Poets and Personae: "Poet Voice" as Sociolinguistic Identity Construction in Spoken Word Poetry

The sociolinguistic study of language variation within and between social communities has often been used as a tool for understanding identity construction. Following this tradition, this project subjects a previously unexamined social identity—the Spoken Word poet—to an examination of how members of the Spoken Word community construct identity through their Community of Practice. This project proposes that there is a basic set of linguistic features belonging to the shared repertoire of this community: a “Poet Voice.” Through examining the use of these features alongside features of a poem’s created personae, this project presents “Poet Voice” as indexing both the speaker’s personal stake in the identity of “Spoken Word poet” and her membership within the larger group.