

ABSTRACTS OF
THESIS PROJECTS

SPRING 2017

The Honors Program
University Scholars



BAYLOR
UNIVERSITY

HONORS THESIS ABSTRACTS

2017 GRADUATES

Daniel Taylor Adams, University Scholars

Julia E. Daniel, mentor

Managed Arboreal Spaces: Moral Expectations of Human-Nature Interactions in the Poetry of William Wordsworth and Gary Snyder

In the face of the environmental difficulties plaguing 21st century America, poetry from across the Anglo-American literary tradition can provide useful ways to understand how we should interact with nature. While facing different historical, cultural, and environmental circumstances, both William Wordsworth and Gary Snyder help us think through moral human management of nature. I examine the treatment of both poets' treatment of managed arboreal spaces from Wordsworth's *Lyrical Ballads*, *The Prelude*, and other collections, and from Snyder's *Turtle Island* and *danger on peaks*. These interactions lead us to a moral law which binds humans to respect nature's ability to survive. If humans follow this moral law, then, according to both authors, humans will become equal participants in geocentric human-nature communities. I argue that these poetic representations of both ideal and immoral human management provide us with tools to determine the morality of contemporary land management and logging practices.

Stephen Adkison, University Scholars

Sarah-Jane Murray, mentor

All's Fair In Love and Gore

Through stories, humans deal with their fears. Horror stories in particular confront the darkest aspects of humanity head-on and attempt to understand them. In my screenplay, *All's Fair In Love and Gore*, I examine the negative effects selfishness has on relationships and the fallout that can ensue from unhealthy coupling. The story follows Ryker on his twenty-second birthday as he attempts to win over Lindsey, all while his friends are killed by a masked murderer. By confronting the evil within human nature, I hope to help people conquer their inner darkness.

S. Elayne Allen, University Scholars

Ralph C. Wood, mentor

The Atheism of Political Ambition in The Brothers Karamazov

I examine the relationship between Ivan Karamazov's article on theocracy and his poem, "The Grand Inquisitor." In order to do this, I study Russian Orthodox writings on political ecclesiology, Russian history, the Russian political climate at Dostoevsky's time, and the writings of Dostoevsky's close friend Vladimir Soloviev, an avid proponent of Russian theocracy. Soloviev is a crucial figure in this study because he was influential in Dostoevsky's creation of *The Brothers Karamazov*, most poignantly in the creation of Ivan Karamazov. Through Ivan's writings, I argue that Dostoevsky is offering a critique of Soloviev's conception of theocracy and a broader critique of a political heroism in general in "The Grand Inquisitor." Dostoevsky offers an alternative means of social deification which can be characterized as participation in active love of others.

Kylie Anthony, Business Fellows & Biology

Andrew Wisely, mentor

Medicine in the Third Reich: An Exploration of Changes in the University of Berlin Medical Department under National Socialism

National Socialism caused pervasive ideological shifts in all areas of German culture and education, particularly the medical profession. The attitude of anti-Semitism and the practice of racial hygiene were prevalent, even in the midst of conducting sound science and training healers for the medical field. How could healers also be killers and how could scientific discoveries occur alongside racial experimentation? This paper examines the changes within the University of Berlin's medical department including the gradual shift of totalitarian control of physicians in Germany, the expulsion and replacement of Jewish faculty, and the changes to the medical school curriculum. As a result of these changes, an argument is made that nearly all physicians during the Nazi period contributed to this scientific paradox.

Emily Claire Archer, University Scholars

Greg Garrett, mentor

"God's Great Cooperator": Motherhood and the Feminine Genius in Selected Fairy Tales

Within the past several decades, there has emerged a tendency among literary critics to denigrate fairy tales on the basis of their treatment of female characters. I argue, rather, that many fairy tales are rooted in deep and empowering theological truths about femininity and humanity in general. These truths are visible in some of the more traditional fairy tales – not despite the female characters' roles, but precisely because of them. In my thesis, I explore ways in which a number of Grimm fairy tales shed light on what Pope John Paul II called "the feminine genius," specifically as it manifests in motherhood. I consider fairy godmothers, wicked stepmothers, and heroines as different incarnations of the feminine nature. I use these fairy tale characters to illustrate what recent Catholic theologians have written about womanhood; by applying said writings, I also demonstrate how fairy tales can contribute positively to an understanding of motherhood and, more broadly femininity.

Rachel Arnall, University Scholars

Alden Smith, mentor

G.K. Chesterton's Lepanto and the First World War

This thesis examines G.K. Chesterton's poem *Lepanto* in relation to World War I. Chesterton wrote the poem in 1911, depicting the famous naval battle of Lepanto between the Christian-European Holy League and the Islamic Ottoman Empire that took place in 1571. The forces that Chesterton depicts in the poem can be seen as parallels to contemporary forces in Europe with an understanding of Europe's position on the brink of war at the time of its writing in 1911. Examining books and journal articles that he was writing concurrently, we can see that *Lepanto* reflected Chesterton's own political views. The poem *Lepanto* is especially significant not only for its depictions of Christian Europe's internal and external threats, but for its strong emphasis on supernatural spiritual warfare corresponding to the human military action. Chesterton evokes Crusade imagery and stresses the impact of holy war in *Lepanto*, anticipating a similar situation in pre-WWI Europe. The thesis includes an examination of the historical battle of Lepanto, Chesterton's understanding of war, and a commentary on the poem's text.

Walker Bailey, University Scholars

Alden Smith, mentor

The pseudo-Ovidian Consolatio ad Liviam de Morte Drusi: Introduction, Translation, and Commentary

This thesis constitutes a fresh treatment of the first third (vv. 1-127) of the *Consolatio ad Liviam*, a Latin elegy of unknown date and authorship which seeks to console the wife of Augustus, Livia, on the death of her second son, Drusus, in 9 BC. The commentary places a special emphasis on the Ovidian nature of the poem, particularly the manner in which the poet seems to utilize erotic Ovidian imagery to describe Livia's love for her lost son and the poet's strange admixture of masculine and feminine encomiastic terms to describe Livia, a phenomenon closely matched in Ovid's letters *Ex Ponto*.

Nick Bellacico, University Scholars

James Marcum, mentor

The Pedagogy of Clinical Empathy: Formation of the Physician

Clinical empathy is a lively topic of discussion in the contemporary medical literature. Research indicates that empathetic physicians receive higher patient satisfaction ratings, as well as improved patient health outcomes, compared to non-empathetic clinicians. Consequently, clinical empathy appears to be instrumental in providing quality patient care. If empathy is essential for improving healthcare outcomes, should not medical students learn to be more empathetic? To address this question, we first explore the distinction between clinical sympathy and empathy. Then, two essays from the medical literature are used to compare the empathetic with the non-empathetic physician. Next, we examine the pedagogical issues involved in teaching empathy to premedical and medical students, as well as to residents. Finally, we conclude by discussing the imperative for training clinicians to deliver quality empathetic healthcare.

Priyanka Bhatia, Biochemistry

Michael Trakselis, mentor

CRISPR-Cas9: Its Origins, Functions and Future

What started as simply an observation of a confusing set of tandem palindromic repeats in bacterial genomes grew into the discovery and harnessing of the CRISPR-Cas9 mechanism of gene editing. Clustered regularly interspaced short palindromic repeats (CRISPR) are a naturally occurring adaptive immune system present in microbes. They direct foreign DNA cleavage by storing DNA sequences from the foreign invaders and then using those sequences in a protein effector complex to bring about double stranded breaks. They are mainly used against bacteriophages. Once this mechanism was discovered and studied in its various forms, it was found that the Cas9 complex could be used in other organisms and could be engineered to target specific DNA sequences. This opened the floodgates for research into the gene editing properties of CRISPR-Cas9 and its application to therapeutic genetics as well as drug research. The perfection of the technology brought along with it a long running patent battle between two labs for the rights to the technology as well as a constant emergence of new research showing the benefits, possibilities and problems CRISPR-based editing brings to light.

H. Keller Bright, University Scholars

Sarah-Jane Murray, mentor

Avalon Burning

This short novel is the story of a boy and a girl who discover the magical island of Avalon and accidentally destroy it. Yet as with many stories, that is only the surface. Underneath the magic and monsters lies a simple truth illustrated in story form: the Good is often the worst enemy of the Best. This may sound counter-intuitive. After all, how can two people who both want good things be enemies? Yet consider what happens when one man, such as a police officer, seeks justice against a criminal which another, the brother of the accused, seeks to protect. It is good to follow the law. It is also good to protect your family. Yet when those goods are misordered, then they become enemies. This book proposes, then, that the only way to avoid such happenings and rightly order the goods in life is to hold the Greatest Good, God, above them all.

Anabel Burke, History

Lauren Poor, mentor

Refugees in Times of Reelection: An Analysis of Franklin Delano Roosevelt and Harry S. Truman's Responses to Jewish Refugees During and After World War II

Many individuals hold a false notion that America is a safe haven for refugees, but a closer look at the refugee crisis surrounding World War II (1930-1948) tells a different story; Franklin Delano Roosevelt (FDR) and Harry S. Truman faced the difficult decision of if they should help Jewish refugees, and if so, how. In this thesis I argue that presidents' actions concerning refugees are tempered by political concerns and driven by a xenophobic America, and that for a president to act humanitarily and openly in refugees' best interest that they are usually not facing reelection and are in a relatively safe political position. By examining the political correspondence of both presidents, I show that refugees fair best when they seek aid and admittance to the United States under a second-term president, and the examples of FDR and Truman help to shed a light on the more recent Syrian refugee crisis and former President Obama's motivations and dealings with those clamoring at America's gates.

Tim Campbell, University Scholars

Jerold Waltman, mentor

Populism and Its Discontents: Populism on the American Left and Right During the 2016 Election Cycle

The 2016 U.S. election broke numerous precedents and revealed an American electorate that is deeply dissatisfied with politics as usual. It was in this milieu of discontent that populist candidates like businessman Donald J. Trump and Senator Bernie Sanders were able to vastly outperform the expectations of many seasoned pundits and commentators. This thesis first considers the versions of populism that have influenced American history and recent Latin American and European politics and defines populism as a movement that sets the “righteous people” against the “corrupt elites.” It then analyzes the Trump and Sanders campaigns and argues that each can be broadly understood as populist, though for somewhat different reasons. It concludes by outlining the potential impact that populist sentiments may have on American politics in the near future, arguing that the future of populism in the U.S. largely depends on Trump’s success or failure as President.

Ben Caputo, Biochemistry

Bill Neilson, mentor

The Demise of Vitalism: Fernel's and Servetus' Vital Spirit and Harvey's Living Blood

The origin of the natural sciences is attributed traditionally to a shift from symbolic biblical exegesis of nature to a systematic literal exegesis on its own terms. In contrast to Fernel’s and Servetus’ notion of vital spirit and their dependence on symbolic exegesis, Harvey benefited from this shift in terms of formulating a theory of blood circulation based on a notion of the blood’s primacy for explicating life. The shift in exegesis eventually led to the demise of vitalism.

Megan Cheng, Electrical and Computer Engineering

Alden Smith, mentor

Portraits of Compassion: Picturing the Poor in Renaissance Italy

At the beginning of the Renaissance, social policy towards the poor was geared only to help Christ’s poor: the orphaned, widowed, and disabled. The working poor received little, if any, assistance, and “false beggars,” or those who were able-bodied but thought to be too lazy to work, faced stiff penalties such as imprisonment and flogging. By the end of the Renaissance, however, there was recognition that poverty affected more than just those that the New Testament describes as the most needy (James 1:27 “Pure religion and undefiled before God the Father is this, To visit the fatherless and widows in their affliction...”). Renaissance governments and charitable groups began better documenting their efforts to help the working poor, and hospitals and lending services provided special services to those could not make ends meet. In this thesis, I note the growing presence of the poor in Renaissance art, and observe how artists influenced and recorded these changing attitudes towards the poor in fifteenth century Florentine art. The thesis closes with an afterword in which I also note modern parallels in social attitudes towards the poor, and examine how art continues to play an important role in shaping opinions about poverty today.

Katie Colanero, University Scholars

Christopher Pieper, mentor

Content Analysis of Member Participation Regarding Natural Childbirth on Pinterest

People are using online resources for an increasing variety of uses. One particular use that is rising, is personal healthcare. While people use many online tools to gain information, a wealth of information is obtained from social media websites. This study seeks to examine behavior of people on the social media website Pinterest regarding natural childbirth. Pinterest was selected due to its prevalence among the target audience and its current lack of existing research. A group of "boards" was collected in order to analyze the "pins" for certain variables such as: real image vs. illustration, medical orientation, part of a blogging community, gender and race of poster, etc. These variables were then compared to existing sociological theory on medicalization and content analysis.

Jade Connor, Biology

Bill Neilson, mentor

Body Worlds: Spectacularism and its Role in Democratizing Anatomy

Since 1993, Gunther von Hagens' traveling body exhibition Body Worlds has been visited by over 40 million people worldwide. The plastinated displays marketed as "real human bodies" have elicited both praise for their artistry and condemnation for their alleged disregard of human dignity from a variety of fields. Through an analysis of Body Worlds that incorporates normative ethical considerations from the disciplines of anatomy, museology, medical education, and art, this thesis seeks to determine whether the methods used by Body Worlds to create and market its exhibitions spread appreciation and knowledge of anatomy at the expense of human dignity. After providing a historical foundation for the rise of displayed anatomy and the social acceptance of body donation, the topics of body commodification, informed consent, museum practices, public education, and artistic influences in anatomy will be discussed. Finally, changes to Body Worlds will be proposed to shift the focus of the exhibitions from the perpetuation of a spectacularized image of death back to the dissemination of anatomical education to the public.

Robbie Crosier, University Scholars

Michael DePalma, mentor

Kiddie Pool Christians

What does raw, authentic Christianity look like today? Many of us find ourselves in a sea of raised hands and closed eyes during the weekly young adults gathering. For an hour and a half we sing, we pray, we might even cry-- but that's about as far as it goes. We curl up in the comfort of our day-to-day and wait to be "filled" again next week. In this thesis, I explore the stories of an orthodontist, a salesman, and a musician who shook themselves from apathy and begin truly living. The lives of these men serve as models for people like me, Christians who have grown tired of splashing in the shallow water of a stagnant faith, and want to dive in to a deeper relationship with the Lord.

Rahul Dadwani, University Scholars

Bill Neilson, mentor

Social Justice in the Christian and Islamic Faiths and its Implications on Donor Organ Allocation

Within only the last century, the introduction of organ transplantation has revolutionized medical practice and altered society's perception of what constitutes life and death. At the same time, the procedure has engendered controversy regarding both the ethics of the procedure and the problem of how to address a shortage in donor organs. This thesis focuses on primarily the later issue of scarcity in the context of the Egyptian organ transplantation system, which has been implicated by some as being unjust due to the influence of ambiguous Islamic teachings. In order to examine the veracity of this statement, the ideal of social justice will be examined in both the Islamic and Christian faiths, with the hopes to identify whether Islam holds a unique view of social justice compared to that of Christianity that predisposes it to such unjust conditions. The premise that this thesis shall take is that the aforementioned criticism is heedless and that faith cannot solely be blamed for situations that are instead complex and multifaceted.

Wolfgang Draving, Mechanical Engineering & Instrumental Music

Richard Campbell, mentor

Living in the Drone Age: What is the impact of military unmanned vehicles on the global sociopolitical structure?

Since the turn of the millennium, our world has undergone major changes in the way war is carried out. Global, nation-to-nation conflicts have given way to an ongoing struggle between peacekeeper and terrorist. At the same time, technological developments continue to decrease the concepts of border and distance as travel and communication are made easier. One of the most significant developments in recent years is that of the "drone" or UAV, or Unmanned Aerial Vehicle. While drones have provided immense recreational and commercial benefits, military entities are now utilizing them on a daily basis for reconnaissance, combat, and targeted strikes. In a manner similar to the introduction of nuclear weapons, the rapid growth of this new technology has fundamentally shifted the way we view conflict. Basic understandings of justice and ethics in war must be reevaluated, now that the combatant is making decisions from thousands of miles away. The ease with which targeted strikes are now carried out must be checked by proper legislation and regulation. These discussions, although in their infancy, are now becoming the focus of many modern scholars. How will military drones forever change the way this world functions?

Nathaniel Eberlein, University Scholars

Heidi Hornik, mentor

Art Object and Holy Image: The Attribution and Contextualization of the Madonna and Child by a Follower of Pietro Lorenzetti

We primarily experience paintings en masse on the walls of museums, yet this greatly limits our experience of the artworks. Collecting and displaying religious art in particular always requires removing the object from the home that imbues it with meaning. This thesis takes the Late Medieval painting of the *Madonna and Child* hanging in the Armstrong Browning Library and places it back within its art historical and liturgical context of fourteenth century Siena. First, I shall recount the history of Marian devotion in Siena and the stylistic development of altarpieces alongside it. Then I shall describe the painting's identification as a holy image by indicating its lineage to Byzantine icons and by showing what ways the image can be "read" according to contemporary devotion. I will end by showing my connoisseurship research that seeks to identify the anonymous artist and to give a more definite dating to the painting.

Emmy Edwards, University Scholars

Perry Glanzer, mentor

Christian Cultural Thought and Interaction in Parachurch Student Movements

The purpose of this thesis is to explore the stories of three Christian student movements in the United States—the YMCA, Intervarsity, and Campus Crusade—in order to better understand the interactions of the Christian faith and culture on the college campus. Although these organizations have distinctive stories, they shared an aim to evangelize and disciple students on American college campuses. Each organization is described according to Ernst Troetsch’s three types of Christian cultural thought – church, sect, and mystic – and H. Richard Niebuhur’s three types of Christian cultural interaction – synthesis, dualist, and conversionist. The discussion of the history of these organizations is for the purpose of analyzing how these groups adapt to cultural changes or the needs of the student population according to their type of Christian cultural thought and interaction and how these changes might change the mission of the organization or lead to secularization.

Samantha Elmendorf, University Scholars

Hope Johnston, mentor

Mythographers and Myth-Makers: Classical Mythology in Boccaccio’s De mulieribus claris and Christine de Pizan’s Livre de la Cité des Dames

Although the role and prominence of ancient literature varied throughout the Middle Ages, it was never wholly absent. Myth is shaped by each retelling; medieval expectations for reading, interpreting, and writing affects the composition and understanding of ancient literature. This thesis analyzes the role of classical mythology in two late-medieval works: Boccaccio’s *De mulieribus claris* and Christine de Pizan’s *Livre de la Cité des Dames*. Boccaccio writes a humanist compendium of ancient women, giving a moralizing assessment of each biography through his euhemerist understanding of his ancient sources. Christine, in turn, uses Boccaccio’s work as one of her primary sources rather than the ancients themselves, and she corrects Boccaccio’s work to recast the women’s biographies in order to aid in the defense of woman-kind. Both authors must mediate their own cultural inheritance and assumptions in order to record and, at times, make mythology.

Sarah Evans, Business Fellows & Economics

H. Stephen Gardner, mentor

“Leftover Labor”: Critical Lenses on China’s “Leftover Woman” Phenomenon

Conventional wisdom from economists and scholars of globalization would have us believe that the more integrated into the global marketplace a nation becomes, the less its gender disparity will be. This paper explores the striking counterexample of China’s emerging discourse on “leftover” women: single, educated, urban women in their late twenties or older who are highly stigmatized for their inability or unwillingness to find a husband. Paying special attention to the ways in which various Chinese political forces have regulated gender expression and reproduction across history, this paper attempts to locate the historical, structural, and cultural factors that contribute to China’s gender gap and make possible the popularization of the “leftover woman.” Topics explored include: the lingering impact of Confucianism, the effects of China’s stringent housing registration system, Special Economic Zones and the impact of China’s Deng-era economic reforms on labor practices, and state regulation of fertility and reproduction. Here, demographic information and economic data can better illuminate our perspective of a cultural regime in which the female body continues to be located as a site for the enactment of nation-building and modernization projects, even as the choices afforded to women in the global economy continue to expand.

Abby Fahnestock, University Scholars

Bill Hoy, mentor

The Necessary Hedonism of Disenchantment: Analysis on the Disenchantment of the Universe with Particular Attention to Medicine and Theology

Medicine claims to be morally neutral. Given this, advancements made in the field of science and biotechnology are hailed and welcomed. They are refused questions of morality because the endeavor is understood as amoral. I propose the impossibility of any morally neutral practice. In the modern age, it is imperative to establish that science is not morally neutral. Thus, medicine, the handmaid of science, is not morally neutral. Modern society looks to medicine to actualize the modern moral imperative, thus refusing medicine moral neutrality. The sustaining principle of this paper is Benjamin Wiker's Great Law of Uniformity which states: Every distinct view of the universe, every theory about nature, necessarily entails a view of morality; every distinct view of morality, every theory about human nature, necessarily entails a cosmology to support it. Thus medicine, insofar as it practices from a materialist cosmology, also practices from a materialist morality. In this thesis, I will establish that the modern moral imperative is one of the elimination of suffering. Once medicine aligns itself with a scientific and materialist cosmology, it is required to act from a materialist morality—medicine is looked at to actualize the moral imperative of the elimination of suffering. The final chapter asks how the Church ought practice and participate in medicine faithfully, given medicine is acting from this materialist cosmology and morality.

Kate Farley, University Scholars

Andy Hogue, mentor

No Child Left Behind and Closing the Achievement Gap

To what extent was No Child Left Behind successful in its goal of narrowing the achievement gap between white and black students? In order to better evaluate the success of the legislation, this paper investigates the education policies leading up to the drafting of No Child Left Behind, the status of the achievement gap at the time that the bill was passed, and the results of the program at the end of George W. Bush's presidency. Focusing on No Child Left Behind's use of Adequate Yearly Progress as a measure to evaluate the performance of students, this paper concludes that No Child Left Behind was unable to meet its goal of narrowing the black-white achievement gap, in part because its policies focused on punishing a school's failure to meet performance standards instead of attempting to alleviate the root causes of the achievement gap.

Micah Gamble, Medical Humanities

Paul Larson, mentor

An Integral Approach to the Spanish Short Stories of Author B. Traven

My research on the utilization of Ken Wilber's Integral Theory to analyze literature, specifically the works of B. Traven, began two years ago. Profesora Norden (retired Baylor professor) and I, with a group of other students, continually noticed the depth at which our discussions reached when we used this theory to describe Traven's exemplary character development and literary devices. Profesora and I were meeting weekly to discuss the intricacies of Wilber's Integral Theory and within a year, I had presented a portion of this research at the annual Céfiro conference. I noticed four sections in which Traven's literature could be deepened by using Integral Theory, which were character development, character comparison, literary devices, and the asking of key questions. These became the four chapters of my thesis. The thesis begins with a literature review in which I introduce literary theory, Ken Wilber and his Integral Theory, and B. Traven himself. Within each subsequent chapter, I use different aspects and models from Wilber's Integral Theory to flesh out Traven's short stories.

Ethan Gwaltney, University Scholars

Paul Hagelstein, mentor

A Probabilistic Proof of the Vitali Covering Lemma

The Vitali Covering Lemma states that, given a finite collection of balls in \mathbb{R}^n , there exists a disjoint subcollection that fills at least 3^{-n} of the measure of the union of the original collection. We present classical proofs of this lemma due to Banach and Garnett. Subsequently, we provide a new proof of this lemma that utilizes probabilistic “Erdős” type techniques and Padovan numbers.

Hunter Hewell, Journalism

Robert F. Darden, mentor

Days Up and Down They Come: Townes Van Zandt and the Search for the Meaning of Life and Death

Texas has had a long standing tradition of excellent songwriting, and has been known to produce outstanding songwriters in each generation. Perhaps no time was filled with more prolific Texas songwriters than the late 1970’s in which artists such as Willie Nelson and Waylon Jennings dominated the country music scene. However, no songwriter from that era is as highly regarded in folklore and legend as the portentous Townes Van Zandt. Despite a long struggle with alcohol and drugs, Van Zandt’s songwriting abilities have been unrivaled in music. Each of his songs have a literary quality that allows them to tap into otherworldly truths. Through study of his life and music, I have attempted to find out what Van Zandt has to say about what it means to live and die, topics on which he frequently writes. The music of Van Zandt gives an interesting look on the meaning of life, death, and sorrow given from the perspective of a true artist and poet.

Geordyn Hoge, University Scholars

Daniel Samples, mentor

Medicalizing Childbirth in the 18th Century through the Illustrated Obstetric Anatomy Atlases of William Smellie and William Hunter

In the eighteenth century, the unanimous and uncontested authority of female midwives over the birth ritual was subjugated to the emerging profession of the male obstetric physician, which brought with it a new understanding of birth as a medical process. This thesis analyzes the influence of two illustrated obstetric anatomy atlases, *A sett of anatomical tables, with explanations, and an abridgment, of the practice of midwifery* by William Smellie and *The anatomy of the human gravid uterus exhibited in figures* by William Hunter, on this social movement. First, this essay locates the atlases in the broader professional and social history of obstetric care and in the artistic development of anatomic imagery of women. Then, the images, text, and author’s biography of each atlas is analyzed for its impact on the professionalization of the “man midwife”, as the profession would later be called, and on the medical understanding of childbirth.

Gus Holdrich, University Scholars

Nicholas Henry, mentor

Orthographic Effects on the Production and Perception Japanese Phonemes by Japanese L2 Learners

The purpose of this thesis is to test the influence of orthography on how second language (L2) learners of Japanese perceive and produce sounds absent from their native language English. We look at whether the use of “h” to transcribe the Japanese sound /ç/ encourages pronunciation closer to the English sound /h/, and likewise whether the use “f” by Japanese L2 learners to transcribe the sound /φ/ pushes them to pronounce it closer to the English sound /f/. Both Japanese students and non-learners completed an auditory discrimination task, which paired the target Japanese sounds and one of two English approximations. One approximation matched the transcription equivalent, while the other was a different but close approximation. In addition, natural speech data from their Japanese coursework was obtained. We predict that L2 learners will judge the Japanese sounds to be closer to their English transcription equivalents than non-learners do. If so, this would imply that orthography does have an effect on the production and perception of L2 learners, and that second language teachers should be aware of the influences transcription has on a student’s pronunciation.

Megan Hollister, Mathematics

Brian Raines, mentor

Multi-Parameter Functions in Chaotic Dynamical Systems

For two semesters, a fellow math major and I thoroughly proved results from Sections 1.1 – 1.8 of *An Introduction to Chaotic Dynamical Systems* by Robert Devaney. After going through Devaney’s calculations and proofs, I created a multi-parameter family of functions to consider and observe. This is a piecewise function of polynomials that always intersects the x-axis at 0 and 1. It has two maxima and one minimum value. Depending on the range of the parameters, the minimum value can be above or below the x-axis. I have analyzed its behavior and determined the fixed and periodic points. I found that at certain parameter values the family of function’s corresponding invariant set will be closed and totally disconnected. I conjecture that the invariant set is also a perfect subset of the unit interval which would make it a Cantor set. Next, I conjecture if the same parameter values could be used to show the new equation maps are chaotic. Dr. Brian Raines will guide me through the steps of this process.

Charissa Huntzinger, Political Science & French

Peter Campbell, mentor

You are Who You Fight: the CIA, Covert Action, and National Security

Hollywood thrillers, conspiracy theories and political discourse, often depict the Central Intelligence Agency (CIA) as an uncontrollable, enigmatic organization populated by James Bonds. The agency’s mandate, set out in the National Security Act of 1947, tells a different story that is often overlooked. In essence, the US government designed the CIA as a center of intelligence analysis and not a cloak and dagger outfit. Nevertheless, the CIA did develop a covert action branch and from the Cold War to the War on Terror, the CIA has increasingly relied on this operational component. But where did this branch come from and how and why has it adapted or failed to adapt to changes in the international environment? Through two case studies, this thesis evaluates the efficacy of bureaucratic, organizational cultural, and realist theories for explaining the evolution of covert action within the CIA.

Becca Hunziker, University Scholars

Ivy Hamerly, mentor

Understanding the European Union Through Comparison to Sovereign States

The European Union qualifies as a new type of intergovernmental organization, a supranational organization, because its member states have integrated to a much greater degree than any other intergovernmental organization that came before it. This new level of categorization causes many people to believe that the European Union is so unique that it has no peers with which to make meaningful comparisons. In this paper, I will argue that although the European Union exists somewhere between a traditional intergovernmental organization and a state, it does share many characteristics with sovereign states and these shared characteristics make meaningful comparison possible. Further, I will argue that by comparing the European Union to sovereign states we can better understand the European Union's formation, have greater insight into the problems the European Union faces, and attempt to comprehend the future of the European Union with more clarity.

Harrison Jansma, Business Fellows & Mathematics

Brian Simanek, mentor

The Isoperimetric Inequality on Natural Subsets

The isoperimetric problem is an exercise of classical geometry posing the following question: If a closed Jordan region on the plane has area A , what is the smallest perimeter that the figure can attain? This question was solved, yet recently an interesting reformulation of the question was posed. By viewing sets of natural numbers as objects, volume was defined as the sum of a sets elements, while perimeter was defined as the sum of all elements in a set with adjacent numbers not contained in a set. This new isoperimetric problem over the naturals then posed the question, If a subset of $\{0,1,2,\dots\}$ has volume n , what is the smallest possible value of its perimeter. In this thesis we seek to create tight bounds on this perimeter function, as well as construct an explicit set of minimal perimeter for all $n>0$.

Charlotte Johnson, Great Texts

Greg Garrett, mentor

C.S. Lewis' Four Loves and Harry Potter

J.K. Rowling's Harry Potter series is one of the best-selling in history, is translated into a multitude of different languages, has a fan base that few other authors can rival and it is a still a series that has much to share. This thesis explores the loves detailed in C.S. Lewis' book *The Four Loves* and how they are manifested in J.K. Rowling's Harry Potter series. Each love has its own chapter and explores the way the love is displayed in the novels, oftentimes positively and sometimes negatively. In addition, Severus Snape is explored in a chapter entirely his own. The thesis draws on philosophers such as Soren Kierkegaard and theologians such as Martin Luther King Jr. as well as others to supplement Lewis.

Maddie Johnson, Professional Selling

Chris Pullig, mentor

Eclipse Coffee Bar- Business Plan

With the increased desire for high quality coffee, Eclipse Coffee Bar seeks to provide the Abilene area with a coffee shop where people can gather to seek community, study and work. Eclipse Coffee Bar will capitalize on the ACU student body as well as the two adjacent universities, young professionals and families located in close proximity to the proposed location. Our mission is to provide a place where people can escape the stress of life and to provide atmosphere that brings people together over their love of coffee. We will have a large shop providing plenty of space for studying as well as for just hanging out. We plan to have a separated study room providing a quiet study area for students who prefer to study in that sort of atmosphere. We will also have different board games that allow our customers to interact with each other, and even an open mic night on Thursday nights to support local artists. Our main competitor in the market is Starbucks, but we will be able to draw customers to our coffee shop because of the location and atmosphere. The major financial cost of this project includes the transformation of the retail space and purchase of the machines required. We will have a limited menu in order to reduce inventory, and will have select snacks that we outsource from a local bakery and snack provider. We will also have seasonal menus featuring five seasonal drinks to increase the demand of certain products during these seasons. We plan to have a soft opening the week before ACU starts school and then have our official opening during move in week, offering half price drinks to drive initial customer demand. Overall, Eclipse Coffee Bar seeks to create a unique coffee shop that drives community within Abilene.

Isabelle Kazarian, Mathematics

J. David Allen, mentor

Play Records: A Business Plan for an Independent Record Store

The story of a retail store does not begin on opening day. Instead, it begins humbly on paper. Long before a store opens, a business plan must be developed to describe every aspect of the store before a single dollar is spent. This plan describes the venture Play Records, a record store located in Waco, Texas that will capitalize on the recent repopularization of vinyl records. Play Records store sells recorded music, related electronics, and board games. Due to its focus on customer experience, this store will house a small coffee shop with a study area to cater to local college students. To provide customers the opportunity to fully experience recorded music, the store will sell both new and used media in several different formats, as well as provide areas for customers to listen to music before purchasing. Play Records will not only help customers find music by artists they like, but foster an environment in which they can develop a love for new music. Unfortunately, the financial statements project a net loss due to lack of demand. This business plan then serves as an indication that a record store of this scope would be an unwise investment in this particular area.

Alice Knaeble, University Scholars

Darin Davis, mentor

Reclaiming Community: the Practice of Christian Friendship

This thesis will draw from a Classical philosophical background describing the importance of friendship and then add an essential Christocentric element. By integrating philosophical, theological, and biblical sources, a richer understanding of friendship will be reached and resources for reclaiming a deeper sense of Christian friendship will be given. Finally, by drawing upon these resources and the practices and liturgies of the Church an example of how to practice genuine Christian friendship will be shown.

Annie Kwok, Biology
Sanghoon Kang, mentor

Antibiotic Resistant Bacteria in an Urban Freshwater Ecosystem in Central Texas

Antibiotic resistance is a growing concern for the human population, and is becoming prevalent in many environments; for example, increasing occurrences of antibiotic resistance genes (ARGs) in aquatic ecosystems elevates the risk of pathogenic microbes acquiring those resistance genes. There is an urgent need to more closely examine the relationship between antibiotic resistant bacteria (ARB) and antibiotic residues in urban freshwater environments. Thus, our main objective was to investigate the presence of antibiotic resistance in wastewater treatment plant (WWTP) effluent leading into the Brazos River. An additional aim was to explore possible mechanisms of resistance emergence to different antibiotics using classical as well as modern techniques such as replica plating, the Luria-Delbrück Fluctuation Test, the Newcombe Test, and 16S rRNA sequencing. Four samples of influent and treated effluent wastewater were collected from the WWTP to enumerate resistant bacteria in the community and to investigate whether mutations causing resistance in ARB might be induced or spontaneous. We found that penicillin had the highest rate of resistance in all samples. According to the Luria-Delbrück Fluctuation Test and the Newcombe Test, different antibiotics appear to be associated with different tendencies of resistance emergence, which raises evolutionary questions about the roles of random mutation and induction. Most ARB detected from the Luria-Delbrück Fluctuation Test belong to the *Klebsiella*, *Enterobacter*, and *Aeromonas* genera. This study provides a baseline understanding of the urban freshwater ecosystem status in central Texas and quantitatively examines the degree of resistance emergence.

Carter Lantz, University Scholars
Touradj Solouki, mentor

*The Mass Spectrometry Analysis of *Chlamydomonas reinhardtii* During Nitrogen Starvation*

Chlamydomonas reinhardtii is a soil microalgae that has been found to create useful biopharmaceutical and biofuel material. It is known that mutants of *Chlamydomonas reinhardtii* produce an abundance of lipid compounds during nitrogen starvation. This project aims to identify possible sources of energy for cellular processes and use mass spectrometry and carbon thirteen isotope labeling to characterize the process of lipid production during nitrogen starvation. To conduct this research, the sta6 mutant of *Chlamydomonas reinhardtii* was first grown in unlabeled acetate for 120 hours followed by nitrogen starvation in [1-¹³C] labeled acetate for 72 hours. Mass spectrometry analysis of algal headspace at 24, 48, and 72 hours post-starvation showed that *Chlamydomonas reinhardtii* obtains some of its carbons from the environment. Moreover, mass spectrometry characterization of post-starved algal contents revealed unique isotopic distributions for observed fatty acids, diacylglycerols, and triacylglycerols that incorporated carbon thirteens from the added labeled acetate. Comparisons of results from mass spectrometry analysis with published transcriptome and pathway analysis highlighted the key steps that are potentially driving the lipid production during nitrogen starvation.

Kat Largent, Business Fellows, Marketing, & Journalism
Chris Pullig, mentor

//LOVE ME// Experiential Hedonic Music Marketing and Its Effect on Purchase Behavior, Fandom, and Artist Branding

In February 2016, alternative pop band The 1975 partnered with social media site Tumblr in an initiative called Tumblr IRL to promote the launch of their sophomore album, *i like it when you sleep for you are so beautiful yet so*

unaware of it through unique interactive marketing strategies emphasizing personal interactivity that enrich the fan experience in ways only a few other artists have even begun to consider. Through researching experiential marketing, identity signaling, fan communities, artist branding, and the effects of social media on fandom, I argue that this event combined various phenomena to maximize the fan experience. I will analyze the results of a questionnaire and depth interviews with fans who actually attended the event to discover the effect of the interactive element of this promotional technique.

Alexa Larsen, Neuroscience

Beth Lanning, mentor

Health Literacy and Negative Health Behaviors in the Waco Population

Literacy, especially health literacy, is lacking in the U.S. adult population. The 2003 National Assessment of Adult Literacy (NAAL) found that 36% of adults had Basic or Below Basic health literacy, and these rates were even higher in people of low socioeconomic status. Health literacy has been linked to worse patient outcomes and higher rates of negative health behaviors, but the literature is not in agreement as to the association of health literacy with smoking and drinking behaviors. Furthermore, few, if any, studies have investigated the relationship of health literacy with health anxiety. This study measured health literacy amongst adults at a community health center using the Newest Vital Sign tool (Cronbach's $\alpha > 0.76$). Smoking and drinking behaviors were gathered from EPIC medical records as reported by patients to their primary care physician. Health anxiety was tested using a shortened Whiteley Index (Cronbach's $\alpha = 0.83$). The data were then analyzed for correlations between health literacy and each variable separately, controlling for demographic factors such as race and socioeconomic status. (Results will be entered here once data is analyzed).

David Le, Biochemistry

Peter Hotez, mentor

Evaluation of Vaccine Antigens Against Lymphatic Filariasis

A significant public health concern is the control of parasitic nematodes in order to minimize the burden of lymphatic filariasis in endemic regions. The development of a vaccine is a potentially cost-effective approach towards control and elimination of this parasitic disease. Based on a genome-wide analysis of the developmental stages of the filarial parasite *Brugia pahangi*, molecular targets for interrupting the development of the filarial parasites were identified. Using genetic engineering technology and protein expression systems, five vaccine antigens were cloned and expressed as recombinant proteins in yeast and bacterial expression platforms. With this preliminary evidence, we believe these proteins are expressible for pilot-scale biomanufacturing for preclinical trials, but further evaluation of the vaccine antigens will prove useful for accelerating and prioritizing them down through the development pipeline. Initial bioinformatics and computational analysis has elucidated possible peptide sequences that could act as epitopes in the vaccination process. With the following results, efforts towards creating a transmission blocking vaccine TBV for LF can be feasibly attainable, and the proposal for building a recombinant subunit vaccine or a multiple antigen peptide system is suggested.

Sarah Lesikar, English
Richard Russell, mentor

Listening to the Ents: Examining the Old Entish Language from J.R.R. Tolkien's Lord of the Rings

Treebeard from J.R.R. Tolkien's *Lord of the Rings* insists that Ents never say anything in Old Entish, "unless it is worth taking a long time to say, and to listen to." While Tolkien offers readers limited records of Old Entish, it is nevertheless a rich and unique language that I argue embodies Tolkien's philosophies of language and myth while challenging modern languages and the philosophies of his contemporaries. A close study suggests that Old Entish is a fantastical high language designed to unite the "incarnate mind, the tongue, and the tale." Its private personal names remind readers of the sanctity of language, and the particularity and local perspective that characterizes its place names insist upon a return to better relationships with local places. By taking time to listen to the Ents, this paper strives to take the lessons from this language of Middle Earth, and find the implications for the languages of our modern world.

Katerina Levinson, University Scholars
Michael D. Thomas, mentors

Faith and Madness: Don Quijote and the Heroic Search for True Reality

After spending his days and nights reading novels of chivalry, Alonso Quijano decides to follow in the footsteps of his chivalric models, changing his name to "Don Quijote," and becoming a knight-errant. This thesis sets out to prove that Don Quijote's faith in chivalric ideals is perceived as madness because it is something foreign to his society. Although he is confused about reality, he deliberately chooses to have faith in order to "disenchant" his lady and muse, Dulcinea del Toboso, who is representative of society. As a result of his faith, "enchanters"—exemplified by the Duke and Duchess—plague him for daring to think that another reality could exist beyond their own drab and banal one. Don Quijote demonstrates that the cause of knight-errantry—the fight for a better reality—costs one one's own life, as society attempts to squelch his faith for a nominalist reality. He provokes the question of who is truly deceived: he who is certain about true reality, or he who is uncertain? Though Don Quijote is forced to give up knight-errantry, he ultimately is undefeated as a knight-errant by putting to death the empirical side of him, Alonso Quijano. He lives and dies to show others how to live and die, to disenchant the enchanters in his own society, and to encourage society to take up the cause of faith in order to know a greater reality.

Kade Major, Electrical and Computer Engineering
David J. White, mentor

Vox: A Phonics App for Latin Learners

Inspired by recent trends in Latin pedagogy toward more aural and oral teaching methods and by the increasingly widespread use of educational software, this thesis project focused on the development of an iOS app for use by Latin learners. The project began with researching current offerings and resources before transitioning into the design phase. The bulk of the project consisted of learning and then developing in Swift, the programming language used with XCode to make iOS apps. The outcome of the project is a rudimentary quiz game style app which challenges users to identify diphthongs and vowels based on the sounds they hear.

Ashley Marino, University Scholars

Marnie Abrahams, mentor

The Cultural and Medical Conceptions of Deafness: Their Effects on the Self and Culturally Affirmative Mental Health Care

The cultural model of deafness is one that affirms the legitimacy of the Deaf community as a whole. The medical model of deafness is one that is predicated on disability and focuses on “deaf can’t” rather than “deaf can”. I take the cultural and medical models of deafness and describe them in detail before relating them to various deaf self-identities. These deaf identities help therapists and researchers create culturally sensitive therapeutic techniques that affirm those identities. The current state of mental health care and accessibility for deaf individuals is discussed and contrasted to what the future of deaf mental health care may look like.

Ryan McNamara, History

Sarah-Jane Murray, mentor

Snowball Effect

This thesis is inspired by the importance of animation and its ability to express complex themes to children. Children, while not always having the vocabulary to express themselves, have the capacity to understand difficult themes. This is the power of animation: teaching children complicated universal truths through visuals and storytelling. This script for an animated screenplay is the story of Jim, a penguin boy living in a Viking world. Jim wants more than anything to be accepted, so he embarks on a quest to defeat an evil wizard threatening the Vikings. Through the vehicle of storytelling, this screenplay tackles tough issues of self-worth as well as the destructive cycle of bullying.

Jimmy Mehserle, Business Fellows & Economics

James West, mentor

Make America Populist Again: Examining the Causes and Effects of Populism in the 2016 Presidential Election

This paper examines American populism in its historical context and in relation to the current political landscape. Populism has a long history in the United States, taking multiple forms and pursuing manifold goals at different points in time. In an effort to discern the contemporary influence of populism, this paper studies the effects that variables related to demographics, education, economic strength, and local population had on voting patterns in 2016. Using county-level data gathered from private and government sources, it analyzes primary election data from South Carolina and general election data from every state with the exception of Alaska. Overall, the results indicate that populism is on the rise once again across the country. However, the results also contradict several common explanations for the recent populist phenomenon.

Josie Minick, University Scholars

Tamarah Adair, mentor

Introduction and Initial Analysis of the Ciliate Investigative Learning Initiative Classroom-Based Undergraduate Research Experience

Due to inherent shortcomings in the traditional laboratory structure, inquiry-based laboratories have increasingly been adopted to increase student engagement in science and provide an early research experience. At Baylor University, a new inquiry-based introductory biology laboratory, the Ciliate Investigative Learning Initiative Classroom-Based Undergraduate Research Experience (CILI-CURE), has been designed to address these learning goals. In this study, the first group of student outcomes from this initiative are evaluated by the Test of Scientific Literacy Skills, Course-Based Undergraduate Research Experience Survey, and the Baylor Course Evaluation. Statistical analyses indicate significant gains in students' skills in data analysis, accessing primary literature, identifying the validity of scientific arguments, collecting data, and learning laboratory techniques. While supporting the concept that inquiry-based courses improve student perception of science and provide an improved way to teach the process of science, these outcomes also indicate areas for improvement in qualitative skills such as making graphs and justifying predictions from previous data.

Fielding Montgomery, University Scholars

Patrick J. Flavin, mentor

The Statistics of Swing: The Demographics and Political Properties of U.S. Presidential Swing States

Presidential swing states, particularly the demographic and political features that predict them, have been under-researched in the field of political science. This thesis examines what features might predict swing states in U.S. presidential elections. After conducting a literature review and determining what the best measure of a swing state is, ten hypotheses are proposed and tested using regression models. The statistical results indicate that states with a high number of middle class households, a lack of religious adherents, and a low electoral vote per capita count are more likely to be swing states. This is substantial because it can help guide political scientists, pollsters, and political campaigns in future elections when deciding what states should deserve the most attention.

Melissa Rosario Montgomery, Sociology

Barbara Purdum-Cassidy, mentor

Sociology Through Harry Potter

In the summer of 1997, J.K. Rowling reintroduced the world to the love of reading. The Harry Potter series sparked wonderment and curiosity in the minds of adolescents everywhere. But what those young readers did not realize is that Rowling created a world not so different from our own. This magical world held societies with their own set of customs, belief systems, government systems, familial bases, and social issues, many of which reflect those of the real world. Through merging the magical world of Harry Potter and the essential or core concepts taught in high school sociology, Sociology Through Harry Potter applies literature-based instruction to a project-based curriculum with the goal of enhancing existing sociology curricula.

Becca Munroe, Biology

Randy Wood, mentor

Prepared Peer Mentoring in College Students

During my time at college, I have had good mentors and not-so-good mentors. I myself have been a good mentor and a not-so-good mentor. What made this difference between my experience as a good mentor and a not-as-great mentor? The answer was the level of preparation I was given for each opportunity. Peer mentoring has a significant impact on the retention rate and success of college students, if the mentors are prepared. Topics a mentor should have an understanding of include: education and career goals and appraisal, emotional and psychological support, academic subject knowledge support, being a role model, time management, study skills, civic engagement, and working with others. Mentors can also have an impact on the leadership development of a student through an understanding of consciousness of self, congruence, commitment, collaboration, common purpose, controversy with civility, citizenship, and change. Mentors should also have ideas for how to support students with roommate issues, anxiety and depression, and potentially death. Finally, student mentors should use transformational, servant, and authentic leadership styles with their students. Peer mentors have an important impact upon their students. Because of this impact, they should have adequate recourses and education on how to interact with students.

Brittney Nelson, Medical Humanities

Bill Neilson, mentor

Autonomy or Beneficence: An Analysis of End-of-Life Care in Pediatric Patients

Autonomy and beneficence are two core principles of biomedical ethics. However, autonomy, the patient's right to decide what he or she wants regarding medical care, can often conflict with beneficence, what the doctor believes is in the best interest of the patient. In addition, pediatric cases are more difficult, because there is a third party, the parents, involved in the decision-making process. Through literature review, this thesis analyzes how autonomy and beneficence may conflict in pediatric end-of-life care cases. Furthermore, the thesis examines how a type of autonomy, called relational autonomy, can assist in making decisions in these pediatric end-of-life care cases. In relational autonomy, parents are the driving force in the decision-making with the help of the medical staff. Parents must be strong advocates for their children. Finally, the Touchpoints program, developed by Dr. T. Berry Brazelton, is evaluated as a method of minimizing conflict between parents and physicians as parents strive to advocate for their children.

Julie Nelson, University Scholars

Steve Block, mentor

Just Judgment?: James Wilson on the Relationship Between Popular Sovereignty and Judicial Review

Judicial review has come to be the most important power of the American judiciary. Recent decisions made by the Supreme Court show that questions about judicial power are just as relevant today as they were at the time of the American Founding. Debates about judicial review are based on distinct understandings of the nature of judgment and the relationship between judicial review and the people. However, contemporary debates have taken on a character that misses the importance of judgment and draws a false dichotomy between judicial review and popular sovereignty. This thesis evaluates the problems with these contemporary arguments and examines James Madison's, Alexander Hamilton's, and the Anti-Federalist Brutus's views on the judiciary and the nature of judgment. Ultimately, I turn to the thought of James Wilson to provide an alternative understanding of judicial

power. Wilson's distinct understanding of popular sovereignty, human nature, and the faculty of judgment provide the grounds to show that judicial review and popular sovereignty are compatible.

Daniel Notman, University Scholars

Clay Butler, mentor

Christianese: A Conversation Analysis of the Dialect of Evangelicals

This thesis analyzes two conversations between groups of American college students: one group of male roommates who attend the same church and one group of small-group leaders planning their group's activities. The two discussions, between 40 and 50 minutes each, were video-recorded, transcribed, and analyzed for Christianese—a regiolect predominantly spoken by Christians in the company of other Christians. This thesis makes use of Conversation Analysis (CA) and linguistic theories of frames, identity, and group membership. The primary insight gleaned from the conversations is that speakers use Christianese to prove their identity as a Christian and their membership in the larger community of Christians. Six strategies for solidifying this in-group membership are examined: allusions to the Bible, allusions to larger Christian culture, religious topic choice, framing extended statements as mini-sermons, Christian-specific jargon and phrasing, and backchanneling.

Hannah O'Donnell, Social Work

Gaynor Yancey, mentor

Domestic Minor Sex Trafficking: A Community Problem, A Community Solution

Domestic minor sex trafficking (DMST) is the commercial exploitation of US citizens under the age of 18. This phenomenon, though often hidden or ignored, is prevalent across United States and in our communities. This study begins by reviewing literature relevant to understanding and addressing DMST. This study then takes a closer look at the town of Waco, TX and how community members are addressing the issue of DMST in their community. Using a community-based participatory research approach, semi-structured interviews with eleven community members representing nine different community partners were qualitatively coded to identify common themes about strengths and assets, challenges and areas of growth, and future recommendations. Findings from this study can help to grow existing assets, address areas of growth in Waco and translate strengths found in Waco to other communities to aid their fight against DMST.

Ryan Parkinson, Biochemistry

Alex Holzniekemper, mentor

Against All Odds: Otto and Hilde's Journey to Waco, Texas

I have been working with archival materials at Baylor University, to provide a cohesive narrative of the Rosenfelds, which offers illustrative insights into migration. Otto and Hilde Levy-Rosenfeld were a Jewish couple that immigrated to America during the 1930s, and built a rare foods business in Waco. Their story is just one of many stories of Jewish immigrants seeking new lives as they were persecuted, and forced to escape their native Germany to America. They worked together to aid their other relatives to join them, and grieved for the family members they were unable to help. The store they managed on 25th Street in Waco quickly began to grow and receive attention as Texans from all over the state would drive to enjoy the rare foods there. The store helped educate Waco and Texas citizens in international and unique cuisine. The Levys' story is unique to Waco as one of the most importation stories of migration and success.

Lauren Pecha, Secondary Education ELAR

Mona Choucair, mentor

Literature as an Alternative to Teaching to the Test

In response to the recent emphasis on standardized testing, teaching to the test has become a growing problem for American public education. Although educators frequently criticize this instructional method, they have been given few alternatives for test, and teachers continue to practice teaching to the test in schools across the nation. While current political pressures necessitate that teachers practice effective test preparation, teaching to the test produces only short-term results while harming long-term learning. Consequently, this thesis explores the benefits of studying literature in order to propose the adoption of a literature-based curriculum as an alternative to teaching to the test. Rather than teaching skills in isolation as occurs when teaching to the test, implementing a literature-based curriculum promotes student success on standardized assessments through embedded test preparation.

Gabriel Pederson, University Scholars

Daniel Nodes, mentor

The Sequence of Themata in the Collations of 'Frater Petrus'

The topic of this thesis is a medieval scholastic manuscript containing a work of one 'Frater Petrus'. It appears that Petrus wrote 150 *collationes*, or collations to be read throughout the year, almost all of which are reproduced in our manuscript. Each collation in general consists of a *thema* (a verse-length scriptural quotation) from the day's mass reading, followed by a threefold explanation of each of three parts into which it is divided. The first three collations and the very last collation all have *themata* that are not from the mass reading. The purpose of the thesis is to explain the sequence of the *themata*. Thus it consists first of all in an explanation of the relationship between the body of the work and the medieval (pre-Tridentine) lectionaries from which the author would have been working, and second in explaining the roles that these four eccentric collations play in the work.

Mackenzie Peery, University Scholars

Arna Hemenway, mentor

Two Weeks Notice: Stories

A young doula runs out of fertility-granting tea. A tollbooth operator works on the edge of heaven and yearns to see his son again. A devoted dog's owner isn't the leader he needs. This thesis uses creative short fiction to consider the lives of three ordinary characters in extraordinary circumstances. Questions about family, loyalty, and purpose are explored through deeply imagined interiority and experience.

Jeremy Petersen, University Scholars

Jan P. Patterson, mentor

A Nation Behind Bars: The Past, Present and Future of Mass Incarceration in the United States

Prior to the 1970's, the total number of incarcerated Americans had scarcely ever risen above 200,000. Today there are over 2,000,000 Americans behind bars. The United States of America incarcerates more people than any other nation on earth. In fact, while the U.S. accounts for only 5 percent of the global population, 25 percent of the

world's prisoners are held by the United States. This thesis uses several different techniques to study mass incarceration within the United States. First, U.S. prison numbers and incarceration rates are compared to those of other nations from around the world, and the social impacts of various systems of mass incarceration are compared. This paper also examines the history of executive and legislative initiatives which have allowed the U.S. to develop the world's largest prison network. Next, this thesis examines the interplay between corporate interest and the perpetuation of a system of mass incarceration. Finally, propositions for downsizing America's prison system are examined.

Nicolas Peterson, University Scholars

Thomas S. Kidd, mentor

Identifying with the Lowly: Jonathan Edwards, Charity, and the Stockbridge Mission

Jonathan Edwards is commonly thought of as a cold but brilliant theologian, a fire-breathing railer, quick to use his genius with words to reprove, a man bookishly removed from the daily concerns of life. However, recent scholarship incorporating a larger corpus of his works, only now easily accessible, has revealed a more multifaceted man, a pastor who, in fact, preached and wrote volumes on Divine Love and its outworking in Christian Charity. He laid both the philosophic and aesthetic groundwork to convince the Christian of the necessity of a charitable disposition and its required fruit. Throughout his first thirty years as a pastor, he returned often to the imperatives of charity. This thesis will highlight the ways in which he specifically addressed the need for active charity to the most needy in the community, the poor and disenfranchised no matter their race. As he identified an increasingly pervasive lust for gain in the colonies and in Northampton in particular, he continually censured such selfish motives in his pastoring and preaching. After years of wrangling with his congregation over such issues, he begins teaching that the most practical way to tune our hearts to a joyful obedience of this duty is to reject selfish ambition and to identify with the lowly. Not only did Edwards teach these virtues often in both his New York and Northampton pulpits, but he personally and tirelessly worked for the cause of the poor. This thesis will show that Edwards' choice to minister at the Stockbridge Mission after his dismissal at Northampton was consistent with his focus on charity throughout his life and exemplifies identifying with the lowly and despised of society. By examining his work with and on behalf of the Stockbridge Indians, we will see that these years were not just a "quiet retreat" or a "forced exile" as earlier scholars posited, but instead these years are a powerful example of choosing to identify with the marginalized. Jonathan Edwards' Stockbridge years offer much for modern Christians to consider and to emulate in their own lives and ministries.

Taylor Phillips, Psychology

Sara Dolan, mentor

Rape Culture on College Campuses: Effects on Individual, Social, and Administrative Levels

"Rape culture" can be defined as the perpetuation of rape myths, sexual objectification of women, male sexual violence, and victim shaming. The purpose of this literature review is to investigate several factors that contribute to the perpetuation of rape culture across American college campuses and its impact on sexual assault survivors, perpetrators, and college administration. Female college students are one of the most vulnerable demographic groups regarding sexual assault; recent studies report that about one-fifth to one-third of female college students experience sexual assault during their time at a university. A sexual assault experience can prove physically and emotionally damaging to survivors. Additionally, academic performance and social relationships can be negatively impacted by a sexual assault experience, especially when survivors face negative social reactions and inadequate support from university resources. College-age perpetrators of sexual assault appear to share several characteristics with one another (i.e. psychopathic tendencies, specific coercion tactics, rape supportive attitudes), suggesting that some male college students are more likely to commit sexual assault. The perpetuation of rape

culture across college campuses ultimately leads to a severe underreporting of rape incidents and widespread misinformation regarding sexual assault. Universities should require bystander intervention training to educate students about sexual assault, increase awareness of university procedures regarding sexual assault investigations, and change the current attitude toward sexual assault survivors and perpetrators.

Sarah Pitman, University Scholars

Joyce Nuner, mentor

The Efficacy of Child Life Programs: Parent's and Sibling's Perspectives

Child Life Programs in hospitals work with patients and their families to lower stress and educate families about their healthcare experience; however, Child Life Specialists and their Programs are not offered in every medical setting. This study utilizes a case study method to explore the impact of Child Life Programming from a sibling and parent perspective, or what happens when Child Life is not offered. In-depth, semi-structured interviews with sibling and parent dyads about their hospital experiences. A theoretical framework of Family Resilience Theory and the idea of disenfranchised grief describe the processes of grief, bereavement, and the ways families cope through different types of grief. Although we will never know what could have been different with or without Child Life in specific circumstances, this study illustrates the importance for grief-informed and developmentally appropriate interventions in a hospital setting for holistic care for parents and siblings while their family system experience stress and grief during diagnoses, treatment and death.

James Porter, University Scholars

Steve Bradley, mentor

The Late Qing's Artificial Equilibrium

In an attempt to explain the deteriorating Chinese economy at the end of the Qing Dynasty, Mark Elvin in his 1970 book, *History of the Chinese Past*, developed the idea of a high-level equilibrium trap. This trap, Elvin argues, explains what happens when a quickly growing population comes into conflict with a finite amount of arable land resources and an elite class who refuses to innovate. It is my intention to critique Elvin's equilibrium trap and provide a more nuanced view as to the development the stymied economy. Rather than the absence of growth originating from a lack of innovation caused by an emphasis on labor-using technology, the stagnant growth of the Chinese economy originated from a bubble caused by a false perception on the state of the laborer class that allowed for the class to deteriorate far longer than it ever should have without being noticed. The genesis of this bubble can be found in its historically isolationist and philosophical principles, which ultimately lead to the lack of innovation that Elvin analyzed.

Isabeau Posey, Great Texts & Philosophy

Sam Perry, mentor

The Silencing and Commodification of Queer Rhetoric, A Study in Rhetorical Frameworks For Approaching Minority Voices

The goal of this study is to look at queerness as it relates to the erasure of queer voices, concerns, and rhetoric in mainstream media following tragic events pertaining directly to queer culture. Specifically, we will be studying the rhetorical consequences of the shooting at the Pulse Nightclub in Orlando and investigating how rhetorical erasure can occur in the wake of such a poignant event. We will be doing this by taking three different approaches to the

topic. The first approach discusses systemic violence, and how a perceived environment of potential violence suppresses minority rhetoric. The subversion of The Pulse nightclub's function of a safe space is explored. The next approach discusses how public address forces a dominant identifier of the orator. The function of the nightclub as primarily a latinx club and how that interacts rhetorically as its public conception as an LGBTQ+ club is explored. The final approach explores the commodification of minority platforms by external rhetorical entities such as cooperation and political parties is discussed. The swift transformation of the incident into a premise for political party platforms is explored, and the effect that this has on authentic queer rhetoric is explored.

Kelsey Ray, University Scholars

David D. Corey, mentor

The Modernization of the Roman Church: a Political-Philosophical Analysis of the Medieval Papacy

The Great Western Schism of 1378 marked the beginning of one of the most tumultuous centuries for the Catholic Church. Oftentimes, however, the fifteenth century is overshadowed by the scandals of papal extravagance and reformative protestation in the sixteenth century. The conciliarist movement developed in response to the schism, however, is a political-philosophical treasure. In this thesis, I explore various theories of ecclesiastical rule from the time of the Great Western Schism through the papacy of Pope Pius II. I compare three periods of ecclesiastical government with three similar phases of political philosophy enumerated by Quentin Skinner in his article "The State." In light of these comparisons, I consider how the ecclesiastical and secular realms can serve to illuminate one another, providing explanations for otherwise confusing or seemingly unfounded phenomena in theory and practice. In conclusion, I argue that the late medieval Church functions more as a political state than a church, leading to its modernization during the Renaissance.

Sarah S. Richardson, Professional Selling & Entrepreneurship

Matthew Wood Professor, mentor

The Role of Impulsiveness in Entrepreneurial Opportunity Evaluation Decisions

Identifying how entrepreneurs evaluate opportunities and make decisions, once personal and environmental factors are brought to bear, is a growing area of research. In this study, I specifically used the Rule-Based Reasoning method to analyze how entrepreneurs develop cognitive frameworks and rules that govern and dictate their decision making process. As these cognitive rules are implemented, each entrepreneur is making future-based judgments on the feasibility of each opportunity. Based on this knowledge of how entrepreneurs develop mental models that affect their decision making process, I limited my subject area to analyze the likelihood of action for entrepreneurs when they are presented with main effects – number of opportunities, window of opportunity, and information asymmetry – and the interaction between these main effects and impulsivity. The overall goal was to determine what effect the personal factor of impulsivity has on the entrepreneurial opportunity evaluation process, and if there is a statistically significant relationship between likelihood of action, the main effects, and impulsivity.

Jack Rogers, Biology

Bracy Hill, mentor

Traumatic Brain Injury and the NFL: A Study of the Confluence of Medicine, Ethics, and Social Mores on Professional Football

The future of American football and the National Football League (NFL) is currently uncertain. Although football is America's most popular sport and the NFL has reached unprecedented levels of financial success, this popularity has started to decline in recent years. Medical research concerning traumatic brain injury in football has changed the landscape of the sport, and the NFL has been very resistant to acknowledging these recent medical discoveries. This paper explores the history of professional football and the NFL's rise to power, as well as the debate over concussions that has occurred between the NFL and independent researchers over the last fifteen years. This paper also includes a discussion about the ethics of football, for players and fans, in light of the newly discovered dangers of playing the sport. The paper concludes with an examination of the current state of football and the NFL and what the future may hold for both.

Victoria Rose, University Scholars

Jacquelyn Duke, mentor

*Branching into the Past: Using Dendrochronology and *Pinus echinata* to Examine Drought in East Texas*

Proxy data, which comes in many forms such as ice cores, fossilized pollen, ocean sediments, and tree cores, can reveal important insights into past climatic conditions on Earth. With a rapidly changing climate, it is more important than ever to understand climate conditions of the past in order to anticipate the climate conditions of the future. This study focuses on the information tree cores can uncover through the field of dendrochronology. Dendrochronology takes advantage of the fact that most trees lay down yearly rings with yearly variation in the width due to limiting factors. The work investigates whether or not *Pinus echinata* from East Texas can act as proxy data for drought in the region. Tree core samples were taken at the Sam Houston State University Center for Biological Field Studies and processed using standard dendrochronology methods. The chronology created was then compared to the average Palmer Drought Severity Index for each growing season with the software DendroClim.

Katherine Ann Rush, Communication Studies

Lacy G. McNamee, mentor

Family Ties: Examining the Family Identity Metaphor in Short-Term Organizations

This research examined the nature of the "family" identity metaphor in short-term organizations and also explored how this metaphor shapes members' organizational identification, roles, attachment, conflict, and transition. Qualitative data in the form of in-depth interviews was gathered with undergraduate students involved in short-term organizational groups including Greek like leadership, summer camp staff, and study abroad cohorts. Through grounded, interpretive analysis, a four-part typology of family experiences was developed and explained using examples from the data. This study provides scholarly and practical insight into the development of healthy and unhealthy family cultures in organizations and seeks to increase understanding of the difficult transition that often follows membership in such meaningful, family-like environments.

Kate Russell, Neuroscience

Joseph Achor, mentor

The Auditory Brainstem Response and Autism

The goal of this thesis is to explain the use of the auditory brainstem response (ABR) in research on autism and autism spectrum disorders (ASD). Following an explanation of the ABR and its evolution as a diagnostic and research tool in many fields, we concentrate on its role in autism research. ASD is a complex disorder and likewise has a complex etiology including genetic and environmental factors, among which may include brainstem abnormalities. ABR demonstrates these abnormalities; slower conduction and increased latencies have been observed in the ASD population more frequently than in the normal population. These studies have led to a range of theories on the contribution of brainstem and neural development to ASD. Although data has been historically inconsistent at times, patterns have emerged that may prove ABR a useful diagnostic predictor for ASD and reveal differences in subpopulations of patients with ASD, including gender differences.

Shannon Sandridge, University Scholars

Todd Buras, mentor

How to be a Libertarian

A certain understanding of physics would imply that the placement and movement of every particle is determined by the laws of nature and the past. If this is true, a physicist could calculate the position of every particle at any time in the past or future, even the placement of particles in a person's brain. Libertarians claim that free will requires a level of control that this is incompatible with a deterministic world. Libertarians also claim we have free will. Among libertarians, are two theories about how free will works. Event-causal theories have simpler metaphysics, however, these attempt to reduce the agent to mental states. Agent causal theories are not as metaphysically simple, in part because they do not attempt to reduce the agent in this way. I summarize the best contemporary event-causal theory and argue that if one wants to be a libertarian, one cannot adhere to this view.

Marissa Santana, Biology

Matt Bradshaw, mentor

Long-Term Effects of Foster Care on Life Trajectory

According to data from the Adoption and Foster Care Analysis and Reporting System (AFCARS), there are roughly 415,000 children in foster care in the United States on any given day. In 2015 alone, more than 20,000 children aged out of the foster care system without ever being placed with permanent families. Many studies have shown that these children who have aged out have a much higher likelihood than the general youth population to experience homelessness, unemployment, and incarceration as adults. To remedy this problem, it is imperative that we understand what protective measures can be used in the foster care setting to improve outcomes for children in the system. This thesis will use the National Youth in Transition Database (NYTD) to assess these protective measures. Across the United States, 7,717 youth completed the entire survey. The database collects information on provided services and those who receive the, and measures outcomes such as educational attainment, homelessness, nonmarital childbirth, and incarceration.

Aparna Sarode, Biochemistry

Erika Abel, mentor

The Relative Toxicity of Organophosphate Flame Retardants in Embryonic Zebrafish

Organophosphate flame retardants (OPFRs) are compounds used to delay the ignition of commercial products manufactured in the textile and furniture industries. In the current study, embryonic zebrafish (*Danio rerio*) were exposed to concentrations of 2.5, 5, 10 and 20 ppm of seven selected OPFRs at 6 hours post fertilization (hpf) and embryos were evaluated daily for morbidity and mortality. Glutathione S-transferase (GST) activity was assessed in zebrafish following OPFR exposure at 120 hpf in order to probe oxidative stress as a potential mode of action and acetylcholinesterase (AChE) activity was evaluated as an indicator of neurotoxicity. Our study found that OPFRs had a variety of effects, with triphenyl phosphate, tributyl phosphate, tris-(2-butoxyethyl) phosphate and tris-(1,3-dichloro-2-propyl) phosphate inducing mortality and malformations in a concentration dependent manner. Furthermore, several of the selected OPFRs were also observed to significantly reduce spontaneous movement and AChE activity in embryonic zebrafish. Due to the rising production of OPFRs and their wide range of biological effects, there is growing concern regarding human exposure and adverse health effects.

Megan Sarsfield, University Scholars

Steve Block, mentor

Lockean Property Rights and the American Founding

This thesis provides an in-depth, comprehensive examination of the different views regarding Lockean property rights held by the American Founding Fathers. This will be done through a comparative analysis of the writings of Thomas Jefferson and James Madison. This examination will culminate in two proposals: first, while Madison and Jefferson both have the Lockean idea of property rights in mind in their writings, they clearly did not read, interpret and use Locke's thought on property in the *Second Treatise* in the same way as one another; second, Jefferson was a precursor to the 20th Century Progressives who distinguish certain rights (civil rights and human rights) over other rights (property rights).

Chloe Sells, Chemistry

Robert R. Kane, mentor

FK506 and Rapamycin Conjugation: A Proposal to Increase Viability of Transplanted Pancreatic Islets

Type 1 Diabetes Mellitus is a widespread disease stemming from the improper functioning of pancreatic islets' β -cells that produce insulin, a sugar regulatory hormone. There is currently no cure. If the patient has received an islet transplant, damaging blood-mediated inflammatory responses (IBMIR) can ensue, and in addition frequent dosages of immunosuppressants that ultimately can cause chronic health issues are required. Even with immunosuppression therapy, IBMIR and other immune responses result in the destruction of many of the transplanted islets. Attempts to remediate these problems have been made in the form of surface modifications of the transplanted islets. The following thesis proposes a new method to increase viability of transplanted pancreatic islets-- modification via esterification of immunosuppressant drugs, specifically FK506 and Rapamycin, for immobilization followed by slow release by a β -eliminative linker which results in an introduction of the uninhibited version of the immunosuppressant molecule into a localized area.

Keith Sena, Religion

Abdul Saadi, mentor

The Number of Generations in Matthew 1: A Proposition Based on the Peshitta

Matthew says the genealogy of Jesus at the beginning of his Gospel has three sets of 14 generations. However, the third set seems to have only 13. This thesis reviews propositions regarding the number of generations, and introduces another proposition, based on two words in the Syriac Peshitta. Before explaining the proposition, it explicates the two words and other pertinent vocabulary. In this proposition, the third set has 14 generations, but most versions of the genealogy misrepresent it. For background, this thesis reviews the statuses of Syriac witnesses in New Testament textual criticism. For a more complete picture, it compares the genealogy in Matthew 1 to those in 1 Chronicles 3 and Luke 3; and it describes the theological purpose of the genealogy in Matthew 1. Ultimately, the proposition based on the Peshitta is not asserted, but offered as another idea.

Amanda Short, Economics

Jason Aimone, mentor

Risk Aversion and Probabilistic Punishment

This paper studies the intersection between risk aversion and willingness to punish in an experimental public goods game. The analysis focuses on the differences between high and low risk averse subjects and how they respond to varying uncertainties of selected punishment being carried out. Both selfish and altruistic punishment will be studied in this context. I find that subjects are more willing to incur the cost to punish in a selfish setting than an altruistic one, and that there is a significant relationship between high risk averseness and probability of punishment. People that are more risk averse are willing to punish greater amounts only when there is greater certainty attached to the situation. I do not, however, find supporting evidence that high and low risk averse people act differently with respect to uncertain punishment itself.

Johanna Simpson, English

Arna Hemenway, mentor

Harry Potter and the Millennial Generation

The Harry Potter phenomena has spanned the globe from its publication in 1997. Even today, several years after the last book was published and the last movie released, Harry Potter continues to enthrall readers around the world. In my thesis, I explore how the Harry Potter books have affected the millennial generation that grew up reading the novels. Through first analyzing how the books conform and differ from literary traditions, I establish the literary merit and influence of the seven books among children and adults. After establishing the significance of the novels, I consider how the success and phenomenon of the seven Harry Potter books has influenced the millennial generation in three significant ways. First, the novels have led to a more literate generation than the one before it. The books have also provided the millennial generation with a structure from which to cope with terror. Finally, the success of the Harry Potter books have influenced the millennial generation to be more politically involved and politically progressive.

Adryanna Smith, University Scholars

Jay Dittmann, mentor

Commissioning the Front-End Electronics for the CMS Endcap Hadron Calorimeter Upgrade

In the spring of 2015, the Large Hadron Collider (LHC) at CERN outside Geneva, Switzerland, began a new era of operation at a proton-proton collision energy of 13 TeV. To optimize the data gathered from collisions at higher beam energies and intensities, the Compact Muon Solenoid (CMS) detector is scheduled to be upgraded beginning in December 2017. We worked to characterize and calibrate the new front-end electronics, which include charge integrator and encoder (QIE) cards, for the CMS Hadron Calorimeter (HCAL). These electronics are necessary to extract more precise timing data and to combat the signal degradation observed over time due to radiation exposure. We tested over 700 QIE cards for direct shipment to CERN, where they have been assembled into readout modules and await installation. Results from the test suite show reliable performance in the QIEs and promising improvements over current detector technology.

Alexandra Smith, Anthropology

Carol Macaulay, mentor

Archaeological and Archival Investigations of a Norwegian Farmstead in Bosque County, Texas

In 1871, a Norwegian immigrant, Ole Finstad, and his family settled near the Norse community in Bosque County, acquired 160 acres of land, and built a rock house. For 84 years, the Finstad-Bakke family farmed and raised cattle, and eventually built a larger home on the property. Today, the rock house is in ruins, but much has been learned about this family through archival research, archaeological survey and testing, and artifact analysis. This thesis presents the results of these investigations by discussing and comparing the history and culture of Norwegian-Americans, the history of the Finstad-Bakke family, and the artifacts recovered by the archaeological investigations. The sum of this research leads to conclusions about the lives of Norwegians who immigrated into the well-formed Norwegian-American community in Bosque County.

Morgan Smith, Medical Humanities

Bill Hoy, mentor

Rediscovering Ars Moriendi for Modern Medicine and the Church

Death is often treated as taboo and the dying are frequently pushed to the outskirts of society. Modern medicine has created a culture in which the worth of a human life is based on its independence and ability to contribute to society. Good health has become the coveted prize above all else. Even within the Church, there is an unnatural silence about death and specifically the process of dying. This thesis seeks to illuminate practices that help the contemporary Christian to die well. During the fifteenth and sixteenth centuries, European Christians created a literary genre known as the *Ars Moriendi* or “the art of dying.” These medieval pamphlets provide a wellspring of knowledge for contemporary readers. The art of dying well can also be found in the practice of modern medicine, particularly in the hospice movement founded by Dame Cicely Saunders. By reexamining *Ars Moriendi*, this thesis calls the Church to rediscover the art of dying well, encouraging Christians to live in such a way that allows them to care well for the dying and remain faithful in their own experience of dying.

Jennifer Teague, Biology

Christopher Pieper, mentor

Changing Attitudes in Research and Society towards Lesbians, Gays, and Bisexuals: A Meta-Narrative Review

Over the past 50 years, the United States has gone from viewing homosexuality as a mental illness to legalizing same-sex marriage. This widespread shift in attitude is not only the result of social movements, but a paradigm shift in scientific discourse. Through an examination of social change theory and a thorough meta-narrative review of scientific literature on lesbians, gays, and bisexuals from 1960 to 2015, this study seeks an answer to the question of whether society has led to a paradigm shift in research or whether science has led to societal change. Eight hundred articles from multiple databases were coded by decade, theme, representation of and attitude towards sexual minorities. Articles were sorted into the broad categories of health, family, education, and public opinion since the gay rights movement has largely focused on achieving change in these areas. To track change over time, the data were compared quantitatively and qualitatively in the context of lesbian, gay, and bisexual (LGB) history. Kuhn and Foucault's theories on scientific revolutions and societal power-dynamics offer support for the conclusion that social changes led to transformations in scientific thinking. This longitudinal, multidisciplinary study, the first of its kind, will allow for better informed policies, activism, and scientific research on LGB issues.

Katlyn Tjerrild, English

Alexander Engebretson, mentor

Hospitality in the Novels of William Faulkner

The American South prides itself on and identifies itself by its hospitality. Based on the Christian call to minister to the needs of the poor, the outcast, and the needy, Southern culture espouses hospitality as one of its most foundational beliefs. However, the same culture that purports to value hospitality so highly is often guilty of withholding it from the needy on the basis of race, gender, or socioeconomic status. In his novels, *As I Lay Dying*, *Light in August*, and *Absalom, Absalom!*, William Faulkner examines this discrepancy between the American South's supposed ideals and actual attitudes. In my thesis, I argue that Faulkner condemns this hypocrisy and calls for a practice of hospitality consistent with the Christian model of love for one's neighbor.

Sarah Trocke

Biochemistry

Matt Bradshaw, mentor

The Moderating Effect of Attachment to God on Education and Social Trust

Previously, several research has concluded that lower educational attainment is a risk factor for low social trust. While other studies have analyzed the effects of religious attendance on trust, the present study seeks a novel approach in understanding how religion, specifically religious attachment, affects the education and trust relationship. In order to examine the impact of divine attachment on the education and trust relationship, data from Wave III of the Baylor Religion Survey (BRS) are utilized. Using this data, the impacts of secure, anxious, and insecure divine attachment styles are examined on both particular and generalized trust. Overall, secure attachment to God is found to have a significant buffering effect on the relationship between education and overall trust. This study expands the current literature base on social trust, provides insight into the education and trust dynamic, and sets the foundation for future studies to examine attachment styles as a moderating factor.

Luke Ungarino, University Scholars

Andrew Hogue, mentor

InSite Waco: promoting collaboration among Waco's nonprofit leaders

InSite Waco is an organization that aims to incentivize professional development via collaboration among Waco's nonprofit leaders. We work with select nonprofit leaders to answer two questions: first, what skills and best-practices would they like to acquire in order to improve their nonprofit's performance, and second, in what areas do they believe they are especially proficient as nonprofit leaders. We use this data to design partnerships between the "skill-learning" nonprofit leader and the "skill-sharing" nonprofit leader. This thesis outlines the reasoning behind InSite's methodology, and the progress of InSite's first year of activity. This thesis also contains the evaluative instruments employed for our intensive surveying of nonprofit leaders, which we use to award grants to each skill-sharing nonprofit leader according to their investment in their partnership.

Marlee Vandergrift, Social Work

Rishi Sriram, mentor

The Experience of Depression Among Baylor Undergraduates: A Phenomenological Interview Study

The experience of depression is prevalent among college students. This mental health disorder is concerning because of its impact on students' social and emotional well-being, academic achievement, retention, and physical health. Because of the unique opportunity to intervene in students' whole lives at such a transformative period, colleges should invest in students' overall development, including mental health. This study aims to better comprehend the lived experience of having depression as a Baylor undergraduate so that services may become better tailored for this particular intersection of identity and experiences. Using a phenomenological interview study and qualitative coding analysis, the PI found that Baylor undergraduates who have been diagnosed with depression share some symptomatic and therapeutic history. Unique stories of factors in the college environment that were helpful and hurtful as the participants learned to cope with their diagnoses are also key to this paper's findings.

Katarina Vonkuhn, University Scholars

Lidija Novakovic, mentor

Matthew 25:31-46 -- The Least of These Then and Now

In Matthew 25:31-46, the Son of Man gathers all the nations and separates between the sheep and the goats. The criterion for judgments revolves around what one did for the least of these my brethren. In this thesis, I provide a narrative and discourse analysis of the passage, asking questions concerning the identity of "all the nations" (*πάντα τὰ ἔθνη*) and of "the least of these my brethren" (*τούτων τῶν ἀδελφῶν μου τῶν ἐλαχίστων*). Afterward, I address how our understanding of service to the least of these must change in our increasingly globalized world. I make the claim that in order to faithfully serve the least in society, we must not only care for the suffering individual but also for the structural injustices that causes individuals to suffer. Finally, I demonstrate an ecofeminist reading of Matthew 25:31-46 that addresses the interconnected structural injustices that create and maintain the marginalization of the least of these.

Joseph Waid, Sports Sponsorship & Sales, Entrepreneurship

Michael Hillman, mentor

Sic 'Em Squadron Business Plan

Sic 'Em Squadron is a barge that allows college students the unique opportunity to sailgate, tailgating on a river in a boat, along the Brazos River prior to home Baylor football games. The boat will serve tailgating food like burgers, hot dogs, and other grilled food along with having beverages for the guests and other entertainment like music and TVs. Guests are more than welcome to enjoy the river if they wish and take advantage of lockers to hold their stuff and keep it dry to change into before heading into McLane Stadium. The boat will pick up the guests at the Ferrell Center parking lot and float around the front of the stadium until it drops the guests off at one of the boat tie downs next to the bridge to enter the game. When it is not game day for the Baylor football team, SES will serve as a river cruise and is available to book for private parties. SES river cruises welcome catering aboard and will be able to accommodate different themes as well such as poker night, wedding parties, formals, or any other theme the party wishes.

Callie Walker, University Scholars

Junius Johnson, mentor

*Discerning the Will of God by Following the Call of Christ Alone:
A Christian Response to the Refugee Crisis*

What is a Christian response to the refugee crisis? My thesis project seeks to answer this question by exposing the problematic of determining right Christian action, which grows out of the conclusions that theologian Daniel Louw draws in his article. With Louw, I agree that right Christian action cannot bifurcate the refugee dilemma into protecting one's own or loving the stranger but, instead, must involve self-giving love. However, I find that the specifics of self-giving love cannot be legislated for all Christians. I mine Dietrich Bonhoeffer's *Ethics* for resources to show that right Christian action is a matter of following the call of Christ alone and so discerning the will of God for the individual Christ-follower, within the church community, that he must obey in faith. This thesis will elucidate the specifics of discerning the will of God by following the call of Christ alone and various cases of action that this might entail.

Ashley Waters, University Scholars

Sarah-Jane Murray, mentor

Mara

Stories are a way for us to share what we love and believe to everyone in the world. It's a medium that has the ability to cross all divisions, no matter our differences. With storytelling comes the responsibility of what truth, or danger, we choose to create and give to the world. With this in mind, my story takes on the task of giving a villain's backstory rather than a hero's, attempting to show that even the worst of characters that pop off of the page have so much more to them than just inherent evil.

Michael Wen, University Scholars

Charles Garner, mentor

Rates and equilibria of vial in vial vapor diffusion for common laboratory solvents

Vapor diffusion crystallization is the chief method of crystallization used throughout the world. There are many versions of vapor diffusion, with hanging drop being the most commonly used by institutions such as pharmaceutical companies or biochemistry laboratories. By nature, however, hanging drop cannot accommodate preparatory quantities of material. Here we propose an overlooked alternative: vial-in-vial vapor diffusion. Unlike hanging drop, vial-in-vial is effective for preparative and analytical amounts, and requires little researcher involvement. Included herein are the results of extensive study of the rate and equilibria governing vial-in-vial vapor diffusion. A large table is included which lists an overview of various combinations of laboratory solvents which researchers can consult when selecting solvents for their system. We attempt to characterize the underlying forces which drive vapor diffusion to completion, and we propose two tentative methods of modeling the data to approximate half-lives, a convenient number which we believe would best summarize our numerical findings. Finally, we examine common variations in configurations which may affect the researcher's results.

Lydia Williamson, University Scholars

David Lyle Jeffrey, mentor

Theophany in Luminosity: The Theology of Light in Gothic and Shaker Architecture

Light is a dominant metaphor in Scripture for conveying the relationship between humanity and the divine. Genesis begins with "Let there be light" (Gen 1:3); the Psalmist calls Scripture "a lamp unto my feet" (Ps 119:105); Christ is the light that "shines in the darkness, and the darkness has not overcome it" (Jn 1:5). Revelation describes the Celestial City as radiant with light, filled with the glory of the Lord. This metaphor is developed further in the exegetical tradition. Early French Gothic architecture and Shaker architecture, though disparate in time periods, locations, and traditions, both capture the beauty, purity, and simplicity of light. I argue that in medieval sanctuaries and Shaker communities, the element of light is used to mystically manifest a heavenly vision on earth, visually incorporating aspects of Gothic and Shaker theology into their respective holy spaces, and guiding those to who enter to contemplate the Uncreated Light.

Samuel Winsten, University Scholars

Julie deGraffenried, mentor

An Analysis of the Efficacy of Modernizing Practices in Soviet Obstetrics

Even before the Cold War, the Soviet Union put special emphasis on cultivating the appearance of modernity within their society in an attempt to promote socialism as the new political paradigm. Science, industry, and healthcare were among the most important spheres of society considered in this endeavor, and the Soviet healthcare system was certainly one of the most admired in the world during the mid-twentieth century. This work considers both the publicly documented and advertised pronouncements of modern advancement as well as recorded information suggesting the gloomy reality of Soviet obstetrics in order to make a judgment on the true modernity of the specialty within the USSR. Through the analysis of publications such as *Soviet Life* magazine, the testimonies of physicians visiting the USSR from the West, and Russian mothers' recorded experiences during the latter half of the twentieth century, the disparity between public reports on maternity and the true experience of the Soviet people becomes clear. The facilitation of childbirth in the Soviet Union could by no means be considered modern by twentieth century standards, and the practices that greatly contributed to this conclusion continue to negatively affect the Russian Federation today.

Kelsey Wolf, Communication Studies

Rosalind Kennerson-Baty, mentor

Race, Class, and Title I Schools: A Critical Analysis of Undergraduate Discursive Practices

Do race and class still matter in American society today? Unfortunately, it is likely that race- and class-based biases continue to permeate contemporary society. For example, colorblind language disguises biases while coded, politically correct language allows people to express their beliefs without targeting a certain group. In this thesis, readers will engage with the role that race- and class-based implicit biases may play in contributing to the qualified teacher shortage in Title I schools. In this qualitative phenomenological study, the researcher explained emergent themes from nine small group interviews. In analyzing exemplar quotes through the sociopolitical development of discursive practices with an autoethnographic component, readers can reflect on their own way of speaking. Although certainly not the only factor affecting the qualified teacher shortage, pre-service teachers, educators, and those not in the education field can use this thesis to understand the sociopolitical, historical development of discursive practices of race and class to understand the role it may play today.

M. Bennett Wright, Engineering

James Marcum, mentor

The Role of Ethics in STEM Education: A Course Proposal

In modern society, ethics and science have become increasingly intertwined. From stem cell research to artificial intelligence, many of the most controversial ethical and philosophical dilemmas facing society are tied to science, technology, engineering, and mathematics (STEM) disciplines. As such, it is important for scientists to be involved in current ethical discussion. However, the vast majority of STEM experts lack formal training in the styles of thinking and modes of communication required to be an effective contributor to philosophical conversation. Many universities do not require an ethics course for science majors, and some do not offer any courses designed to broaden science students' modes of ethical thinking. Undergraduate institutions have an opportunity to train a new generation of scientists that will be able to shape philosophical discussion. This thesis addresses the need for ethics education in STEM programs, and proposes a course that would broaden students' thinking, pique their interest, and teach important ethical theories.

Katrina Youngblood, Medical Humanities

Arna Hemenway, mentor

Watching Them, Watching Him: A Novella

Watching Them, Watching Him is a short novella featuring an infectious disease doctor by the name of Ari Nadim thrust into an epidemic. He is a doctor fresh out of residency with a hero complex that is quickly destroyed after he fails to save his patients from a horrible disease. The reader watches the doctor fall into anxiety and a depressive state as he's forced to shift his mental framework from his own eyes and those of the people around him, including a dying patient, a nurse, and his partner. It is an exploration into the forced perfection of physicians and the harmful effects of the hero complex that many physicians carry. Mainly, however, the purpose of this thesis was to learn how to write a novel.