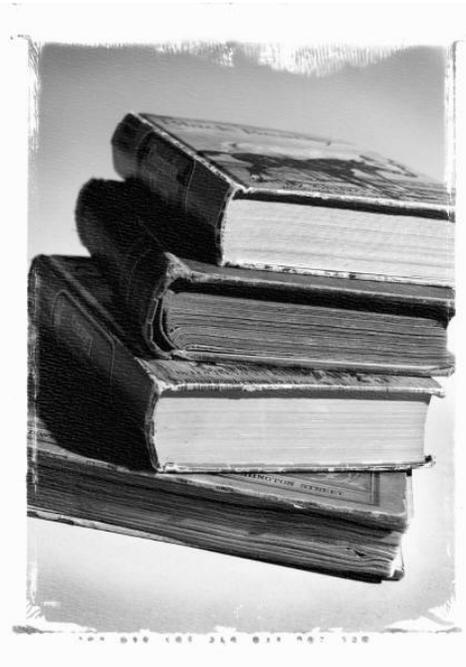


**ABSTRACTS OF
HONORS THESIS PROJECTS**

SPRING 2008



THE HONORS PROGRAM

BAYLOR UNIVERSITY
HONORS COLLEGE

WACO, TEXAS

HONORS PROGRAM THESIS ABSTRACTS

SPRING 2008 GRADUATES

Abimbola Aderinto, Biochemistry

Dr. James Marcum, mentor

HIV/AIDS Epidemic and the peoples of South Africa

South Africa is a country with one of the hardest hit HIV/AIDS epidemic, with almost 6 million of its people living with HIV/AIDS and 1.2 million AIDS orphans. No one can overestimate the magnitude of the suffering this has caused. This thesis will focus on the social and economic effect of HIV/AIDS on South Africans and how the AIDS crisis has impacted societal and communal structures of the peoples of South Africa. The enormous prevalence of HIV/AIDS in South Africa is rooted in its turbulent political and social history. This thesis will also study the history of the HIV/AIDS epidemic in South Africa and the response, or lack of response of the South African government to this crisis. The later chapters of this essay will look at how South Africans are living with the AIDS epidemic.

Nicole Arrambide, Medical Humanities

Dr. Jon Singletary, mentor

Health Care Reform: An Observation of the Health Care Struggles of Low-income Adults

With approximately 47 million people without health insurance and a prediction that this number will continue to rise, health care reform is necessary. In order to understand the general problems of the American health care system, a historical and contemporary perspective of how the government, insurance companies, and physicians have coalesced to provide care for the poor and indigent must be examined. In addition to this historical perspective, a contemporary evaluation of low-income populous was examined through interviews. This historical examination and interviews of low-income adults, suggests possible solutions to the health care problem. Those solutions include providing adequate transportation, multilingual medical aid, and insurance and aid for the working poor.

Austin Baltensperger, University Scholar

Dr. Rodney Bowden, mentor

A Case Study Investigating Rhabdomyolysis and Acute Renal Failure of a Sickle Cell Trait Athlete

This case study examines the clinical causes of acute renal failure of a sickle cell trait athlete who suffered kidney failure secondary to heat related rhabdomyolysis. The study first outlines relevant sciences surrounding the normal physiology and pathology of red blood cells, muscles and kidneys. Relationships are then established to particulars of the athlete of interest as the history of his onset of illness, hospitalization and rehabilitation are recounted. The study concludes with recommendations for individuals of similar predispositions based on prevailing sports medicine literature.

Samer Baransi, Baylor Business Fellows

Dr. William Reichenstein, mentor

Active Management: Is It Worth It?

The thesis is based on Morningstar's 2008 *Principia* software, which provides innumerable statistics on stock and bond fund universe. Through screening, similar portfolios will be compared based on their 5 year annualized return vs. their audited expense ratio. The goal is to group same-style investments together, providing an "apples-to-apples" comparison that legitimizes the results of the study. Computing the R2 of distinct portfolios gives the strength of the relationship between net returns and the expense ratio. An R2 near -1 indicates a strong relationship between the two variables - expense ratio being the independent - meaning that a high expense ratio is highly correlated with lower net returns. An R2 near +1 indicates a strong direct correlation between net returns and the expense ratio, meaning that active management (higher expense ratio) resulted in a higher after-tax return. If this is true, then active management is worth the price. If the two variables are inversely related, then passive management is highly favored.

The hypothesis is that R2 will be close to -1 for bond portfolios, which are grouped into nine boxes based on their term (short, intermediate, and long) and grade (high, medium, and junk). However, because talented managers can excel in security selection in market timing, R2 is expected to be weaker for stock portfolios, which grouped into nine boxes based on market cap (large, medium, and small) and portfolio strategy (value, blend, and growth). This would suggest that active management makes more sense for stock portfolios than bond portfolios, where a low-cost fund would yield the highest net returns. Trends within each the stock universe and the bond universe will be studied based on their boxes. For instance, is active management more useful in small-cap portfolios than large-cap? Do active bond managers beat the index more often in junk bond portfolios or high-grade? These will be answered in the conclusion, which will review the patterns shown with stocks and bond funds compared to one another and within each.

Anna Belle, Chemistry

Dr. Kevin Chambliss, mentor

Liquid Chromatographic Characterization of 2,4,6-Trinitrotoluene Bound Residues Extracted from Eisenia fetida

2,4,6-Trinitrotoluene (TNT) is a nitroaromatic compound whose chemical stability and comparably safe methods of manufacture make it a common component in military munitions. In living systems, TNT is rapidly metabolized into four identifiable and extractable compounds (2-amino-4,6-dinitrotoluene, 4-amino-2,6-dinitrotoluene, 2,4-diamino-6-nitrotoluene, and 2,6-diamino-4-nitrotoluene) Recent work has established that exposure of model organisms to TNT results in formation of unextractable biotransformation products, commonly called "bound residues." This project was designed to evaluate methods for removal of bound residues from tissue. Liquid chromatography was used in combination with radiotracer analysis to provide preliminary insight into the chemical structure(s) of these now extractable bound residues.

Christian Beltran, Neuroscience

Dr. Jaime Diaz-Granados, mentor

Videogames: Addiction or Excessive Behavior?

Videogames are a phenomenon that have recently caught the world by surprise. However, little is known on the effects of videogames in excessive amounts, 50 or more hours. For this reason, a look into the potential health problems associated with abundant video game playing was necessary, and it was concluded from gathered research that there are dangers associated with excessive videogame playing. From this information it was important to evaluate the possible addictive qualities of videogames, and massive multiplayer online role-playing games and first person shooters, the two most popular videogame genres, were thoroughly examined based on DSM-IV criteria to conclude whether this excessive behavior was an addiction. The examination of this excessive behavior included both motivational factors and physiological factors, ultimately it was concluded that it did resemble the necessary criteria that would constitute an addiction, and therefore the same approach used with other addictions should be used in treatment of this addiction.

Michelle Bolner, Biology

Dr. Kevin Chambliss, mentor

Uptake and Biotransformation of 2,4,6-Trinitrotoluene in the Organism Eisenia fetida

2,4,6-trinitrotoluene, better known as TNT, is a yellow, odorless, man-made solid which was first synthesized in 1863 by German chemist Joseph Wilbrand. Originally used as a dye, TNT was not considered as an explosive until the twentieth century by the German Armed forces. It was favored for munitions during the two World Wars because of its relative safety in handling and high activation energy. Issues surrounding the decimation of aquaculture around areas of munitions testing on military bases led to the cessation of its use. Currently, there is limited understanding of TNT bioaccumulation in terrestrial organisms. This project is intended to investigate whether dermal exposure of a model terrestrial organism results in formation of covalently bound biotransformation products. Carbon 14 tracing was used in the experiments. Results strongly suggest potential for adduct formation in the model, and provides some information on possible methods of removal.

Chris Chung, University Scholar

Dr. Jaime Diaz-Granados, mentor

Update on Current Research of Immunoactivation and Immunosuppression

Since 1990s, it has been recognized that immune system interacts with psychological factors such as stress and anxiety, and as such, many hypotheses were proposed to characterize the general pattern of the interaction. Currently, two of these hypotheses are most prominently recognized and seen as authentic in the research community, forming the immunosuppression and the immunoactivation models. As their names indicate, each model suggests that when an individual is stressed, the individual's immunity becomes suppressed or (overly) activated, respectively. Despite numerous experiments and analyses on these models, however, neither model is conclusive enough to explain observations made from many clinical patients and laboratory animals. The first model – the immunosuppression model – cannot explain the observed increase of granulocytes and excessive inflammatory responses seen in stressed individuals and animals. The second model – the immunoactivation model – cannot adequately justify the mechanism that leads to the hyperactivation of immunity through laboratory data. It may be necessary to consider the possibility that both suppression and activation occur during stress-immunity interactions. In other words, stress, depending on intensity and length of its stimulus, may be causing varied responses in different components of the immune system, and this point could be especially well elaborated with the stress spectrum. The interpretations from the spectrum suggest a more comprehensive perspective about immunity & interactions, and the understanding may be helpful in devising insightful experiments for the topic.

Mary Cienski, Journalism

Dr. Maxey Parrish, mentor

Business Ethics from the Book of Proverbs

Proverbs is perhaps one of the most straightforward and insightful books of practical wisdom in the entire Bible. It speaks to the reality of human nature in both its virtues and vices. The applications of Proverbs seem endless, and they certainly extend to the ethical practice of business. Four virtues that are both prominent in the book of Proverbs and in the practice of Business are justice, generosity, integrity and trustworthiness (specifically the importance of establishing trust). These virtues will be discussed in a general and philosophical sense, and they will also be discussed from the perspective of the book of Proverbs. There are also several corresponding case studies to these virtues that demonstrate either the presence or the lack of these virtues and the result. Such examples include Wal-Mart vs. Costco, Warren Buffet, Exxon and Tylenol. Finally, the discussion of the virtues and case studies will conclude with a discussion of motivation and why, from a Biblical standpoint, one should be good and desire ethical business practices.

Christopher D'Aiuto, Geology / Digital Film & Media Minor

Professor Christopher Hansen, mentor

The Future is Now

200 years in the future, climate change has not only caused shifts in ecosystems but in society as well. This narrative, science-fiction screenplay follows a young man, Alex, who escapes to the city to be apart of something bigger than what he's known. Who are you? Where do you come from? Where are you going? These are the questions Alex faces as themes of identity, paternal relationships and free will play out to a tragic conclusion.

Christopher Eastland, Performance

Professor Lisa Denman, mentor

Director's Approach to Samuel Beckett's Krapp's Last Tape

This directorial study covers the analysis and process of a production of Samuel Beckett's *Krapp's Last Tape*. It overviews the playwright's life, his body of work, and where *Krapp* falls into this spectrum. The study continues with a thorough analysis of the play itself, made in preparation for the production. The process element of the study starts with design for the show and is followed up with the rehearsal process that covers from casting to the dress rehearsals. The study ends with a self-reflection of the successes and failures of the performance and how things could have been avoided during the process of the play.

Katie Gilchrist, University Scholar

Dr. N. Bradley Keele, mentor

Genetic Predisposition towards Anxiety in Rattus norvegicus and Its Effects on Neurochemistry in the Amygdala

Previous research has shown that rats of the same gender and age display variations in fear/anxiety-induced behaviors. Here, we measured the activity levels of male and female rats within an open-field test. High activity within the open field test displays a rat's impulse towards exploration and denotes low anxiety. Conversely, high anxiety rats display thigmotaxic and freezing behaviors. The male and female with the highest activity levels and the male and female with the lowest activity levels were selectively mated. Through selective mating, the degree of genetic predisposition for anxiety in the resulting F1 generations is calculated. In order to determine whether any existing genetic predisposition may present in the form of differing neurochemical levels, samples of the amygdala, hippocampus, and general cortex were taken from each rat of the F0 generation and will be tested for serotonin and dopamine levels using HPLC. These conclusions may be important to the study of genetic predisposition to anxiety in humans.

Ryan Godfrey, University Scholar

Dr. Francis Beckwith, mentor

Abortion in Contemporary American Society

Today in America, few other issues command more attention than abortion. Simply mentioning the word can arouse thoughts ranging from politics, government, and law to morality, philosophy, and religion, but a work covering every single aspect of the abortion issue in America is by far too cumbersome of a project. Thus, the purpose of this thesis is to elucidate and simplify the abortion issue in contemporary America. I have circumscribed the discussion to government, morality, and legal history, and in doing so, certain misconceptions and confusions will hopefully be removed. First, I will address the nature of democratic liberalism as it is manifested in the American government. Secondly, I will address what are considered to be the most persuasive arguments in academia with respect to both the pro-life/anti-abortion and pro-choice/pro-abortion stances. Finally, I will address how the Supreme Court has opined upon the issue in four prominent court cases.

Kevin Goll, Political Science

Dr. David Corey, mentor

Room on the Right: The Differences within Modern Conservatism

The Twentieth Century saw the rise of conservatism as a political philosophy and an intellectual movement in western democracies. This thesis will compare and contrast four prominent strands of conservatism and in an attempt to find a sense of core orthodoxy. It will center around four thinkers and their seminal works – Friedrich Hayek's *The Road to Serfdom*, Michael Oakeshott's *Rationalism in Politics*, Alasdair MacIntyre's *After Virtue*, and Marvin Olasky's *Compassionate Conservatism*. In general, Hayek argues an economic case against central planning; Oakeshott longs for an individualism concerned with the present; MacIntyre desires a return of moral tradition and sense of community; and Olasky offers an Evangelical Christian alternative to the modern welfare state. Each thinker contributes significantly to conservatism while differing profoundly with one another. This thesis does not seek to deem one thinker or type of conservatism more correct or more conservative than another. It does, however, have two main conclusions. In one respect, these various strands are so distinct that it shows conservatism as not having an orthodox core, but rather as being a broad philosophy comprised of many smaller, competing philosophies which sometimes overlap. Additionally, these different strands also suggest a diversity and flexibility not often credited to conservatism.

Gilbert Gonzales, Biology

Dr. Doyle, mentor

Drinking Water: A Human Rights Perspective and a Case Study in Rural Brazil

According to the World Health Organization, of the world's six billion people, at least 1.1 billion lack access to safe drinking water. More than 2 million people, mostly children, die each year due to water-related diseases. This study looks at drinking water as a fundamental human right and the state obligations towards realizing that right. A case study in rural Brazil illustrates that local governments are best equipped to improve drinking water quality and access in rural regions. Effective measures such as youth education and community health fairs teach important water lessons and bring awareness to health needs within the community.

Debbie Goodnight, English / German

Dr. Nancy Chinn, mentor

"[W]here every word is at home": Human Transcendence in Rainer Maria Rilke's Duino Elegies and T. S. Eliot's Four Quartets

In the *Duino Elegies* and *Four Quartets*, early twentieth-century poets Rainer Maria Rilke and T. S. Eliot lament the suffering and limitations of earthly life and seek a means through which humanity can transcend these conditions. Both poets conclude that this vehicle is language: for the non-Christian Rilke, human speech sufficiently achieves this end, while for the Christian Eliot, the only word that can attain transcendence for humanity is *the Word*, Christ. These poem cycles, each written late in the careers of their respective writers, function as their writers' final masterpieces and final contributions to poetic tradition, as well as their final statements on life, death, and poetry itself. In this thesis I shall explore each poem's discussion of the problems of earthly life followed by the solution each poem proposes. I shall also discuss how each poem's solution reflects the personal beliefs of its writer.

Matthew Graham, International Studies

Dr. W. David Clinton, mentor

The Truman Administration and the Creation of the State of Israel

When the United States recognized the State of Israel, President Harry Truman was acting against the advice and wishes of his closest cabinet advisors. This paper explores the reasons behind that schism in the administration, the depth of that tension, and the underlying beliefs of those who passionately pursued Jewish statehood, as well as those who vehemently opposed it. Particular attention is paid to the exchanges between the Truman White House and the State Department, many of which were infused with high convictions. Between the moral weight of the Jewish plight and the pressing concern over the security of the West in an increasingly volatile post-war world, President Truman struggled to find the right solution. Ultimately, it was the internal pressure from Truman's own conscience that convinced him. The scope of this paper limits the inquiry to the several years leading up to Israel's creation on 15 May 1948.

Kayleigh Griffith, Biology

Dr. Joseph D. White, mentor

*The Combined Effects of Fire, Flood, and Drought on *Typha Latifolia**

Typha latifolia is a common, non-native wetland plant frequently found throughout the southern United States and often considered a nuisance. The objective of this study was to examine the re-growth of *T. latifolia* rhizomes following a controlled burn and a period of flood and drought that occurred in the Lake Waco Wetlands during the summer of 2007. Simulated light limitations due to standing water were tested directly by establishing test plots in a greenhouse and using shade cloth. Based on the data gathered, light appeared to be the limiting factor in the re-growth of the *T. latifolia* rhizomes. The statistical analysis performed on the samples gathered from the greenhouse illustrated that the un-shaded plots remained viable for a greater length of time than the shaded plots which rotted prior to the last sampling event. The effects of the fire were inconclusive and more research is needed to determine if fire is an effective management technique.

Gary Guadagnolo, University Scholar

Dr. Wallace Daniel, mentor

The Poet and the Politician: Boris Pasternak, Nikita Khrushchev, and the Struggle for Russian Identity

This thesis explores the development and manifestation of the opposing perspectives of a poet and a politician, and how one with a pen and the other with a podium sought to define the identity of an entire country. The ideological issues at the heart of the conflict between Boris Pasternak and Nikita Khrushchev formed a question of legitimacy that characterized the Soviet era; the Communist Party's attempt to establish and maintain an official worldview that justified the Soviet regime directly challenged any artist who considered a commitment to his or her work paramount over responsibility to the state. Pasternak and Khrushchev entered the Soviet era bearing the influence of different traditions that defined their lives and influenced their reactions to a changing Russia. Pasternak, shaped by the greatest minds of Europe, understood that his identity as a poet committed him to pursuing truth and beauty as his central task; he fulfilled this calling with *Doctor Zhivago*. In contrast, Khrushchev emerged from a poverty-stricken childhood in the provinces and could not help but to grow up and embrace the Soviet hope to create a life fundamentally better than the one he received at birth. In merging historical, sociological, and literary themes, this thesis argues that the conflict between Pasternak and Khrushchev defined the struggle of culture, art, and identity in the Soviet era.

David Hammack, Philosophy

Dr. Todd Buras, mentor

The Dilemma of Foreign Aid: Monochrome Morality in a Technicolor World

The dire humanitarian situation in foreign third-world nations is a well-documented phenomenon, as is Western society's generally poor response to the situation. Though there are some groups that go to great lengths to alleviate the suffering in famine-riddled foreign countries, the United States as a whole has done very little to help those who are in need. Through examination, analysis and critique of philosophical literature on the subject, I will pursue two questions. Are we morally obligated to do something about people suffering in third-world nations? And more importantly, if we are obligated to do so, how far must we go to satisfy that moral obligation? In other words, if we are supposed to give to the poor, how much is enough? By considering previous writings on the ethics of foreign aid, I offer an answer that both motivates individuals towards generosity while offering a practical limit at which our moral obligations are met.

Stefani Hawbaker, Biology / Medical Humanities

Dr. James Marcum, mentor

The Role of Women in Modern American Medicine

Since the beginning of time, women have been characterized as nurturers, caregivers, and healers. One would assume with such inherent qualities, women have the power to dramatically improve the quality of health care in America. However, with men at the forefront of the foundation of modern American medicine, women continually fight for equality not only within medical training, but also within the teaching, practicing, and leading of the medical field. Statistics and numerical data portray now that women represent almost equal numbers as men within many medical schools and residency programs. While women may have close to equal opportunities at the beginning of a medical career, the lifestyle and demands of most specialties in the medical field prove unfulfilling and unrewarding for the female psyche. Women thus retire prematurely from the medical field and never reach their potential of providing and improving quality health care in America.

Martin Hechanova, Biology

Dr. Frieda Blackwell, mentor

Scientific Stagnation in Spain from the Eighteenth to the Twentieth Century

Spain boasts a storied history and a plethora of contributions to literature and the humanities. However, Spain is not often mentioned in connection with progress in the sciences. Benito Feijoo and Gaspar Jovellanos, both eighteenth century writers, addressed the emerging sciences and Spain's lack of interest in the field. Pio Baroja, of the famed Generation of 1898, gives the reader a negative view of the sciences at the end of the nineteenth century. Finally, Santiago Ramon y Cajal, the only Spaniard to win a Nobel Prize in medicine, shows the scientific intelligence of an individual in the twentieth century while still pointing at a Spain lagging behind the rest of Europe and stuck in its strong tradition and heritage. The paramount goal of this thesis is to expose and highlight the lack of scientific progression in Spain from the eighteenth to the twentieth centuries through the writings of some of its key thinkers in this field.

Thomas Herndon, Political Science

Dr. Linda Adams, mentor

Islamic Legal Code and the Role of Women: Are Sharia Law and the Convention on the Elimination of All Forms of Discrimination against Women compatible?

The increasing western awareness of the Muslim world in general and the Arab world in particular, has led to a renewed interest in the nature of the East-West political discourse. In no place is this renewed interest more prominent than in the discussion of the roles of women in Arab culture. In this thesis, I examine first the origins of Sharia law with respect to its Qu'ranic roots and its growth as a corpus of law through interpretation of the hadith. I then move to examine the conflict evident between recognized international law and the Sharia personal status laws that are in force in several Arab states. I conclude that, though some small portions of Sharia law are incompatible with international law, it is, in theory, possible to reconcile much of the Sharia legal code with current international conventions.

Holly Hodges, Biology

Dr. Julie Ivey, mentor

Pediatricians and Patients with Autism and Autism Spectrum Disorders: Diagnostic Practices, Confidence Levels, and Beliefs

The increasing prevalence rate of autism and ASD and the need for early diagnosis clearly have implications for the medical community, especially for pediatricians. A study was conducted among pediatricians in order to gain a better understanding of pediatricians' knowledge and confidence level concerning autism and ASD, along with their diagnostic and treatment practices and their beliefs concerning these disorders. The results of the study of a population of practicing pediatricians were analyzed to determine strengths and potential areas of improvement in pediatricians' training, familiarity, and diagnostic practices concerning autism and ASD.

Tiffany Hsu, Biology and Neuroscience

Dr. Jenny Hsieh and Dr. Tamarah Adair, mentors

Targeting of brain tumor stem cells by novel small molecule

Glioblastoma multiforme is a deadly brain malignancy with a median survival time of one year. Recent discoveries have supported the widely popular cancer stem cell hypothesis, which postulates that many cancers or tumors arise from a stem cell that is relatively recalcitrant to traditional cancer therapeutics. Using a chemical genetics approach, we have conducted a high-throughput screen of more than 200,000 compounds and have identified a novel neurotransmitter-like small-molecule family (isoxazoles, Isx) that specifically targets the CD133-positive brain tumor stem cell (BTSC). One of the synthesized Isx compounds triggers rapid changes in growth and survival of BTSCs that ultimately result in terminal differentiation, as demonstrated by the cells' diminished proliferation and induction of mature neuronal genes *in vitro*. Moreover, the Isx small-molecule acts dominantly to drive neuronal differentiation, even when challenged with pro-proliferative factors, making it an excellent candidate as a new cancer therapeutic agent

Kenneth Ike, University Scholar

Dr. Sang-Chul Nam, mentor

Why is there a lack of translation of basic science Crumbs (CRB1) research knowledge into clinical application?

Research in the basic sciences has served as the primary mechanism for expanding understanding of the natural world and applying the derived knowledge towards practical purposes. After the enlightenment, empirical study was established as both a societal good and a commonsensical method of examination that fundamentally changed the prevailing worldview. Despite numerous groundbreaking advancements made possible through the application and translation of basic science research, today's society undervalues basic science efforts. The source of this undervaluation, specifically in the context of basic science research in clinical medicine, stems from inadequate definitions of what constitutes basic science research, the inability of teaching institutions to keep pace with the tremendous volume of recent discoveries, the difficulty of scientists and physicians to keep pace with new findings and discoveries, lack of interest in basic science research by medical doctors and medical students, and the constrictions placed on practicing physicians due to changes in the HMO system. All of these factors have contributed to major shortcomings in the effort to translate basic science research into clinical application. In particular, the translation of basic science work with the Crumbs (crb) gene, a homolog of Human Crumbs (CRB1), responsible for photoreceptor development in drosophila has suffered from the aforementioned factors. Research findings with this gene show promise for the attainment of a better understanding of its functions and ultimately treatment for diseases that result as a consequence of its deregulation. These diseases include Retinal Pigmentosa and other associated diseases such as Leber's Congenital Amaurosis, Usher syndrome, Bardet-Biedl syndrome, Refsum disease, and rod-cone disease.

Gloria Inyang, Biology

Dr. Darrell Vodopich, mentor

Why We Will Never Cure Cancer

The life threatening disease of cancer has taken the lives of millions and has shown no signs of slowing down. It exists in numerous forms and has invaded many parts of the human body. Why has this disease plagued humans for so long? Why have we not cured it? The approaches that have been taken to curing the disease have always been clinical. Current treatments such as chemotherapy, radiotherapy and surgery, while proving to be effective, are not sound cures to the disease and its many forms. Scientists and physicians have chiefly been concerned with simply curing the disease. They have been medicating patients using practices that have been derived from strictly a clinical standpoint. Rather than viewing cancer from a clinical perspective, it should be viewed from an evolutionary perspective. The primary concern should be focused on why evolution has allowed cancer to thrive at the expense of humans. If scientists and physicians viewed cancer from an evolutionary perspective they would be able to learn the advantages of cancer and manipulate them to the advantage of humans.

Stephen Jannise, University Scholar

Dr. James Kendrick, mentor

Landmarks of Fear: Cultural Reflections in American Horror Films

American horror films are often disregarded, considered as nothing more than genre entertainments, and such condemnations are usually deserved. However, the occasional horror film, made with thought and craft, achieves something more than box office success. The horror film's greatest strength has always been its ability to tap into the prominent fears of a society at any given time and exploit those fears to achieve the ultimate result, the individual recognition and confrontation of those societal fears. American horror films have focused on the culture's ongoing fascination with violence, sexuality, and the postmodern distrust of scientific and technological advancement, and through the years, the culture and its feelings about these issues have often changed. In this thesis, I will analyze several films from various eras in America's history and reveal how each film serves as a landmark for its cultural moment. I will argue that horror's fictional nightmares are completely reliant upon the realistic anxieties of the culture. Above all else, the horror film is interested in reflection.

Sonia Kakade, Biology

Dr. Mary Trawick, mentor

Vascular disruptive effects of various anti-tubulin agents

The difficulty in treating cancer lies in the irregularity of tumor vasculature. As a result, new methods of combating cancer directly exploit the tumor microenvironment. Vascular disrupting agents (VDAs) are a form of anticancer therapy that shut down the blood supply to tumors. Their attachment to tumor tubulin at binding sites causes the depolymerization of microtubules resulting in occlusion of blood vessels to tumor cells and necrosis. This also leads to the development of hypoxic conditions where bioreductive drugs become activated and cause the formation of cytotoxic agents, upon reduction, capable of causing tumor cell death. This study delves into microtubulin dynamics, microtubulin associated proteins (MAPs), and tumor hypoxia, in an effort to understand a number of anti-tubulin agents and their potential anti-cancer and vascular disrupting effects.

Stephanie Kraemer, Marketing

Dr. Kirk Wakefield, mentor

Increasing Consumer Purchasing for Companies with Strong Environmental Associations

There is no doubt that the current market trend for companies is to “go green.” Companies are finding that being environmentally friendly can lead to economic benefits. Not only do companies have the potential to save money, they also have the potential to capitalize on their environmental activities by publicizing them to their consumers. Products featuring environmentally-friendly claims are on the rise, but it is still uncertain what the best format for an environmental claim is. The best format will lead to purchase. In this paper, an analysis of the claims posted on a carton of Horizon Organic milk reveals how purchase decisions for environmental products can be influenced by a person’s familiarity with green products, the guilt level of a claim, or the concreteness of a claim. It also tests if Horizon Organic’s claims can make a person more favorable to purchase organic milk.

Alan Kramer, Political Science / Medical Humanities

Dr. Richard Riley, mentor

The effectiveness of foreign aid from public and private sectors.

Currently the developed world faces a decision, one that leaves billions of lives in the developing world hanging in balance. These developed countries must decide if they will help, and in what capacity, the developing countries reverse their trends of extreme poverty and poor disease prevention. On September 8, 2000, one-hundred and ninety-one countries made a big step in the right direction. The signing of the United Nations Millennium Declaration marked the developed world’s recognition of the problems blanketing the poorest countries of the world. This paper focuses on two of the goals, extreme poverty and global disease, specifically AIDS, Malaria, and Tuberculosis. The scope of these two goals is enormous, combining to afflict 1.45 billion people around the world, with many people playing victim to both. The main question addressed is how this many people can be dying when the developed world has so many programs in place and sends so many resources to help these people. There is a disconnect somewhere and it is costing people their lives. A historical look at foreign aid and a review of the current agencies and programs in place will shine a light on the downfalls of some government policies and recognize the successes of others. Furthermore, an examination of the work being done by non-governmental organizations throughout the world will show how effective aid does not always have to go through the government. The current generation has the opportunity to make a difference for countless generations to come. The United Nations Millennium Development Project helps lay the groundwork, but we must work diligently and relentlessly to make sure the goals are accomplished in the most efficient and effective way possible.

Audrey Lecker, Film and Digital Media

Professor Brian Elliott, mentor

Thirty Pages: A Short Film

There are some subjects with which most people are familiar; making a film is probably not one of them. However, the stories that are told by the film medium are generally relatable to the viewers. They connect with the audience on a visual and visceral level – therein lies the power of movies. *Thirty Pages*, a film project, tells the story of a college student suffering from Writer's Block, a relatable dilemma. He is attempting to write a novel on a subject about which he knows nothing: revenge. A deadline fast approaching, he puts up his best friend to provoking him. Theoretically, this will inspire a novel. However, the friend – ever the over-achiever – takes things to the next level. The focus of the thesis project centers on producing. It is a short film taken through all stages of production: story conception, screenplay writing, pre-production, production, post-production, and then finally a free screening. Every stage is documented from storyboards down to equipment check-out lists and crew schedules. The end result is a product that an audience can not only watch but can see the process of how it came to be.

Sung Lee, Biochemistry

Dr. James W. Henderson and Dr. A. Scott Cunningham, mentors

Ethnicity, immigration status, and the probability of being insured

Access to affordable health insurance is an important social and economic problem in the United States. To better understand this problem this research examines the factors that have the most significant influence individual's health insurance status. Of primary interest is the mechanism whereby immigration and citizenship status affects health insurance status. The research utilizes STATA, version 8.0, to analyze 2006 CPS data. In this paper I use linear probability models to estimate the partial effect of immigration and citizenship status on insurance status. Control variables include demographic and economic characteristics such as income, occupation, ethnicity, and state of residence. Results are clear that ethnicity and citizenship status have a significant impact on health insurance status. Interacting ethnicity and citizenship status reveals that the probability of having insurance falls dramatically for specific ethnic subgroups. For example, non-citizens Hispanics are less likely to be insured than non-citizen whites or non-citizen Asians. The research also examines an inter-generational variable to determine how the probability of being insured changes within the extended immigrant family.

Kyle Lewis, Chemistry

Dr. Charles Garner, mentor

*The Synthesis and Application of Novel γ -Cyclodextrin Derivatives
as Chiral Selective Stationary Phases for Gas Chromatography*

Cyclodextrins are useful in enantiomeric separations, yet only limited synthetic work has been done with them. Several modifications are made to γ -cyclodextrin that will lead to improved inclusion complexation capabilities. These various derivatives will contain a molecular bridge that spans the C₂ and C₃ hydroxyl groups of each glucopyranose unit, creating a structural variation entirely unknown in the cyclodextrins to this point. These additions will also increase the functionality of the chiral γ -cyclodextrin, furthering its ability to selectively encapsulate enantiomers. When applied as a stationary phase for gas chromatography, these enhanced chiral selectors are anticipated to demonstrate significant enantiomeric detection and separation.

Cleyera Martin, German

Dr. Andrew Wisely, mentor

*Just Like Mary or All About Eve: A Tertiary Criticism of Scholars'
Interpretations of the Status of Women in Reformation Germany*

Modern scholars of the English-speaking world have differing, often contradictory, interpretations of whether the Reformation was beneficial for, detrimental to, or had no effect on the status of women in the society of sixteenth-century Germany. Taking the advice of the scholars themselves, I will compare their interpretations of Martin Luther's teachings on women to the teachings of Luther himself, historical records from the period, and first-hand accounts of Catholic and Protestant women. My object is to perform these side-by-side comparisons so that one may see the many different interpretative aspects of this contested topic, with the intention neither to prove who is right and who is wrong, nor to offer the conclusion that the question of women's status in Reformation Germany may never become a point on which people agree. In order to fully understand a matter such as this, many interpretive methods must be employed, and this is exactly the case as it is found in the studies of these scholars.

Courtney Micksch, Great Texts

Dr. Susan Colon, mentor

An Exploration of T.S. Eliot's Four Quartets: Toward a Critique of Modernity

This thesis explores T.S. Eliot's *Four Quartets* and argues that Eliot is implicitly critiquing the modern ethos through his poetry. The thesis draws from Eliot's other poetry as well as his prose in order to elucidate the meaning of *Four Quartets*. The first chapter provides a general overview of the philosophical era known as modernism. By tracing philosophers like Descartes, Hegel, and Comte, the chapter presents the implications of modern philosophy in the twentieth century. Further, the first chapter demonstrates the transition in Eliot's poetry from merely critiquing modern society, to offering an alternative, Christian understanding of the world through his post-conversion poetry. The second chapter focuses upon the modern goal of securing comfort and alleviating suffering through scientific progress. In contrast, Eliot's *Four Quartets* invites the modern human to embrace life as purgatorial and endure suffering in order to be refined. The third chapter critiques the modern concept of progressivist epistemology which leads to a rejection of tradition. Instead, *Four Quartets* incites one to embrace the dynamic nature of tradition, which enables one to rearticulate the truth of Christianity in each philosophical ethos. Thus, T.S. Eliot's *Four Quartets* provides a Christian understanding of the world that enables the modern to transcend the constraints of the contemporary modern society in order to live a fulfilling life.

Tom Millay, Religion

Dr. Paul H. Martens, mentor

Dying to the World in Kierkegaard's Christian Ethic

This thesis examines the writings of the Danish philosopher and theologian Søren Kierkegaard, specifically the concept of "dying to," a prevalent theme in Kierkegaard's corpus. Since a recent trend in scholarship has been to focus on the pseudonymous writings of Johannes Climacus (*Philosophical Fragments* and *Concluding Unscientific Postscript*—both located in the middle [1844 and 1846, respectively] of the timeline of Kierkegaard's writings—cf. e.g. C. Stephen Evans), my thesis will center on *The Concept of Irony* and *For Self-Examination*, both located at the extremes of the timeline of Kierkegaard's writings (1841 and 1851, respectively). The goal will be to contextualize the understanding of dying to, broadening the picture so that a more accurate representation of dying to can be made. The first chapter will focus on *The Concept of Irony*, primarily focusing on Socrates' relation to actuality, but also briefly exploring Kierkegaard's polemical encounter with Romanticism. The second chapter will survey Kierkegaard's texts up to *For Self-Examination*, tracing the theme of dying to. Specific attention will be given to how dying to changes and develops throughout the corpus. The third chapter exposit on dying to in *For Self-Examination*, Kierkegaard's last major publication, in which dying to plays a major role in a specifically Christian way. Anyone familiar with Kierkegaard's writings must acknowledge that a negative movement plays a major role in the corpus; this thesis puts forth this negative movement as dying to, and seeks to establish exactly what this movement consists of, and what ramifications it has for Kierkegaard's Christian ethic.

Natalee Miller, Mathematics

Dr. David Ryden, mentor

Why Do Women Choose Mathematics? A Survey of the Female Mathematician

The lack of women involved in higher-level mathematics is historically and presently evident, and many are puzzled at why so few women choose math as an academic pursuit. There is a seeming disjoint between the world of mathematics (the mind) and the world of the female sex (the body, motherhood). Instead of asking why not, rather, concentrate on the active, more successful side: why *do* women choose mathematics?

Observing the lives of previously successful female mathematicians as well as investigating present-day women reveals the many factors that determine each woman's particular impact on the mathematics community. Early education, parental and marital influences, and other lifestyle choices all contributed to educational and professional promotion in mathematics. In addition, a more in depth analysis examined the psychological and social impact of mathematics on the female gender. In conclusion, there is no one factor that causes this unbalanced condition, but there are many solutions to the prevailing problem.

Kayla Moyer, Medical Humanities

Dr. Michael Attas, mentor

The Physician-Patient Relationship: A Possibility for Change

Relationship exists as an integral component of all societies, influencing every aspect of life. Though variance will exist in participants, structures, and expectations, all relationships possess the ability to produce change. The focus of this thesis will be models of the physician-patient relationship- a relationship that holds great influence not only over the quality of the medical encounter, but also over the outcome of care. The stance of this thesis is that physicians have a responsibility to seriously consider the strengths and weaknesses of the contrasting relationship models, and to purposefully choose the one within which they engage their patients. An overview of common models will be given, divided into three broad categories based on the distribution of power between the two participants: physician-dominated models, patient-dominated models, and mutualistic models. In addition to an overview of the models, an analysis of the practice of Narrative Medicine is constructed. The argument is then made that the narrative approach to the physician-patient relationship has the ability to enhance any clinical encounter. When physicians learn to embrace the narrative technique and to become close readers of the story of illness, the resulting transformation could provide the answer for the prevalent dissatisfaction that is so commonly associated with the physician-relationship today.

An Nguyen, Chemistry

Dr. Mary Trawick, mentor

The Development of an Affinity Column for Purification of γ -GACT

The enzyme γ -glutamylamine cyclotransferase catalyzes the degradation of the ϵ -(L- γ -glutamyl)-L-lysine crosslink introduced by transglutaminase. Substrate cleavage is achieved through the cyclization of the glutamyl functional group, resulting in the concomitant release of 5-oxo-L-proline and free L-lysine. While much is known about how the crosslink is formed, not much is known about how it is catabolized. In order to clarify the exact function and properties of γ -GACT, an effective purification protocol must be established to isolate pure samples of the enzyme for further studies. Previous studies have focused on enhancing the enzyme's purification, but only small amounts of enzyme were obtained. Affinity chromatography provides an appropriate, biospecific method of purifying the enzyme. Based on previous studies, a library of effective inhibitors of γ -GACT have been synthesized and analyzed. From the results, the affinity column will be based upon the best inhibitor at present, glutaryl-n-hexylamine. The remaining inhibitor, glutaryl-n-octylamine, will also be synthesized for kinetic studies.

Roselynn Nguyen, Chemistry

Dr. J. Wesley Null, mentor

From Truth to Efficiency and Back Again: The Decline and Resurrection of Professionalism in Teaching and Medicine

In this thesis, I examine the idea of professionalism in teaching and medicine. This narrative *began* with a conception of professionalism that integrated faith, morality, and practice; *declined* into one that narrowly focused on efficiency and technicality; and has now only recently begun its *present* attempt to return to the once holistic ideal of professionalism that dominated until the mid to late nineteenth century. By first tracing the transformation of curriculum and professionalism within higher education during the nineteenth and early twentieth centuries, I examine how the shift from the “unity of truth” to empirically verified, specialized conceptions of knowledge affected the conception of professionalism that is so prevalent today. I then explore alternative views of professionalism that draw upon the moral foundations of teaching and medicine. I seek to present a holistic concept of professionalism that is rooted in public service. I claim that our society needs to return to focusing on public welfare instead of purely seeking individual gain. By focusing on teachers and education, I argue that teachers must educate the “whole” person as well as aid in the formation of morally-upstanding citizens. This ensures that young people will be prepared to enter into society and serve as the foundation for the various communities that they serve. In the field of medicine, physicians must broaden their gaze and be prepared to recognize not only biophysical characteristics, but also the patient’s emotional and psychosocial contexts in order to treat each patient properly. Identifying values and integrity in a society which unceasingly seeks after productivity and facts disconnected from tradition, I consider how the notion of professionalism in teaching and medicine changes when it is reconnected to its true foundation in faith and morality. Finally, I conclude with future implications for professionalism by linking the moral practices of teaching and medicine to their ultimate ends. I conclude by drawing upon current efforts working to reconnect these practices to a richer, more holistic conception of professionalism, one that seeks to transform and heal, not just make life more efficient.

James Nortey, Philosophy / Criminal Justice

Dr. James Curry, mentor

The Revolving Door: An Examination of Criminal Recidivism and a Proposal for Solutions

Recidivism is the repetition of criminal behavior by previously incarcerated offenders. At the current rate, two out of every three released ex-offenders will return to the prison system in less than three years. The thesis paper will examine the collective factors in both society and the criminal justice system that contribute to the rate of recidivism. I assert that the conditions in most prisons actually exacerbate a prisoner’s chances of successfully reintegrating back into society. Furthermore, the thesis will review policies designed to assist prisoners in acquiring an education, securing employment, finding stable housing, and becoming responsible citizens of society. Finally, I will posit programs and policies that should be employed by combination of government officials, nonprofit organizations, and private agencies to reduce the rate of recidivism. To allow prisoners to cycle in and out of the prison system is a moral and financial calamity that beckons to be remedied. The thesis hopes to provide sufficient solutions that can address these issues.

Jeanine Novosad, University Scholar

Professor Susanne Klawetter, mentor

Gender Inequities in Divorce: The Unique Female Experience

Fifty percent of marriages in America end in divorce, affecting 12,932,000 women according to the 2005 Census. My thesis addresses the unique experience of these women who divorce in America. My first chapter will provide a historical background of divorce in Western Civilization specifically focusing on the rights and treatment of women. My second chapter takes a look at the legal progress in America and the impact of the transition to No Fault Divorce. My third chapter focuses on the effects divorce has on women’s wellbeing in terms of physical and mental health as well as their overall adjustment. My fourth chapter uncovers the economic impacts of divorce on women in comparison to men. As a conclusion the fifth chapter will address how experts believe women can protect themselves legally, emotionally, and financially during and after a divorce.

Nekpen Osuan, University Scholar

Dr. Jerry Park, mentor

The Value of a Home – A Look at the Current Housing Crisis

The U.S. Economy is facing struggles, specifically in the housing market. Record foreclosures and loan dilemmas have forced the Federal Reserve to offer dismal predictions on future outlooks while the debate on equitable lending practices continues. Furthermore, mortgage rates are increasing at an alarming rate and for the first time since World War I, the housing market has more lending value than equity to homeowners. The situation has come to this point for several reasons. This work aims to explore the history of housing policy and lending practice, the current state of present woes, and a analysis of several proposed methods to improve the situation. While Congress, the President and the Federal Reserve understand the root causes from different perspectives, it remains that more must be done to address predatory lending while promoting responsible lending.

Krupali Patel, Biochemistry

Dr. James Marcum, mentor

Enantioselective Organocatalysis in Asymmetric Aldol Condensations

Asymmetric synthesis is used in the preparation of chiral compounds with defined three-dimensional molecular structure. In recent years, stereochemistry, dealing with three dimensional behavior of chiral molecules has become a significant area of research in both industrial laboratories and the academic world. This subject matter is not only a major challenge to the minds of practicing scientists but also a highly fertile field for the development of technologies for the production of high-value pharmaceuticals and agrochemicals. In recent years, profound study has been directed to finding effective and practical methods for the synthesis of pure, chiral compounds. The invention of new modes of catalytic activation is essential for the continued development of the field of asymmetric catalysis. Synthetic chemists have focused on catalysts that are effective, affordable and green to the environment within which they work. Transitioning from the many catalytic metal complexes, recent studies have reported a wide variety of chiral organocatalytic complexes as asymmetric catalysts with high enantioselectivity. Appropriate molecular architecture of these catalysts and suitable reaction conditions can help to enhance the production of enantioselective compounds. In this study, three catalysts, L-proline, L-tryptophan and D-glucosamine, as well as their reaction conditions, will be investigated in order to postulate a schematic method that will efficiently synthesize chirally active aldol compounds. The asymmetric reaction that will be considered is the direct aldol condensation reaction. Through this study, it is hoped that chiral aldol compounds can be obtained in their solid crystal form along with the benefits of high levels of yield, purity and enantioselectivity.

Shivani Patel, Biochemistry

Dr. Sara Alexander, mentor

A Cross-Cultural Examination of the HIV/AIDS epidemic

The interplay of culture, poverty, and conflict in the spread of the human immunodeficiency virus within the African continent and the Indian subcontinent was the topic of my thesis. HIV/AIDS is not limited to the Third World, but the presence of certain factors in developing countries makes the HIV/AIDS epidemic a perpetual cycle that continues to exist generation after generation in these countries. The examination of the African continent, with a focus on South Africa, and regions of the Indian subcontinent has shown that cultural traditions and values, burdening poverty, and civil conflict co-exist to impact the generational HIV/AIDS epidemic. While there are similarities between Africa and India in the spread of HIV/AIDS, differences do exist between Africa and India, which was also studied. Finally, the approaches these countries have taken, and to what extent they have acknowledged the disease is the final area of this study.

Daniel Patterson, University Scholar

Dr. Michael Long, mentor

Chinghiz Aitmatov and the Role of Myth in Fiction

Undoubtedly the best known of Kyrgyz writers, Chinghiz Aitmatov's contributions to the corpus of Kyrgyz, Soviet, and World Literature are not to be underestimated. His works, while mostly produced during periods of censorship by Soviet authorities, were able to retain qualities that appear subversive, both aesthetically and politically. Aitmatov presents fictional tales containing veiled criticism of Soviet cultural and environmental policies. In the depiction of his political and environmental message, Aitmatov makes use of certain motifs drawn from Central Asian mythology. This usage is especially evident in what may be called Aitmatov's masterpiece: *The Day Lasts More Than a Hundred Years*. In this novel Aitmatov also borrows heavily on fictional devices utilized by Gabriel García Márquez in his *Cien años de soledad*. An exploration of this connection illuminates certain aspects of Aitmatov's work.

Andrew Pham, Biology

Dr. Jonathan Tran, mentor

Utilizing Foucault and Kuhn in Describing the Era of Genetic Progress from 1866-1900

Foucault suggests that the formulation of history is an inherently biased venture that seeks to place the past within an acceptable view of the present. This ultimately subjugates what society would consider unacceptable information in favor of the historical occurrences that most accurately fits a proposed and preferred model of history. Kuhn further demonstrates the subjective nature of history by applying it to a model of scientific paradigm formation. He forwards the notion that the specific scientific formation of a particular society directly determines the identity and principles of a new paradigm. I will present the history of Mendel's theory and an anti-history of Darwin's pangenesis in an attempt to demonstrate how these theories operate within the subjective historical and scientific framework proposed by Foucault and Kuhn. It is important to note that this thesis will not attempt to prove that Mendel's theories are wrong or that Darwin's theory is correct, but instead, it will seek to provide a context in which the suggestions put forth by Foucault and Kuhn are applicable.

Katherine Rice, Art History

Dr. William Jensen, mentor

Portrayals of Individuality Among Women in Hellenistic Art

The influence of Alexander the Great's campaign throughout the Mediterranean world was not limited solely to historical, political, or social dimensions, but released significant developments in the Greek artistic tradition which raised an interest in the individual that progressed through Hellenistic and into Roman art. This thesis will analyze the relationship this development had on depictions of women and how they are characterized according to this trend. The thesis will introduce specific notions of the ideal which were promoted throughout much of the Archaic, Classical, and early Hellenistic world, borrowing traditional ideals of physicality from both Egyptian and Polykleitan canons, and expressing these systems of proportion internally through an idealized portrayal of mental balance and stability. It will then focus on the Hellenistic advancement of artistic personification and allegory, as these figures, virtually all female, come to represent an intermediary state not only between divinity and mortal, but also between ideal and individual. Finally, it will conclude with a discussion of genre scenes and the idea that specific aspects of womanhood present both the ideal and the individual woman as an artist's candidate for expressing contemporary social and philosophical concerns.

Eleanor Robinson, Biochemistry

Dr. Larry Lehr, mentor

The Potential of Campus Biodiesel Production

The economic feasibility and efficacy of transforming Baylor's cafeteria waste grease into biodiesel was assessed. The main objectives were: to inventory the supply of waste oil and grease generated by Baylor University's four main cafeterias, assess the suitability of the materials as a feedstock for biodiesel production, and transform representative composite samples of the wastes in order to extrapolate potential yields of biodiesel.

Larry Sandigo, History

Dr. Keith Francis, mentor

Intellectual and Social Secularization of European Society

The secularization of Europe has been heavily debated by historians and sociologists. I have proposed that secularization, as defined by church attendance and participating in religious rites of passage for the purpose of this thesis, is a legitimate force in Europe today, using primary sources, statistics, and writings of the time as proof of the diminishment of religion in first the mind, and then society. Secularization is divided into two different eras: the intellectual secularization and social secularization. The sixteenth through the eighteenth centuries saw the initiation and development of intellectual secularization, which reduced the importance of religion in the European mind. The nineteenth century saw the solidification of intellectual secularization and the beginning of social secularization. The twentieth century saw the culmination not only of the intellectual secularization, but also social secularization, in which religion failed to be a major component of the European life., I have attempted to prove that secularization is indeed a reality in Europe today, having its roots traced all the way back to the sixteenth century.

Megan Schneck, University Scholar

Dr. Robert Piziak, mentor

Hermitian Matrices

In this paper, we present distinguishing features of a particular class of matrices: Hermitian matrices. We begin our discussion of Hermitian matrices by defining the Hermitian inner product and giving facts about this inner product. We also define a norm because this concept is useful when characterizing Hermitian matrices. We prove several results about a norm, including the Cauchy-Schwarz inequality, the triangle inequality, the parallelogram law and the polarization identity. We present algebraic properties of Hermitian matrices and show how to use these properties to generate Hermitian matrices. We also give several trace properties of Hermitian matrices. We use the Frobenius norm as a tool for proving these facts. We also discuss the properties of a special Hermitian matrix, the Gram matrix. And, lastly, we prove facts about the eigenvalues and eigenvectors of a Hermitian matrix. We conclude this discussion of Hermitian matrices with proofs of the Rayleigh-Ritz theorem and the Courant-Fischer theorem.

David Sergeant, Biology

Dr. Kenneth T. Wilkins, mentor

The Effects of Fire on Vegetative Species in Grassland and Wooded Communities

Vegetation was assessed along 18 transects used for small mammal trapping before and after a prescribed burn of Leonhardt Prairie in Falls County, Texas. The effects of the fire on the vegetation was assessed by: 1) conducting a survey of the cover provided by different plant species; 2) counting the number of stems present among edge transects in a 1-meter radius around each plot; and 3) calculating the amount of ground area taken up by these woody stems in a 1-meter radius around each plot. Analysis of the data using Statistical Analysis System (SAS) allowed effective comparison of the effects of fire between each transect and habitat of the prairie. It was found that fire effectively destroyed most grasses and forbs, but failed to destroy the encroaching woody species of the wood, edge, and grassland habitats. While cover was dramatically reduced in the grassland and edge habitats, the fire stopped at the edges and did not enter the woods. Overall, the number and biomass of woody stems was preserved through the fire. Therefore, fire was an effective means of reducing cover in grassland and edge habitats but was not effective in reducing the count or biomass of woody stems.

Ankit Shah, University Scholar

Dr. Shane Prochnow, mentor

Geospatial Mapping and Analysis of Melanoma Incidence Rates across the United States from 1999 to 2003

Melanoma skin cancer is one of the greatest causes of cancer mortalities in the U.S. It has puzzled researchers due to its compound etiology of genetic and environmental factors. This study aims to use Geographic Information Systems to visualize melanoma epidemiological trends and assess the impact of geospatial factors, such as ultraviolet radiation and racial demographics, on melanoma incidence trends within the United States. Through data visualization and geostatistical analysis of state incidence, UVI, and demographic data, links between race and melanoma incidence have been postulated while links between UVI and melanoma incidence have been largely discredited.

Yasaman Shirazi-Fard, Mechanical Engineering

Dr. Brian Garner, mentor

Biomechanics of the Shotokan Karate Reverse Punch

The purpose of this study was to quantify the biomechanics of the Shotokan Karate reverse punch. The focus of this study was to identify any correlations between strike performance and various subject-specific parameters, and to analyze the dynamics of the punch such as velocity, acceleration and other derived variables. A series of experiments were conducted to record the motion and measure forces produced during various reverse punches. An apparatus consisting of a padded target mounted onto a fixed base via a force-sensing load cell was constructed and a video motion capture system was used to record and track the motion.

The results from these experiments showed no correlation between experience and the force produced by the subject. However, the more experienced subjects had a consistent punching velocity and there was a positive correlation between the force and the grip strength. In addition, there was an overall positive correlation between the force and mass of the arm and the force and the generated power. This study helps overcome the dearth of available quantitative data describing the mechanics of karate techniques. Understanding how all karate techniques use only few primary physics principles increases efficiency of learning karate. The results should provide insights for optimizing the performance and training of the reverse punch.

Will Simmons, Political Science

Dr. David Corey, mentor

Four Arguments for Liberalism

In the modern political climate, the fierceness of competing parties and policy options often obscures the underlying cause of political disagreement: differences in fundamental philosophies. This thesis attempts to address the need to discern the best political philosophy if one is to participate in the political arena. In this thesis I advocate a political philosophy of classical liberalism. I examine four distinct – and sometimes incompatible – arguments for an understanding of the role of government and ordering of society based on liberty. To do this, I examine the major works of some of the most influential political thinkers of the liberal age. I conclude that individualism and liberty – in short, liberalism – are the best values to have in mind when formulating policy, whether one’s point of view is logical, economic, social, or religious.

Kathryn Simpkins, University Scholar

Dr. Robert Miner, mentor

*From Fear to Joyful Obedience: Considering the Categorization of Fear by
Thomas Aquinas and John Bunyan and One's Response of Obedience*

The purpose of this senior thesis is to examine the nature of the fear of the Lord by consulting Thomas Aquinas in Question 19 of the Secunda Secundae of the Summa Theologiae and John Bunyan in *A Treatise of the Fear of God*. In the first chapter, I examine Aquinas’ thoughts on the fear of God along with the proper object of fear, namely God, and the categorization of fear into four aspects. I follow this chapter with John Bunyan’s treatment of fear, again, by considering the proper object of fear, who he also believes to be God, and his four categories of fear. Though both Aquinas and Bunyan are very aware of the way we ought to view God as the object of our fear, they do differ somewhat in their treatment of how fear should best be categorized; however, both treat filial fear, in which I am primarily interested, in a similar way. After examining Aquinas’ and Bunyan’s assessment on the nature of fear, I consider the implications of how filial fear relates to one’s carrying out of God’s commandments and ordinances.

Emily Spangler, Biochemistry

Dr. Eva Doyle, mentor

Finding a Lost Generation: A Study on Adolescent Health Care in Latin American Developing Nations

Every minute, six young people below the age of 25 become infected with HIV. Over one-sixth of the world’s population is considered adolescent, and 85% of this group resides in the developing world. Yet, despite the sheer volume and critical health needs of adolescents worldwide, the global healthcare community has only recently begun to recognize the importance of reaching out to this key generation before it is too late. Risky behaviors that lead to a lifetime of disease and poverty are most preventable at this pivotal age and the greatest need for adolescent health care is found in the developing world. The purpose of this study was to apply the PRECEDE/PROCEED model in identifying factors that contribute to HIV infection and teen pregnancy in the developing Latin American world, and develop recommended strategies for addressing these problems. The specific focus was on programming in Costa Rica and Honduras, two countries with similar needs and capacities. Published research and position papers from government health organizations, the World Health Organization, and the Pan-American Health Organization were used as primary resources. Though there are no simple solutions to this worldwide problem, recommendations included in this thesis may be a place to start.

Erin Stewart, Classics
Dr. Simon Burris, mentor

Loyalty from Like-Mindedness: An exploration of motivations and behavior in The Odyssey

A pillar of Classical literature, Homer's *Odyssey* reveals much about ancient Greek society and culture. This thesis explores the motivations of familial loyalty, a common theme throughout the epic. The obligation to avenge and protect seemingly arises from like-mindedness, specifically in the examples of fathers and sons as well as in husbands and wives. The Cyclops Polyphemus displays strikingly similar characteristics to those of his father Poseidon, whom he has never met, just as Telemachus mirrors his long-lost father Odysseus in ways he does not realize until they are reunited. These same tendencies can also be observed in Odysseus' relationship with Penelope. This thesis argues that it is this commonality of thought and behavior that prompts the need for vengeance and justice; clearly in Homer's world, much like in the contemporary world, reformation of loyalty cannot occur without pain and struggle.

Matthew Stratmann, Biochemistry
Dr. Charles Garner, mentor

The Synthesis and Proposed Activity of Anti-Mitotic Azulene Derivatives

Since their discovery in 1863, azulenes have amazed chemists with their brilliant colors and unique electronic properties. These unusual aromatic ring structures have been shown to exhibit a variety of uses ranging from their incorporation into anti-inflammatory medications to inorganic technology. However, more recent research has suggested that azulene derivatives may have potent anti-mitotic action against proliferative tumor cells. The azulene bi-cyclic ring system also bears striking structural similarity to the powerful anti-mitotic agent known as colchicine. Through the use of computerized modeling and molecular docking programs, it was possible to predict the substituents and structural properties necessary for colchicine to interact with the $\alpha\beta$ dimer of tubulin, a key mitotic protein, and build an azulene derivative theoretically capable of binding in the same manner. In this study, we propose a method by which this azulene derivative may be produced and make considerable progress in its actual laboratory synthesis.

Mary Thurman, Biology
Dr. Terrill Saxon, mentor

Exploring Music's Effect on Cognitive Development in Children

Among current educational issues for children lies the topic of music and its effect upon children's learning, cognitive, and motor development. The Mozart Effect serves as one starting point for this topic. Are there sufficient and justifiable reasons to believe that music can enhance the learning environment of young students? If so, under what circumstances does music affect the mind? What are the different ways in which students can incorporate music into their academic curriculum, and what are the various factors associated with this correlation? There is a supple amount of information through research concerning music and cognitive development that has explored these questions in various depths. Through my thesis, I am presenting a literal review and analysis of the research that has been done and the answers that have been found to these questions and others as well. In an attempt to thoroughly and accurately present the material, I will address both the truths and fallacies behind the argument that music has a positive effect upon children's learning development.

Chidinma Star Tiko-Okoye, University Scholar

Dr. Jennifer Good, mentor

*An analysis of the socio-political effects of Turkish Guest-worker and
Asylum-seeker immigration to post-WWII Germany*

Following World War II, Germany recruited millions of Turkish Guest-workers to aid in its reconstruction. Although regulations were designed to ensure that the workers would not overstay their welcome, most employers neglected to enforce these due to the cost of hiring and re-training new workers. Turks, many several generations in Germany by now, currently represent the largest minority presence in Germany. That continued presence has been a source of much social and political discourse. In the first chapter of my thesis I document the historical introduction of the Guest-workers. My second chapter introduces the mass immigration of Turkish asylum-seekers into Germany and discusses the political and social responses to these immigrants. My final chapter reviews the evolving laws through which Germany has tried to reduce its growing number of immigrants and concludes with thoughts on the future of Turks in Germany.

Sara Urbanek, Art History

Dr. Heidi Hornik, mentor

Andrea del Sarto: Innovation and Influence in Early Cinquecento Florentine Painting

The "great masters" of the High Renaissance and the Baroque periods of history have overshadowed many artists who lived early in the Sixteenth Century. Seldom do the Mannerist artists, who lived between these two periods, receive the credit they deserve for continuing to push the stylistic transformations that the Renaissance artists had begun in the late Fifteenth Century. This thesis will present the current state of the research (English scholarship only), discuss the life of, and describe the oeuvre of the Mannerist artist, Andrea del Sarto (1486-1530). It will explain how Andrea was ahead of his time by showing how his work was creatively more innovative in style and iconography than other contemporary artists: Fra Bartolommeo, Mariotto Albertinelli, Jacopo Sansovino, and Franciabigio. Finally, it will explore the unique relationship between Andrea and the Early Mannerists, demonstrating his influence on later 16th century artists.

Jacob Van Houten, University Scholar

Dr. Myeongwoo Lee, mentor

A Review of C. elegans Ovation and Fertility and the Interactions of IP₃ and EGF signaling

C. elegans, a free-living soil nematode, has proven an excellent model to studying the complex biological and biochemical mechanisms of cell signaling. This thesis provides an overview of the reproductive development and reproductive mechanism of this animal. First, I provide important background information about the basic structural and functional components of *C. elegans* reproductive system. Then, I focus on two biochemical pathways, namely IP₃ signaling and EGF signaling, discussing the role of each in gonad development, gamete production, and control of the reproductive process.

Pamela Vo, Physics

Dr. Anzhong Wang, mentor

Highly Efficient Numerical Simulations and Current Acceleration of the Universe in String Theory

The currently accelerating expansion of the universe was discovered observationally in 1998. In order to explain this acceleration, an exotic component of matter has to be introduced in the framework of Einstein's theory of gravity. This component is usually dubbed "Dark Energy" (DE), and a simple model of DE is the cosmological constant. Combining the public Minit program of CERN and numerical programs developed here at Baylor by Dr. Wang's group, I first check two methods of fitting data (the newest supernova Ia data, Baryonic Acoustic Oscillation (BAO) data, and WMAP data) to the standard LCDM model. The use of χ_m^2 is found to be more efficient, and this method is then applied to cosmological models in string theory, recently developed by Dr. Wang and N.O. Santos [arXiv:0712.3938, 2007], to find values for Ω_m , Ω_k , and Ω_Λ . The generalized Friedmann equations are then evaluated, and all Ω 's except Ω_Λ are found to decrease rapidly. As a result, Ω_Λ soon dominates the evolution of the universe, and an exponentially accelerating universe results.

Angela Wang, University Scholar

Dr. Joyce Nuner, mentor

Futility Treatments in Neonatal and Pediatric Intensive Care Units: Ethical Considerations

This thesis seeks to examine the intricate nature of futility treatments through the lens of bioethics. Futility treatments are treatments that present patients with no net benefit and their primary function is to extend the dying process. The specific areas of focus include the legal, economic, and interpersonal aspects behind this medical dilemma, specifically within the context of neonatal and pediatric intensive care units. With the recent advances in biotechnology, medical decision making has become increasingly difficult, involving more parties ranging from the medical staff to families and insurance companies to the federal legal system. Some conflict is inevitable when so many parties are involved. The resolutions to these conflicts warrant discussion. The best interests of the patient must be the primary consideration of each individual party. Suggested approaches to decision making and conflict resolution are thus included in this thesis as well.

Stephanie Wanha, Neuroscience

Dr. Diaz-Granados, mentor

The Role of Gonadal Hormones in Gender Differences in Schizophrenia

Many gender differences in schizophrenia exist in the prevalence, onset, symptomatology, and treatment response of the disease. Gonadal hormones are crucial to differentiating male from female in early fetal development, requiring a balance between androgens and estrogens for a normal outcome. When the balance of gonadal hormones is upset in this important period in development, multiple changes occur in mood, cognition, and behavior, causing individuals to deviate from their gender's normal phenotype. Although the etiology of schizophrenia is still unknown, many studies have shown that the gender differences with which this illness presents is highly correlated with an imbalance in gonadal hormones like estrogen and testosterone. Understanding the extent to which gonadal hormones play a role in gender differences in schizophrenia could yield further understanding in the etiology of the disease and provide valuable information in developing more effective treatment.

Shawn Warner, Language and Linguistics

Dr. Clay Butler, mentor

What's So Funny? Laughter in Coping with Disagreement in Conversation

This paper discusses how laughter is used to cope with conversational problems called face-threatening acts (FTAs). Feelings of rapport are closely related to the maintenance of face wants in conversation (Spencer-Oatey, 2005), and an FTA creates tension that threatens this sense of rapport. The positive, humorous associations of laughter create a playful frame that is less serious and less threatening than the one created by the FTA, and laughter also reframes the FTA as something potentially humorous. After discussing the functions of coping laughter, three examples will be given that demonstrate how laughter is used as a resource to respond to FTAs. The examples show how laughter can defuse a disagreement, reframe a tense situation as less serious, and smooth over conversational and relational problems that arise with FTAs.

Amanda Weppler, University Scholar

Dr. Robert Miner, mentor

Is Great-Souledness a Virtue? Pagan and Christian Views of Aristotle's Great-Souled Man

The great-souled man in *Nicomachean Ethics* IV.3 has often been regarded with censure, some deserved and some unwarranted. I have endeavored to identify the possible flaws of the great-souled man and show whether or not these characteristics are truly vices. Many common criticisms of great-souledness are the result of a poor reading of Aristotle's text. In order to understand the great-souled man properly, it is necessary to situate him within the *Nicomachean Ethics* as a whole, which is a well-ordered system. There are, however, also perceived flaws of the great-souled man that can only be answered partially with the resources of the *Nicomachean Ethics*. The *Summa Theologiae* helps reconcile great-souledness with Christianity by transforming Aristotelian great-souledness into a Christian great-souledness. In this thesis, I also examine the tradition of criticism on great-souledness in light of a close reading of Aristotle and Thomas Aquinas.

Rachael Wilson, International Studies

Dr. Daniel Payne & Dr. Christopher Marsh, mentors

The Response of the Serbian Orthodox Church to Ethnic Cleansing

Incidents of Ethnic Cleansing in Bosnia and Kosovo during the late 1980s and early 1990s were often surprisingly supported by religious leaders. Although many researchers have examined religious nationalism in the Balkans, with scathing critiques of faith groups, there are few works regarding the positive role of religious institutions during this time. This case study of the Serbian Orthodox Church offers a brief history, shows a dichotomy within the church responding to ethnic violence of the time, and presents various efforts of Serbian Orthodox clergy toward peacemaking throughout the Bosnian War and the war in Kosovo.

Rickesha Wilson, Biology

Dr. David Eldridge, mentor

The Role of Opioids in the Inflammatory Responses of Leukocytes

The Metabolic Syndrome (MetS) is a combination of medical disorders increasing the risk for cardiovascular disease and Type 2 diabetes. Since neutrophils are first responders during acute inflammation and functionally limit tissue damage, neutrophils may be an early at-risk marker for MetS progression into diabetes, coronary artery disease, and stroke. Myeloperoxidase (MPO) is a key lysosomal enzyme within leukocytes responsible for the production of cytotoxic chemicals that help to sterilize injured tissue areas. If left unchecked during ischemia, this activity may prove harmful during the leukocyte inflammatory response. Enkephalins (endogenous opioids) may modify leukocyte MPO production by negative feedback and reduce possible damage. Individuals affected by MetS, however, may not benefit from opioid protection due to hyperactive neutrophils, limited opioid release, or inappropriate responses to opioid regulation through impaired receptor signaling. Thus leukocyte and enzyme activity were tested under multiple conditions. Blood was drawn from fasting human subjects, and their health status was determined. A glucose drink (75g) was given as a potential inflammatory stimulus, and blood samples were collected again after 30 minutes. Isolated cells were then treated with lipopolysaccharide (LPS), met-enkephalin, or a combination of each. When stimulated with LPS alone, leukocyte MPO activity was unchanged. MPO response may increase following glucose challenge. Higher doses of enkephalin may modify MPO activity differently after exposure to oral glucose in control samples. Thus the opioid regulation of inflammatory cells in different glycemic states may provide a potential avenue to study inflammatory responses in chronic disease states.

Shadi Zumut, Forensic Science

Dr. Rizalia Klausmeyer, mentor

Observations of the Effects of Caffeine and Dextromethorphan in Artificial Foodstuff on the Development of Chrysomya rufifacies and Implications of This Effect of the Estimation of Post Mortem Interval.

One of the most important concepts of forensic science is the post mortem interval (PMI). This is the estimated amount of time that the victim has been dead. The PMI then is often heavily reliant on insects. Forensic entomology is the study of insects within a legal aspect. The developmental patterns of insects have been extensively studied and are readily predictable. Forensic entomotoxicology can be further distinguished by studying the effect of various toxins on insects within legal studies. Entomotoxicology studies the application of toxicological analysis to carrion-feeding insects in order to identify drugs and toxins present on intoxicated tissues. Entomotoxicology also investigates the effects caused by such substances on arthropod development in order to assist the forensic PMI estimates. This experiment tests the effect of caffeine and dextromethorphan on the development of *Chrysomya rufifacies*. The experiment is modeled after Dr. M.L. Goff's experiments with the artificial food taken from Dr. Lord's experiments. No results were found to compare discuss the implied effects on PMI due to complications in fly rearing.

OTHER SPRING 2008 GRADUATES

Kevin Giddens, Speech Communication

Dr. Karla Leeper, mentor

Windrik Lynch, University Scholar

Dr. Linda Olafsen, mentor

Andrew Milne, Computer Science

Dr. Aars, mentor

Megan Pinney, Philosophy

Dr. David L. Jeffrey, mentor

SUMMER AND FALL 2008 GRADUATES

Laura Baker, Medical Humanities

Dr. L. Joseph Achor, mentor

The Influence of Music on Human Emotions

Music is an integral part of the life of every person and it interacts with us in more ways than we realize. The popular 'Mozart effect' claims that Mozart's music can temporarily increase brain activity, but the lasting effects are currently unknown. Analysis of the changes and differences in studies involving music association may more directly prove advantages of listening to music. Music affects the areas of the brain that deal with pain and somatosensory systems. Patients with variant levels of dementia benefit from the rhythm of music. Studies of the differences in brain structure between musicians and non-musicians have helped to pinpoint areas that are involved in music training as well as other developmental aspects of the brain. Music can effect how emotion is handled within the anatomy of the brain and how emotion is altered. Certain emotional states are known to be influential on other brain activities and since music has an influence on human emotions, it can affect activities in everyday life. Over time, changes such as these may lead to an increase in overall health or have an effect on patients with various disorders.

Benny Barrett, Great Texts

Dr. Peter Candler, mentor

Christus Victor: Anthroposis in Athanasius' theory of the atonement

Why did Christ have to die and what did his death accomplish? Or more specifically, what does the work of Christ do for fallen humanity and how does this take place? Though not always explicit, these are the questions that underlie the writings of the early church fathers. The patristic style of presentation, answers these questions without abstracting or separating them from the Christian drama, the life of the Church, and other theological ideas. Athanasius the Great, who is best known for his defense of Christian orthodoxy against the Arian heresy, began his theological career with his theological essays, *Against the Heathen* and *On the Incarnation of the Word*. These works are particularly concerned with the above questions and offer a very different articulation of Christian ideas than that of Medieval scholastics and the Western theological tradition which follows.

Using Aulén's *Christus Victor* as an entranceway into patristic interpretation, I shall attempt to demonstrate how St. Athanasius of Alexandria treats the question of the efficacy of the Incarnation of the Word on the salvation of the world. Following an exposition of his text, I shall explain how he believes the salvific work of Christ conquers death and brings about new life and order in the cosmos by referring to the patristic idea of *theosis*. Then I shall focus on how Athanasius relates this to human anthropology by exploring the possibility of a Christian *anthroposis*, or how Athanasius presents the Incarnation of the Word as making humanity truly human. I shall argue that the process of *anthroposis* offers a comprehensive synthesis the two dominant contemporary views of the atonement and shall conclude by pointing out how this is illustrated through the liturgical life of the Church.

Nathan Bingaman, Great Texts

Dr. Douglas Henry, mentor

The Nature of the Good in Boethius' Consolation of Philosophy

The *Consolation of Philosophy* has influenced readers since medieval times. Written in Latin by a Christian Roman senator, Boethius, under the Gothic king Theodoric, it has been translated and widely read by many, from King Alfred to Chaucer. Within the text is a theodicy given by the character of Lady Philosophy. Her theodicy includes the formulation of a true happiness and Good, which is seen to be God. Most readers have assumed that Boethius, as he composed the text, was giving his own personal view in the words of Lady Philosophy. But within the text is another character with which the reader may identify, Boethius, who has recently come into disgrace and impending execution. Boethius *qua* character in the text, must be brought along to regain his former composure of mind and see things in the light of philosophy. This Good, also God, is the thing in which his true happiness is to be found. This endeavor, to return Boethius to his former philosophical repose, is nevertheless unsatisfactory. Lady Philosophy is regularly rebuffed and frustrated in her treatments, and Boethius *qua* character never finds the resolution of soul, one might daresay consolation, that philosophy offers. Indeed, reading in light of a Christian formulation of the Good, the frustrations of Lady Philosophy and the dissatisfaction of Boethius lead the careful reader to this conclusion: Lady Philosophy makes a case for the Good which is valid, well-founded, and well-spoken but nevertheless not the perfect account which may be found in Christianity.

Patricia Cowling, Forensic Science and Biology

Professor Max Courtney, mentor

Effects of Time, Environment, Light, and Surface on the Deterioration and Enhancement of Bloody Fingerprints

Fingerprints made in blood at a crime scene can potentially offer a great deal of information since useful data may be obtained from the blood aspect and the fingerprint aspect of the evidence. DNA analysis can be performed to yield even more individualizing information. In this blind experiment, bloody fingerprints were deposited from randomly-selected fingers onto various types of nonporous surfaces. These surfaces were then exposed to different light and temperature conditions in 4-month or 8-month intervals. The bloody prints were then stained with Amido Black and examined. Identification of the fingerprints was attempted to determine possible correlations between different environmental combinations and the rate of positive fingerprint identification. This study found that Amido Black enhancement was successful for bloody fingerprints aged up to 8 months and positive identifications were made for prints aged in various environmental and time conditions.

Serena Fast, Political Science

Dr. Jerold Waltman, mentor

Vulnerability in Technology: Privacy, the Internet, and the PATRIOT Act

The thesis examines the existence of the right to privacy not only inherent in the Constitution but also in Supreme Court case law over history. Using this as a foundation, I go on to scrutinize the effectiveness of this right in regards to the internet. While the right is not explicitly included in the Constitution, several of the amendments in the Bill of Rights hint at the framers understanding and inclusion of the right. Most specifically, the 3rd, 4th, 9th, and 10th amendments contain solid protections for the privacy of American citizens. My research starts with these amendments and then goes on to examine case law starting with *Weems v. United States* (1910) and *Olmstead v. United States* (1928) and ending with *Roe v. Wade* (1972) and *Pottawatomie v. Earls* (2001). I supplement these cases with those specifically dealing with the issue of privacy on the internet and studies of internet privacy laws and their effectiveness. Finally, I turn to the most essential question for my research: What is the federal government doing, or not doing, to protect American citizens' right to privacy while online? By looking in depth at the USA PATRIOT Act and other laws passed by the federal government, I conclude with the idea that not only is privacy online not being adequately protected, but that many of the intrusions experienced on the internet are the results of governmental intelligence gathering in the name of homeland security.

Jessica Folwarczny, Forensic Science

Dr. Lori Baker, mentor

Examination of a postmortem skull.

The Waco Police Department were called out to a scene and discovered a human skull buried in the ground. With no leads, they sent the skull to Dr. Baker. Using forensic anthropology skills and knowledge of osteology, I will try to determine the age, sex and ethnicity of the person using a skull. Moreover, I will try to discern any antemortem, perimortem, and postmortem trauma. First, I will use the procedures for the entire skeleton then narrow into the procedures for using a skull.

Lindsey Gilbert, University Scholar

Dr. Bryan Brooks, mentor

An Examination of the Ecological Crisis in the Aral Sea

For many years Kazakhstan and Uzbekistan existed as part of the Soviet Union. Many governmental decisions made during that time still affect the citizens and member of the new governments. The Aral Sea is a large body of water landlocked by Kazakhstan and Uzbekistan. Due in large part to improper irrigation practices, the Aral Sea has shrunk to significantly less than half its original size over the last fifty years. This has resulted in an increase in salinity and decrease in water available for crop production. Furthermore, high levels of a variety of chemicals have been identified in food, water, and breast milk. Certain compounds have been identified at levels surpassing those considered safe. Other chemicals are found at safe levels but may have an additive effect. As the environmental health crisis continues to unfold, it is becoming more apparent that significant ecological and human health impacts will result.

Salif Mahamane, Psychology

Dr. Wade Rowatt, mentor

The Effect of Photographic Depictions of Natural Landscapes on Positive/Negative Mood Affect and Humility

This study examines the effect that photographs of nature, from Earth to outer space, have on humility and mood affect as reported by participants. There were two conditions (slideshow, $n = 42$; no slideshow, $n = 44$) in which participants completed a self-report survey at different points in time. In the slideshow condition, participants completed the survey online upon sign up, completed only the PANAS (an assessment of positive/negative mood affect) just before the presentation, and completed the survey again immediately after the presentation. In the no slideshow condition, participants followed the same order with the exception of viewing the slideshow. Results showed no significant change in positive affect, but a decrease in negative affect and an increase in humility.

Victoria Mgbemana, Biology

Dr. Tamara Rowatt, mentor

Let's Be Friends: Studies in Unrequited Love and Rejection

This study investigated reactions to rejection strategies in unrequited love situations. 232 participants were presented with scenarios and told to imagine that they approached a person they were romantically interested in and rejected by that person. Participants were asked to report their perceptions and emotions to the presented scenarios. The study focused on responses to four rejection strategies, including: 1) being told that they were too different 2) being told that the rejector was not ready for a relationship 3) being told that they could be friends 4) being avoided altogether. Results showed that both genders felt annoyance from being avoided altogether. Participants were less likely to report guilt, however, in approaching the rejector in the first place. Friendship was still desired, regardless of the rejection strategy. Results ranged from disagreement to agreement when asked if the rejector regarded the feelings of the participant.

Anna Morton, Engineering

Dr. Walter Bradley, mentor

Dry versus wet Coconut Oil Processing and its Application to Farming Communities in Ibajay, Philippines

Ibajay, Central Philippines: Five years ago, a group of coconut farmers decided to stop selling their copra (raw material for coconut oil) to the Chinese and instead process and sell their own coconut oil locally. Now the farmers can send their kids to school, repair typhoon damage to their huts, and feed their families more protein. This thesis compares two processes for village level coconut oil production with the hope of finding an optimum process for other coconut farmers to replicate. Field research from the coconut farmers in Ibajay is used along with a series of in-house experiments to compare the dry process and the wet process of oil production. In the dry process, the copra is dried and then the oil is pressed out. In the wet process, the copra is pressed and then the mixture cooled until the oil phase separates from the water. The dry process produces more oil per nut, but the wet process produces higher quality oil that sells for a better price.

Huma Patel, Philosophy

Dr. James Marcum, mentor

Humanizing Medicine: The Effectiveness of Narrative Medicine

The relationship between the physician and the patient has faced many changes over the past few decades. This change is largely due to the shift of physicians that choose to take a biomedical approach. Through the biomedical approach, the patient is reduced to his or her illness and is seen as a mere body rather than a true person. However, some physicians practice are able to keep the human aspect in medicine. It is through narrative illness that a physician is not only best able to treat the patient as an actual person, but is also able to treat the illness in an effective manner. Narrative medicine allows for a complete and whole examination on the part of the physician, leading to better care of the patient and prompting the patient to take part in deciding what treatment plan, if any, would be best for the healing process.

Sharda Selman, Forensic Science

Dr. Lori Baker, mentor

Sexual Dimorphism in the Cranial Morphology of African Apes and Humans

Knowledge of sexual dimorphism in extant hominoids bears upon the determination of the sexual attribution of fossil material and the study of sexual dimorphism in fossils. Furthermore, this draws upon the presumed parallels in the sexual dimorphisms of living species. In this study the sexual dimorphism in the male and female crania of Gorilla gorilla, Homo sapiens, Pan paniscus and Pan troglodytes will be examined. This study primarily focuses on the variations of each species solitarily based on sex. A number of methods have been employed in order to accurately analyze the variation due to sex. For example, a general procrustes analysis (GPA) facilitates the removal of all variations within each species such as shape, size, and translation. Following the removal of all variations other than sex, each coordinate of the landmarks relative to each species are oriented within the same shape space. Research shows that Gorilla gorilla exhibits the most variation due in comparison with the other species. Pan paniscus is the second highest with half as much sexual variation as Gorilla gorilla and Homo sapiens is the least dimorphic. The shape differences manifest in a relative increase in facial prognathism in males. Gorilla gorilla exhibits an oblique stretching in the anterior of the face which significantly contributes to its large variation percent. The differences in details in regards to sexual dimorphism such as intraspecific and shape differences are thoroughly studied throughout this study. In addition, how shape difference and the angles between sexual dimorphism correlate, what significance in shape difference suggests about sexual dimorphism, and which biological features suggest about the relation between humans and chimps will also be discussed.

Richard Shelton, Biochemistry

Dr. James Marcum, mentor

The Growth of Grassroots

The Growth of Grassroots is comprehensive summary of political campaign mediums. It provides an analysis and insight of local Texas politics. In particular the paper focuses on the campaign techniques used by the candidates in the Texas House 2007 special election. In District 97 a sampling of seven candidates with similar social backgrounds and political views ran in a Texas District consisting of a fairly uniform demographic. Thus, via an analysis of the campaign strategies used by each candidate it is possible to suggest which campaign techniques are most effective in a political election.

Tamara Stringer, Child and Family Studies

Dr. Joyce Nuner, mentor

Autism: Some Crucial Players in Early Intervention

The increased prevalence of autism has been a popular subject in recent years. A large contributor to the spike in prevalence of autism spectrum disorders is the broadening of criteria under which autism is diagnosed. With the increase in diagnoses of autism, there has been substantial research on the effectiveness of early intervention efforts with children with autism. Research suggests that early and intensive intervention increase the functionality of individuals with autism spectrum disorders. This thesis project will review the literature regarding early intervention and provide perspective of early intervention for parents, professionals, Christian church staff, and Christian church congregations.

OTHER SUMMER AND FALL 2008 GRADUATES

Imma Achilike, University Scholars

Dr. Helen Benedict, mentor

Michelle Breshears, Biochemistry

Dr. Gouri Jas, mentor

Jesse Hill, Fashion Design

Dr. Judith Lusk, mentor

Benjamin Lloyd, Biochemistry

Dr. Kevin Pinney, mentor

David Mazariegos, Biology

Dr. Kenneth Wilkins, mentor

Sameena Mohiuddin, Neuroscience

Dr. L. Joseph Achor, mentor

© 2008
BAYLOR
UNIVERSITY