

HONORS PROGRAM THESIS ABSTRACTS

MAY & AUGUST 2006 GRADUATES

Daniel Aaron, Music

Dr. Jean Boyd, mentor

Beethoven's Piano Concerto, Op. 73, No. 5: Its Place in Music History

This thesis provides a brief overview of the concerto form from its beginnings in the Baroque era. The concerto, like all musical types, reflects not only the individual genius of its composers, but also the forces of society, of historical style and musical time, and of patrons and audiences. This thesis discusses the solo concerto in the context of music history and its importance.

Written in 1809, Beethoven's fifth piano concerto reveals a distinct change in the direction of the piano concerto. After providing a brief overview of the life of Beethoven as composer and pianist, my thesis examines Beethoven's fifth piano concerto and the influences that surround it. It also concludes that this concerto is a turning point in the history of the concerto genre, as well as a valuable case study, for it brings to light the development of specific parts of the concerto: form, harmony, rhythm, length, sound, style and melody. My examination looks at the features evident in an evolution—factors that affected its change relate to society, the world, and music of the time. This thesis takes into account the idea of expansion most prevalent in this Beethoven work and attempts to suggest reasons for that expansion. Beethoven's fifth piano concerto represents a transition that bridged the ending eighteenth-century classical concerto with the nineteenth-century concerto and in doing so paved the way for more Romantic concertos to follow. Beethoven's fifth piano concerto is perhaps one of his most brilliant works, and this thesis endeavors to capture and explain that brilliance.

Sarah Apffel, University Scholar

Dr. Gaynor Yancey, mentor

The Effects of Current Health Care Policy on the Hispanic Immigrant Population

This thesis addresses the Hispanic immigrant experience with healthcare access in Texas. Healthcare access for Hispanic immigrants in the United States is problematical and insufficient on many levels, and this thesis presents research, analyses, and personal accounts to articulate the need for changes in healthcare legislation. A variety of books, scholarly journals, handbooks, manuals, and guides from print and electronic sources were used in this investigation, many from federal and state government agencies. Additional data for this project came from focus group sessions with Hispanic immigrant adults with families in the Waco, Texas, area. Chapter One presents essential background information by providing an overview of immigration statistics and legislation; a summary of federal and state social welfare programs, especially around health care, and recent legislation in this area; and statistics on health insurance and why it is important for health care access and quality. Chapter Two gives a detailed policy analysis of the Temporary Assistance to Needy Families program, under which public assistance programs operate. Chapter Three offers data from focus group interviews with Hispanic immigrant adults to form a collective story about local immigrant access to healthcare. Chapter Four supplies conclusions and implications from the focus group sessions and closes the thesis with how policy changes can affect this population on a personal level.

Robbie Arbour, English

Dr. Joe Fulton, mentor

*Mark Twain's War of the Worlds:
An Examination of Cultural Clashes in The Innocents Abroad and Roughing It*

Mark Twain's first two travel books, *The Innocents Abroad* (1869) and *Roughing It* (1872), have attracted much critical attention concerning their unifying structures. While both books employ anecdotal structures that, at times, appear wholly desultory, the fundamental opposition of a native culture and a visiting culture forms the basis for each book. An examination of the opposition of the Old World and the New World in *The Innocents Abroad* reveals a theme of cultural competition as the American tourists struggle to assert their belief in their cultural superiority abroad. By portraying constant shifts of the dominant environment in the interactions between Americans and members of the Old World, Twain creates an instability that undermines American cultural chauvinism, and by focusing on the unreliability of romanticized memory, Twain debunks the myth of the obsolescence of the Old World in the face of the New World. In *Roughing It*, Twain pits the American west against the American east, with members of each culture engaging in a linguistic struggle against members of the opposing culture. Unlike *The Innocents Abroad*, though, *Roughing It* ultimately results in a vision of a regionally integrated America, suggesting that cultural unity is achievable.

Pegah Babaei, Biology

Dr. James Marcum, mentor

Can You Clone the Human Soul?

Human cloning has been a topic of interest in both scientific communities and religious communities especially since Dolly the sheep was the first mammal to be successfully cloned. There are many different aspects, obviously, within this topic that can be questioned on the bases of science, ethics, and religion. One of the main theoretical questions is: if human clones were allowed to develop completely, would the clones have souls? In order to answer such a question, a person must have a basic understanding of the process of cloning and the different types of cloning that are conceivable today. It would also be necessary for a person to look at different religions to understand their stances on the endowment of the soul, such as when a person attains or receives a soul. This thesis attempts to provide these foundations. Then, it offers some necessarily tentative conclusions about cloning and the soul which bring together the information collected from different religions and from scientific perspectives on cloning.

Justin Banta, Great Texts & English

Dr. Greg Garrett, mentor

Four Stories and Selected Poems

This thesis consists of a theoretical introduction, four short stories, and several poems. The stories in this thesis struggle against the cultures and contexts literature today is set in. When first I began, I set out to write stories unflinchingly faithful but stories unflinching in their embodiment of our culture, stories that do not know the difference between narrative and life. I hope to show that a truly contemporary Christian literature is not now possible; either the stories must undermine our culture to such a degree that they will be misunderstood or they must fail in articulating any positive Christian message. What I here label as an impossibility results from the absence of an established Christian readership. The stories in this collection are in one sense preoccupied with this absence.

Alli Beck, Computer Science

Dr. Erich Baker, mentor

*The Semantic Web: An Alternative Approach to Dynamic Data
Definition and Integration in Medical Informatics Systems*

In medical environments, the use of different database management systems, relational schemas, and vocabularies seriously complicate efforts to create effective heterogeneous data environments. The varying syntaxes and distributed networks native to patient records encourage the creation of non-centralized architectures that allow for rapidly changing data attributes, definitions, or vocabularies. My work attempts to leverage Semantic Web technologies to combine differing data sets and discover new correlations within the attributes of the data. Using Extensible Markup Language and Resource Description Framework techniques, data can be translated into subject-predicate-object triples in a database, allowing standard SQL to perform advanced queries on the dataset, the creation of RDF/XML documents that provide platform independent display and querying, and graph-based searching and clustering approaches, such as clique finding and scale-free network dynamics. Together, these approaches demonstrate that certain aspects of hospital informatics systems can benefit from innovative approaches to dynamic data definition and integration.

Jennifer Boulanger, English & Great Texts

Dr. Sarah-Jane Murray, mentor

Inventing the Medieval Woman

In the literary tradition of medieval Europe, women play central roles as mothers, saintly intercessors, courtly lovers, and artistic inspiration. In modern scholarship, these women are often divided into two separate categories—the religious and the courtly—and are rarely seen as venturing across these arbitrary role-lines. I propose that in order to truly understand the role of women in medieval culture, it is necessary to understand their dynamic portrayals in literature, not simply as either religious or courtly, but rather as essentially able to transcend such boundaries. The first chapter, “Thy Will Be Done: Religious Women, Texts, and Contexts,” explores the role of women, specifically Saint Mary, in the medieval Church, as she is represented in theological debate, iconography, and literature of the age. The second chapter, “I Do So Most Willingly: The Courtly Woman,” begins by exploring how Chrétien de Troyes’s clerly obedience to Marie de Champagne mirrors his protagonist’s knightly service to Guinevere in his story, *The Knight of the Cart* (ca. 1180). The rest of the chapter is given over to a discussion of Guinevere as the archetypal courtly woman, who plays not only the role of the courtly lover, but also provides spiritual inspiration for Lancelot. The final chapter, “Your Command So Pleases Me: The Religious and Courtly Woman Conjoined,” explores how Dante, in the *Vita Nuova* (ca. 1292-1300) and *Divine Comedy* (ca. 1307-21), subsumes and conflates the forms of femininity discussed in the preceding chapters. Indeed, Dante’s Beatrice is portrayed as both the ideal courtly and religious female figure. Thus the two ideals—the spiritual and the erotic woman—do not oppose one another. Rather, they complement one another.

Seth Boutin, University Scholar

Dr. Brent Froberg, mentor

Troop Numbers and Tactics at the Battle of the Granicus

Ancient historians rarely had the same standards as modern historians do. Because ancient historians did not concentrate on particular details as much as modern ones, it can be extremely difficult to determine the truth behind the events recorded in the primary sources. I have attempted to form a holistic view of Alexander the Great’s first battle in Asia Minor, the battle of the Granicus, by synthesizing the information from the major extant ancient sources and leading modern scholars. This complete view of the battle includes detailed information on tactical terminology, weaponry, troop formations, the course of events leading up to the battle, and the number of troops involved on both the Persian and Macedonian sides. Analyzing all of these sources together one must conclude that the actual events which occurred at the Granicus River were not as they were described in the ancient sources, but neither did they resemble many of the modern interpretations given by historians because of personal biases which color the latter.

Lauren Brown, University Scholar

Dr. Perry Glanzer, mentor

Religious Foundations for a Public Square

My thesis is a discussion of the appropriate use of religious arguments and faith-based claims in discussions of public policy. I began with John Rawls and Alasdair MacIntyre and followed the conversation through contemporary writing to explain why the issue has become so prevalent recently and the general schools that have developed. After that, I took a specific look at the various perspectives of those involved in public decisions and debates. I contend that the role the person plays dictates the guidelines he or she should follow for incorporating the private and public realms. After laying the general framework, my thesis proceeds to discuss the boundaries a Christian individual should set, those within which a Christian legislator should argue, and those the Church should establish for itself for discussing public affairs. A closer look at the purposes and functions of an individual's involvement serves to explain how the arguments used should be formed and presented.

Chris Carloy, University Scholar

Dr. Lynne Hinojosa, mentor

W. B. Yeats and the Search for a System: From Rural Supernaturalism to A Vision

This thesis attempts to trace W. B. Yeats' movement from rural and ancient supernatural beliefs to a self-created worldview as a unique response to modern philosophic and social pressures. An introductory chapter examines the philosophic and religious climate of the early modernist period which served both as a stage and a foil for Yeats' explorations. This includes an examination of the sources behind Yeats' early supernatural thought and their influence on his final philosophic statement. The texts most dealt with within the main body of the thesis are Yeats' collected poems, his autobiography, and his philosophic oeuvre, *A Vision*. Yeats' supernatural journey is explored mainly through in-depth analysis of the most philosophical examples of his poetic output, as divided into three main eras. The final result is a view of Yeats as a man living in a modern world quickly freeing itself from supernatural structures of belief, who is both unable to accept inherited belief systems or to live without some sense of supernatural structure. His answer is to create a new system, based on ancient and non-Western sources, which provides stability by structuralizing instability, change, anxiety, and chaos, and yet does not necessarily provide salvation.

Michelle Clanton, Political Science

Dr. David Nichols, mentor

*Biblical References in Locke's State of Nature:
Comparing the State of Man in the Biblical Account and in Locke's Second Treatise*

In his *Second Treatise*, John Locke often refers to biblical principles and characters as he describes the natural state of man. However, one may wonder if such references are true to the biblical description of the state of man, or if their reference is a vain support of Locke's own doctrine of the state of nature. My thesis draws comparisons between the two accounts, and among analyses of them, to determine the credibility of Locke's references, where and why they might be lacking, and possible resulting consequences. Finally, I ask questions about whether such potential inaccuracies should even be considered for a political theory of the state of man. In this analysis, I specifically consider the critiques by Oakeshott and Voegelin of reductionism in modern political thought.

Jodi Daniel, Psychology
Dr. Wade Rowatt, mentor

Developing Implicit Measures of Relationship Sentiment and Commitment

Through a quantitative analysis of data obtained from 104 Baylor University students, this thesis aims to develop and validate two idiographic Implicit Association Tests (IAT) for the assessment of implicit romantic partner sentiment and commitment. Students participating in this study completed a battery of explicit measures and three computerized IATs relative to their current romantic relationship. The primary hypothesis was that explicit and implicit measures of both sentiment and commitment would correlate positively with each other. Analysis revealed that while both explicit and implicit evaluations of romantic partners were high, they did not correlate with one another. The longitudinal aspect of this research is still ongoing. Brief follow-up phone surveys at two months and six months following initial participation will assess changes in relationship status and overall partner evaluation. These partner-specific implicit tests may be able to predict relationship outcomes, such as flourishing and break-up.

Nora Farah, University Scholar
Dr. Linda Adams, mentor

The Relationship between Washington and Tehran: Previous Interactions and Future Policies

The relationship between the United States and Iran has long been a tumultuous one, and current tensions prompt a reassessment of their previous interactions. With the world caught up in the “with us or against us” rhetoric of the Cold War, it was a foremost concern of the US to ensure the stability of Iran. As such, each administration brought a different character to the relationship of the country with Iran. Particularly the structures and natures of the White House under Jimmy Carter and Ronald Reagan were vital in molding this relationship. Although the decades prior to Carter’s inauguration set the stage for the scandal, crisis, and overturn of his and Reagan’s presidencies’ relations with Iran, the people whom these American presidents chose to head their Cabinets and how they led the country played a key role in the events that took place during those twelve years. Taking special account of the leadership styles of Presidents Carter and Reagan and the history of engagement between the United States and Iran, my thesis argues that the United States must form a cogent policy toward Iran that will circumvent future crises.

Nick Ferraro, Biology
Dr. William Hillis, mentor

Glycyrrhizic Acid Ammonium and the Possible Role of Licorice in the Generation of Hypertension

The mineralocorticoids—aldosterone, desoxycorticosterone, corticosterone, cortisol, and cortisone—are responsible for affecting the electrolytes of the extracellular fluids. Aldosterone, which is secreted by the zona glomerulosa of the adrenal cortex, contributes nearly 90 percent of mineralocorticoid activity, and is responsible for increasing renal tubular reabsorption of sodium in exchange for potassium. Furthermore, aldosterone has an indirect effect on blood volume and pressure. Acting through the renin-angiotensin system, the body produces aldosterone to regulate blood volume and subsequently blood pressure. There are many substances and hormones produced by the body that inhibit or activate the production of aldosterone, including angiotensin II of the renin-angiotensin system, adrenocorticotropic hormone (ACTH), and potassium ions. In addition to hormones and substances produced by the body, other substances are believed to elicit an effect on the synthesis of aldosterone. One of these, glycyrrhizic acid ammonium, a substance found in licorice, is believed to prompt such an effect. Recent research indicates that glycyrrhizic acid ammonium is linked to an increase in blood pressure, indicating its probable role in its regulation of aldosterone. The goal of this experiment is to determine if glycyrrhizic acid ammonium does indeed play a role in the activation or inhibition of the synthesis of aldosterone and, if so, whether it could lead to hypertension.

Jamie Gianoutsos, Political Science & Great Texts

Dr. Dwight Allman, mentor

Education for a Liberal Polity: John Locke on Fashioning Citizens and Statesmen

My thesis explores the foundations for and the shortcomings of education in a modern liberal polity as presented by John Locke in *Some Thoughts Concerning Education*. Locke writes his *Thoughts* as a practical guide for the education of gentlemen, the ruling class which has an obligation to the welfare of society. Chapter One investigates Locke's method of education, including the role of parents, the use of habits and practices for instruction, and the proper approach to discipline. Chapter Two explores the Lockean virtues and examines how parents can instill these qualities in their children. The virtues include self-denial, industry, civility, and courage. They are necessary conditions for right reasoning, which in turn is needed for proper government. In Chapter Three, I discuss the goal of Lockean education, which is threefold: to prepare gentlemen to fulfill their duty to society, to prevent early corruption, and to teach them to pursue true happiness and virtue. This third aspect of education seems to be in tension with Locke's conception of happiness in the *Essay Concerning Human Understanding*. I conclude by examining what compels Locke's gentlemen to act according to goodness.

Natalie Hagan, Speech Communication

Dr. Karla Leeper, mentor

The Role of Government in Times of War: National Security versus Civil Liberties

Since September 11, 2001, U.S. citizens and policymakers have been forced to weigh two important issues and decide which path is the right one to take: increasing national security, on the one hand, or aiming to secure civil liberties amid a worldwide crackdown on terrorism, on the other. The reason the September 11th terrorist attacks happened, according to the independent 9/11 Commission, is because of "lack of imagination, policy, capabilities, and management" across numerous levels of government. Gathering information became our government's primary concern. The particular means the government is using to assemble information is now being debated on a daily basis. As United States citizens, we have certain expectations. We expect our government to protect us from harm while also giving us freedoms expressed in the Constitution. Achieving this balance in the post-2001 world has proven to be a trying task. The purpose of this thesis is to consider both sides of this broad conflict, and to try to find a compromise between two seemingly opposite agendas.

Rachel Hartgen, International Studies

Dr. Victor Hinojosa, mentor

Barriers to Justice: Authoritarian Regimes and Transitions in Argentina and Chile, 1973-1998

Human rights violations span the globe as government leaders become authoritarian oppressors. When these regimes topple, countries struggle to reestablish democracy and seek justice. Latin America is an area of study for such as it fell prey to several right-wing military governments who seized power to eliminate leftist factions during the Cold War. This thesis specifically examines two regimes: Argentina's *Proceso* military junta (1976-1983) and Chile's military dictatorship under General Augusto Pinochet (1973-1990), in which both resulted in the lack of democracy and the murder of thousands. This project begins with a summary of authoritarianism in Latin America in the second half of the 20th century, the characteristics of these regimes, and the problems faced by transition leaders. These simplifications then are used to separately investigate the Argentine and Chilean cases. It concludes with a comparison and contrast of the regimes, their transitions and the barriers to human rights policy. Primary sources include prominent Latin American scholars who have extensively researched these cases and the general characteristics of authoritarianism and transitions from such.

Stephania Hasan, Biology
Dr. Michael Attas, mentor

*Comparison of Issues Concerning Euthanasia and Physician-Assisted Suicide
in the United States and the Netherlands*

Euthanasia and physician-assisted suicide are among the most controversial topics in medicine today. Religious, political, and cultural passions saturate the arguments for and against these procedures, making intelligible debate among dissenting factions difficult. The Netherlands currently has the world's most lax legal position on the matter, with the *Review of Cases of Termination of Life on Request and Assistance with Suicide* extending rights for physician-assisted suicide to almost all Dutch citizens. In contrast, the United States' lone pro-assisted-suicide legislation, Oregon's *Death with Dignity Act*, is laden with restrictions and under continuous challenge by the federal government, which desires to reinforce the current administration's position against any such procedures.

Teresa Hilgers, University Scholar
Dr. Julie Sweet, mentor

Meet the Randolphs: One Family's Response to the Coming of the American Revolution

Peyton Randolph was a Revolutionary Era Virginian of great importance. He served in public office during the tumultuous times of this era. As history looks back on this time period, however, he is rarely remembered within the confines of history books. Yet he helped to create the building blocks of the revolution which created the United States of America. In an attempt to place him in his rightful place in history, this thesis conducts an examination of his life and efforts within the revolutionary movement. First, a look at the literature within the historical field provides a background concerning the treatment Randolph has been given. By extracting information on Randolph from secondary sources, one can then move forward and analyze Randolph himself. An evaluation of his genealogy and life within a prominent Virginian family helps to reveal why Peyton Randolph was able to embrace the revolutionary movement. Finally, his political actions are examined in order to show that Peyton Randolph was, in fact, an important person within the Revolutionary Era.

Jeremy Jay, Bioinformatics
Dr. Erich Baker, mentor

Using Bayesian Statistics to Find Conserved Upstream Gene Regions and RNAi Phenotypes in C. elegans

With the increase of large datasets of *C. elegans* genome information on the Internet, the ability to use high-throughput data analysis is on the rise. The Wormbase.org website contains many datasets including DNA sequences, gene information, and experimental RNAi phenotypes while allowing easy access to subsets of this information. Previous experiments have shown that gene regulation and expression information is coded for in the regions of DNA upstream of the gene coding region. The technique presented here uses Bayesian statistics to determine the predictive value of nine base pair sequences in the upstream regions of known genes for determining RNAi phenotypes. These values are then used on unknown genes to predict the associated RNAi phenotypes *in silico*.

Karen Kelly, University Scholar
Dr. Julia Dyson, mentor

The Birds and the Bees: The Roman Poet as a Metaphorical Bird

The image of the poet as a bird is an integral part of the literary tradition passed down from ancient writers to the Augustan poets, finding its way into the poetry of Ovid, Vergil, Horace, and even the pre-Augustan Lucretius. Horace's Ode 2.20, which details the poet's transformation into a swan, is the most obvious manifestation of such an image. Examining passages from Ovid's *Metamorphoses*, Vergil's *Aeneid*, Lucretius's *De Rerum Natura*, and Horace's other odes, I have attempted to determine the significance of bird transformations in Roman poetry. Birds are seen as authoritative creatures with the ability to escape the world of men and view it from afar. The song of a poet, therefore, bestows upon the author the same authority in the realms of both mortals and shades. Horace's choice of animals was not accidental; rather, it reveals how birds were the key to a poet's identity.

Carolyn Kienstra, Biochemistry
Dr. Kevin Pinney, mentor

Merging Vascular Targeting and Bioreductive Approaches to Cancer Therapy and their Potential Implication in the Inhibition of HIF-1 α

Cancer is currently the second leading cause of death in the United States. One method of cancer therapy focuses on small molecules that are able to bind to and disrupt the tubulin of tumor vascular epithelial cells. These compounds, known as vascular disrupting agents (VDAs), occlude the vessels and cause cessation of blood flow to the tumor cells resulting in necrosis. Lack of sufficient blood flow to the tumor also leads to the development of hypoxic conditions. For the tumor cells to survive, they must adapt to the low-oxygen conditions. A transcriptional regulator protein known as hypoxia-inducible factor 1 α (HIF-1 α) brings about these adaptations. HIF-1 α is both up-regulated and stabilized in hypoxic conditions by multiple pathways. Here, nine new compounds were synthesized by combining combretastatin A1 (CA1), combretastatin A4 (CA4), and Oxi6196 with bioreductive triggers with the goal of enhancing the cytotoxicity of the drugs. As a VDA compound with anti-HIF activity would be able to both shut down the blood flow to the tumor and then prevent the cells adaptation to the resulting hypoxia, experimental conditions were developed using a commercially available assay kit to test VDA drugs for HIF-1 α inhibition. Inhibition was shown with both colchicines and CA1.

Christin Laroche, University Scholar
Dr. Clay Butler, mentor

Playing at Life: A Conversation Analysis

This thesis records the analysis of an hour-long conversation using Conversation Analysis methodology. The paper begins with a review of relevant literature and theories as well as a review of the Conversation Analysis methodology and the means of data collection, followed by an analysis of the data and conclusions. The body of the paper examines a shift in alignment which occurs among the three participants and seeks the reasons for this shift as well as the means by which this shift occurs. This discussion is grounded in Goffman's theory of frames, while referencing other theories of frames and alignment. The analysis closely examines major interruptions as well as minor changes in the conversation, concluding that the minor changes have a deeper and more lasting impact on the frame and alignment of the participants than do the interruptions, even though the interruptions are more noticeable.

Lacy Lynch, Theatre Performance Studies

Dr. DeAnna Toten Beard, mentor

Reason for Referral: A Critical/Creative Thesis

As more and more breakthroughs are made in the field of psychotherapy, great efforts have been made to better educate the public about mood disorders. In this two-part project I have written an original play and an academic paper which explore the positive and negative effects of labeling different types of individuals with mood and personality disorders, particularly bipolar disorder—the manic highs and depressive lows of which affect at least one in every seventy people. In the paper I set out to prove that Cynthia from Elizabeth Gaskell's novel *Wives and Daughters* is more than just an antagonistic foil or a passive 19th-century coquette. I utilize modern thinking on psychotherapy combined with the diagnostic standards as set by the DSM-IV to show that her behavior throughout the book is symptomatic of Borderline Personality Disorder comorbid with Bipolar. The play combines the knowledge I have gained through my study of the Cynthia character, my personal struggle with mood disorders, interviews with individuals who have been diagnosed, countless books on the subject, and interviews with a licensed psychologist who treats many Baylor students, in order to explore the myth of the “tragic artist” and to draw parallels between creativity and disorder.

Heather Mak, Psychology

Dr. JoAnn Tsang, mentor

The Relationship between Religion and Attitudes toward Outgroups and Value-Violating Behavior

Many studies have shown that individuals can distinguish between homosexual persons and homosexual behaviors. Other studies in this area have failed to recognize that sexual behaviors may lead to more prejudice than the sexual orientation. This study looked at the relationship between sexual orientation, sexual behavior, and prejudice using a behavioral measure to see whether the orientation *versus* the behavior of a person is more likely to elicit prejudice towards that person. This study also looked at the role that religious orientation plays in prejudice towards others. Participants were 78 female undergraduates. This study built upon Batson, Floyd, Meyer, and Winner's (1999) methodology, which involved participants working on time-limited tasks that had consequences for another “student.” Descriptions of the student came in note form and varied regarding sexual orientation and sexual behavior. Results suggested that participants were more likely to show prejudice toward sexual behaviors, helping those who were sexually active less than those who were celibate, regardless of sexual orientation. Participants high in intrinsic religious orientation were more likely to demonstrate this prejudice towards sexual behavior. This may be because homosexuality has become a proscribed prejudice and is now more accepted in society.

Nick Martinez, Biochemistry

Dr. Kevin Pinney, mentor

Synthesis and Evaluation of Novel Anti-Mitotic/Vascular Disrupting Agents

Novel indole derivatives of Oxi8007 bearing hydroxyl groups at the C-3 and C-4 positions have been synthesized using a ten-step reaction series. These compounds have been evaluated for cytotoxicity in seven *in vitro* cancer cell lines and for their ability to inhibit the polymerization of tubulin. Although the cytotoxic effects of the 3,4 di-phosphate salt of Oxi8007 and non-acylated indole were less than those of known vascular disrupting agents such as Combretastatin A1 (CA-1) and Oxi8006, the 3,4 dihydroxyl indole derivative of Oxi8007 displayed comparable anti-tubulin activity to CA-1 and Oxi8006 (2.8 μ M vs. 2-3 μ M and 1-2 μ M, respectively). This data suggests that a minor alteration of the functional groups of the aromatic ring can dramatically influence the ability of the drug to inhibit the growth of cancer cells.

Ashley McCafferty, Sociology
Dr. Christopher Bader, mentor

A Descriptive Study of the Ways in which American Churches and Sects Attempt to Build Community

My thesis is a sociological description of how churches and sects build a sense of community among non-members and members. It includes definitions of *church*, *sect*, *community*, and other sociological concepts relevant to this topic. I have used bounded rational choice theory as an underlying theme in my description. Rodney Stark, among others, has developed this traditionally economic theory into a new paradigm for the sociological study of religion. In order to generate a well-rounded thesis that describes religious groups and community, I purposefully have incorporated works of researchers in sociology and other fields, as long as they address religion and community. The point of this thesis is not to make predictions but to describe current events. As such, I have chosen primarily to utilize ethnographic evidence, while including selected pieces of empirical evidence for support.

Michael McCarty, University Scholar
Dr. D.E. Mungello, mentor

Confucian Subversives: Wang Yangming's Influence on Japanese Rebel Samurai

In the late Tokugawa and early Meiji periods (c.1830-1880), some Japanese samurai became disillusioned with the cosmopolitan, intellectual pretensions of their fellow government officials. Claiming these officials were corrupt and out of touch with the true Japanese spirit, Ōshio Heihachirō (1793-1830), Yoshida Shōin (1830-1854), and Saigō Takamori (1827-1877) all staged revolts against the Japanese government that failed miserably. In their rebellion against the state, all three men found ideological inspiration and justification through the works of the Chinese Neo-Confucian philosopher Wang Yangming (1472-1529), who taught a philosophy of action and commitment to inner beliefs. Though they were all indebted to Wang Yangming's philosophy, Ōshio Heihachirō was the only avowed follower of his specific teachings, while Yoshida Shōin and Saigō Takamori absorbed his ideas more indirectly. All three of them, however, found in Wang Yangming a compelling alternative to the orthodoxy of their day because of both the words and example of the philosopher himself—a man of action who distrusted an over-reliance on study and reflection. The way the three samurai utilized Wang Yangming differently is indication of the complex and rapidly changing values of Japan in the 19th century.

T.J. McLemore, English & Environmental Studies
Dr. Alden Smith, mentor

Sustainable Visions in Literature: The Agrarian Poems of Virgil and Wendell Berry

Ecologically sound agriculture begets health, both in its products and in the profound relationship it forges between a farmer and his land. This association and the sustainable practices that uphold it have been celebrated in literary traditions for thousands of years. This thesis demonstrates that farming literature from diverse periods in human history can meaningfully be used to foster a modern ethic of caring for the land and preserving its use for future generations. With this conviction firmly in mind, I examine the relevant works of two influential agrarian poets, Publius Virgilius Maro and Wendell Berry. In his *Georgics*, Virgil illustrates the ethical themes of agricultural stewardship and sustainability from a classical perspective. Virgil's poem not only presents farming methodology and wisdom gleaned from other ancient sources but also is able to transcend its own didactic form in order to communicate relevant moral and social ideals beyond the scope of the practices it describes. Berry's contemporary farming poetry, and most notably his didactic poem *The Farm*, is presented as the literary, agricultural, and ethical heir to Virgil's agrarian vision. As Virgil does in his *Georgics*, Berry uses farming themes as an instrument for imparting an environmental ethic, presenting humankind and nature as interdependent in a pastoral ideal of careful work and its returns. I ultimately conclude that my historical and ethical approach to these poems has numerous applications for encouraging the development of an environmental ethic among diverse disciplines. Understanding that we are inseparably bound to our rapidly deteriorating land and its fate represents an important step toward sustainable thought and action.

Megan McMurry, Sociology

Dr. Jerry Park, mentor

The Effects of Educational Resources on Student Achievement

This study examines whether the resources to which children have access affect their achievement in school. Four different sets of variables were measured: school quality, home environment, parental involvement, and teacher quality. The hypotheses state that within each set of variables, greater resources, in both quantity and quality, will produce higher student achievement scores. Conversely, if the resources are fewer and of lesser value, then the achievement scores will be lower. Each set of variables was assessed based on several resources provided to the children. Then, the achievement of students was measured based on how many or few resources they encountered. The study was as a secondary analysis using information gathered from third grade students involved in the Early Childhood Longitudinal Study performed by the National Center for Educational Statistics. The findings of the study suggest that teacher quality and parental involvement are the most important resources contributing to the educational achievement of students.

Rachel Miller, University Scholar

Dr. Alden Smith, mentor

The Tie That Binds: Control in Virgil's Georgics

In the *Georgics*, the Roman poet Virgil grapples with several universal themes under the guise of a didactic treatise on farming. The issue of control runs beneath all the varied themes, uniting them into a cohesive, masterful work of art. The problem of control, however, is that Virgil presents it in both positive and negative lights. This thesis attempts to catalogue these instances of control and determine their place within the overall structure and meaning of the poem, by analyzing the role of order in other thematic concerns. The body of the thesis is divided into sections concerning natural, martial, religious, and poetic themes. I utilized a great deal of scholarship on the *Georgics*, including the large body of work by Dr. Richard Thomas, especially his detailed commentaries on the poem. Virgil paints a very realistic picture of man and his battle with control, both within and without himself, that culminates in the epyllion of the fourth book. Control emerges as a necessary pursuit for the georgic man, albeit one that is fraught with difficulties.

Brendan Mitts-Hintz, Forensic Science

Dr. Christopher Bader, mentor

The Mythology of the Serial Killer in the Mass Media

My thesis examines the mass media's problematic handling of serial killers, especially how these outlets misrepresent the serial killer in terms of both his/her prevalence and threat to society. I have consulted a variety of sources about serial killers, violence, murder, and crime in general. These sources include scholarly books on criminology, various anthologies, and other scholarly and magazine articles. I reviewed the general literature in order to formulate organization and support for my argument. After my introduction, I present the various descriptors that separate serial killers from other murderers, along with the categories into which people try to classify them. I argue that such attempts to classify serial killers into distinct categories are a result of media misrepresentation, citing specific examples and examining the problems this misrepresentation poses to society. In this section, I present my study of television stations and the amount of coverage they give to serial killers, using it to further my point about misrepresentation. I finish with a discussion about how the mass media can improve its coverage.

Lauren Murphy, University Scholar

Dr. Linda Adams, mentor

Why Are Our Children Starving?

In this paper we examine the causes of malnutrition, particularly focusing on whether war is the primary factor. Using documents from the United Nations, the World Health Organization, various nongovernmental sources, and scholarly works, we compare Ethiopia and Niger in terms of malnutrition and conflict between 1998 and 2000. This comparative case study begins with a discussion of human rights and a state's economic responsibilities, one of which includes the prevention of malnutrition. By examining Ethiopia and Niger's history, economy, and malnutrition, we conclude that war is not the sole or even most significant cause of malnutrition. Our data suggest that climate, and more specifically a lack of rainfall, is the primary cause of malnutrition in Ethiopia and Niger. Since climate cannot be controlled, we offer several proposals to decrease malnutrition. To increase long-term crop yield, and thus decrease malnutrition, we explore the advantages of small scale irrigation. In addition, we argue that better transportation methods would enable emergency food aid to reach all communities, and would be especially useful before the implementation of small scale irrigation.

Robert Myers III, Applied Music

Prof. Helen Ann Shanley, mentor

The Evolution of Flute Writing in the Early Twentieth Century: An Analysis of the Maturation of Flute Composition on Three National Fronts

This thesis examines the state of flute writing in the early twentieth century in both the orchestral and solo genres through representative works of major composers of the period from three different national idioms. Among the composers to be discussed includes Igor Stravinsky, Sergei Prokoffief, Gustav Mahler, Richard Strauss, Paul Hindemith, Claude Debussy, Maurice Ravel, Camille Saint-Saëns, and André Jolivet. In the period following the emergence and acceptance of the Boehm system flute, composers began writing increasingly difficult music for the new instrument as its improved capabilities were discovered. Thus, in each of the works under discussion, the emphasis falls on the prominent and difficult flute writing found within to clarify and delineate the expectations that composers placed on the new instrument that would not have been possible for its predecessor.

Kimberly Newsome, Psychology

Dr. David Rudd, mentor

The Prevalence of Obsessive-Compulsive Disorder in the Student Population at Baylor University

In 2001, the National Institute of Mental Health reported that approximately 2.8 percent of adult Americans aged 18-54 suffer from obsessive-compulsive disorder. This study investigates the prevalence on Baylor's campus and whether this prevalence is higher or lower for certain demographics. A diagnostic tool was developed and a number of current students were assessed. My conclusions identify the percentage of the population sampled who were diagnosed with non-clinical OCD and consider the significant differences across correlated demographics. This study and others like it could help campuses in realizing the special needs of their students.

Amy Oates, Studio Art
Dr. Heidi Hornik, mentor

The Raising of Lazarus: Caravaggio and John 11

In an attempt to combine art historical and biblical scholarship, I attempt to set Caravaggio's *Raising of Lazarus* (1608-09) within the larger context of the biblical narrative from which the scene comes. Insight into the painting is heightened as the textual source and biblical tradition are considered together. I have consulted all non-foreign language scholarship concerning the artist's background, his characteristics, his patrons, and the Ministers of the Sick, who commissioned the *Raising of Lazarus*, to provide the backbone to this research. While this painting is often interpreted as a self-portrait of the artist's own psychological despair, viewing the painting within the larger context of sources and precedents reveals a message of hope. I examine John 11:1-44 in relation to the structure and themes of the gospel, and I use the history of the text's interpretation to suggest or offer doctrinal reasons for the unique motifs and composition in Caravaggio's painting.

Sean O'Neil, University Scholar
Dr. Mary-Lynn Trawick, mentor

Synthesis of Glutaryl-n-heptylamine as a Potential Inhibitor of Gamma-Glutamylamine Cyclotransferase

The transglutaminases are a group of enzymes which catalyze the formation of a number of protein crosslinks, one such being N^ε-(L-glutamyl)lysine. This particular isodipeptide bond is a particularly good substrate for the enzyme γ -glutamylamine cyclotransferase (γ -GACT) which catalyzes the intramolecular cyclization of a number of L-glutamylamines to produce 5-oxoproline and free amine. To better understand both biochemical characteristics and physiological importance of this enzyme, a series of compounds have been synthesized and employed as inhibitors. E-glutaryllysine, an analog of N^ε-(L-glutamyl)lysine with the α -amino group of the L-glutamyl moiety removed, proved a good inhibitor of the enzyme. Many glutarylamines have been constructed and tried as potential inhibitors, and a preliminary understanding of the active site of γ -GACT has been reached. The purpose of this thesis project is to synthesize and purify glutaryl-n-heptylamine as one in a series of glutarylamines of increasing chain length for use as a γ -GACT inhibitor. This compound was synthesized using glutaric anhydride and heptylamine in methylene chloride, and separated from the reaction mixture both by column separation and crystallization methods. It has been analyzed through solubility testing, thin layer chromatography, gas chromatography, mass spectrometry, infrared spectroscopy, and nuclear magnetic resonance spectroscopy. The resulting pure compound will be used in an assay to determine its effectiveness as a competitive inhibitor of γ -GACT.

Heather Padilla, Health Science Studies
Dr. Richard Kreider, mentor

The Acute Effects of Macronutrient Type and Caloric Intake on Body Weight, Body Composition, Total Body Water, and Resting Energy Expenditure

The rates of obesity have increased dramatically over the past few decades in many developed nations worldwide. In order to develop successful strategies to combat the problem of obesity, one must first identify the factors predicative of weight gain. Studies suggest that resting energy expenditure (REE), the number of calories the body burns at rest, plays a major homeostatic role in the weight management equation. The purpose of the Curves International sponsored Metabolism Study conducted by Baylor University was to examine what effects macronutrient composition and caloric intake levels have on variables related to body weight and metabolism. By subjecting approximately one hundred apparently healthy, untrained, moderately overweight females between the ages of 18-65 to one of nine different preset diet plans for two weeks and examining the acute effects of the changes in diet almost daily (11 test days), this study can contribute to further research efforts in determining the most advantageous diet plan and time required to promote increases in REE. The paper addresses current issues regarding obesity and outlines the methods of the study followed by results and a discussion of implications.

Garrett Phillips, University Scholar
Dr. Christopher Kearney, mentor

*Expression of a Single Chain Variable Fragment/Glucuronidase Fusion Protein
in Plants for Use as an Immunological Reagent*

I inserted a gene encoding a single chain variable fragment/ β -glucuronidase (scFv/GUS) fusion protein with a signal peptide into *Arabidopsis* and tobacco plants via transformation with an *Agrobacterium* vector; I then extracted protein from the interstitial fluid of the fully grown plant leaf tissue and assayed to verify the presence of recombinant protein. I also performed activity assays on commercially available GUS stored at various temperatures and in various solutions to determine possible storage protocols for the fusion protein. I conducted experiments with this fusion protein as a 'proof of principle' that medically useful diagnostic fusion proteins could be quickly and inexpensively produced and stored in plant tissue. Less developed areas of the world could greatly benefit from the availability of inexpensive diagnostic proteins that allow the identification of antigens of contaminating microorganisms.

Kristen Pilcher, Journalism
Dr. Amanda Sturgill, mentor

Magazine Production: Creating The Reporter

This project explores and examines all aspects of creative magazine production, which led to the planning, writing, editing, designing, and printing of the 50-page, Baylor journalism department-inspired magazine, *The Reporter*. The thesis itself consists of a research paper, which summarizes and utilizes the primary sources, and a prototype issue of *The Reporter* magazine, which provides a practical way to synthesize sources, major coursework, and independent research in the discipline of journalism. My primary sources for the project include twelve books covering publication design, planning, writing, managing, and editing, as well as personal interviews with five journalism professionals. These sources offered the technical, literary, and conceptual tools needed to complete the thesis. The magazine is geared toward Baylor journalism students, faculty and staff, and those interested in the department. *The Reporter* covers journalism world news, campus news, student writing, editorial, and book reviews. This issue mainly centers on the stories and photographs from a Baylor mission trip to Kenya, which many journalism students participated in last summer.

Katie Prichard, Entrepreneurship & Finance
Dr. Patricia Herbelin, mentor

Comprehensive Health Insurance Reform

Due to the rising costs of health care, increasing insurance premiums in the private market, and smaller group health insurance benefits offered by many employers in the United States, citizens are looking to reform the health care system. The search for a perfect plan has currently turned up only partial solutions. We may also assume that current propositions lack the characteristics necessary to operate in our economy and current regulatory environment. The constraints of government regulation and the third-party-payer system have contributed to the limitations in current health care reform proposals. To form a possible solution that the majority of Americans may find acceptable while maintaining viability in a capitalistic economy, we must consider many variables, including the apparent causes of health insurance price increases, the factors behind the health insurance problem, and the rhetoric of the various camps participating in the national debate about health care reform. Using these variables as a reference, we can evaluate noted proposals of U.S. health care reform, considering both their commonalities and their shortcomings. The final result combines the more feasible aspects of each of the proposals to form a comprehensive possible solution.

Jessica Rhinehart, Biology

Dr. Daniel McGee, mentor

Should Wealth Determine Health: A Reflection on Health Care Access and Human Rights

This thesis begins with a consideration of the current inequalities in health care access among socially disadvantaged groups. Following this evaluation, I illuminate arguments of scholars both in favor of and against the characterization of health care as a fundamental human right. Finally, I explore the concept of the right to a decent minimum of health. In conclusion, I argue that a right to health care, at least to a decent minimum, is a moral obligation of human society. My reflections are founded upon the works of scholars who have come before me and who have considered the topic of health care in the context of justice, ethics, and human rights. The purpose of this work is twofold: it challenges the current state of health care delivery due to the unacceptable inequities caused by the system; it then encourages thought and dialogue on the topic of health care rights that may lead to change.

Robert Richardson, Telecommunication

Dr. Christopher Hansen, mentor

Jamal and the Night Visitors: A Creative Thesis

In 1951, NBC commissioned Giancarlo Menotti to write a Christmas opera to premiere on television on Christmas Eve. Menotti created *Amahl and the Night Visitors*, a one-act opera about a young crippled boy and his mother, and the night during which they are visited by the Magi. A trend in cinema is adaptation of previously existing works in other mediums, including novels, short stories, plays, and works of non-fiction. Many of these films, including *Clueless* and *10 Things I Hate About You*, are modernizations of their predecessors. In my thesis, I intended to integrate the original story and characters with the urban culture of the present day, including hip hop and jazz. Although a new score has not been written, several of the original songs have been modified into lyrics befitting the rap culture, and new songs and characters have been created to turn this story into a feature-length hip-hopera, currently titled *Jamal and the Night Visitors*. I conducted research on the history of the original opera as well as on techniques used in writing of adaptations. The result is an experimental creative project designed to integrate rhyming, rhythmic lyricism with screenwriting.

Andy Rivera, Music Composition

Dr. Timothy McKinney, mentor

Popular Music in Academic Settings: Comparing the Music of Radiohead and James Mobberley

The intention of this paper is to persuade the academic community in America to fulfill its obligations to the listening public by leading more research into current popular music, to look objectively at this music and adopt any and all valuable elements, and to teach music in a way that is sensitive to American subcultures. I also intend for composers fixed in academic settings to incorporate elements of this research into their compositions with the aim of adapting and improving their musical language to reach audiences beyond the scope of university borders. Source materials come from papers on cultural behavior and practice, commentaries and criticism of selected works, recordings and scores, and from personal experience with a formal education in music. I begin by defining what constitutes music and the composer's role in separating music from noise, then proceed to show how culture influences judgment with regards to quality. I then examine selected works by James Mobberley and Radiohead and analyze them using appropriate theoretical techniques and for cultural value. Ultimately, my findings have contributed to the composition of a new work for a small electro-acoustic ensemble, proving that a blending of techniques from two different styles is not only possible, but can produce quality music that has the potential to reach larger audiences.

David Roberson, Political Science

Dr. David Nichols, mentor

*The Rise of the Executive: Presidency as the Dominant Branch of Government and the
Necessary Response of the Modern Citizen*

The framers of the Constitution established a divided government, incorporating what they felt were sufficient checks and balances in order to maintain equality and just governance. However, when power is concentrated in a single individual office, it will begin to cause corruption in spite of any political structure, democratic or otherwise. This trend towards executive domination within the government of the United States of America can be traced from the early 1800s and the administration of Andrew Jackson, sometimes called King Andrew the First, to the present day administration of President George W. Bush. While executive domination has been a continuing affair, it has had several tremendous points of macro-evolution, usually influenced by crisis. My thesis considers, in particular, Franklin Delano Roosevelt, a great leader who was nonetheless guilty of misusing democratic power to implement his own will, elements of which have proven a failure and a drain on the American economy, e.g., welfare and Social Security. As the Presidency gains political leverage and power, there seems to be no limit to what is acceptable and what the apathetic citizenry will allow. I trace this leveraging through the Bush Administration's strategies for using its political dominance in a time of terrorist crisis to push through the infamous Patriot Act, allowing direct surveillance of citizens and the searching of property without requiring a warrant. The audacity of a chief executive in introducing legislation that so clearly violates core provisions of the Bill of Rights demonstrates the arrogance and the power of the executive branch in the modern era. American citizens, I conclude, must lose their apathy and retake their rightful, democratic control of government before we lose our liberty to tyranny once again.

Kathleen Ross, Biology

Dr. Dan McGee, mentor

The Ethics of Embryonic Stem-Cell Research

Embryonic stem cells have given rise to an increasingly debated controversy in our society. The ethics behind their development and use underline many previous conflicts that have occurred within the various communities of society, such as the debates on abortion, in-vitro fertilization, cloning, and euthanasia. As a rising number of these scientific practices occurs, the ethics pertaining, not only to embryonic stem cells, but also to many aspects of these overlapping issues must be discussed. This thesis will attempt to analyze the debated issues of embryonic stem-cell research. It will first do this by viewing the controversies and how each deals with embryonic stem cells. Once this is achieved, this thesis will explain how technology has grayed the definitions and terms regarding the life and death of the embryo, as well as the patient. In an effort to discuss these definitions, assumptions will also be made and articulated. Lastly, since embryonic stem-cell research continues to affect the public, the societal implications of such research will also be explored.

Tina Saenz, University Scholar
Dr. Gaynor Yancey, mentor

Inquiry into the History and Experience of Poverty in Waco

Waco, Texas, is a city characterized by poverty. Waco has a poverty rate of 26.3 percent, which is drastically higher than the Texas rate of 15.4 percent and the national rate of 12.4 percent. It is crucial to the wellbeing of the city that appropriate steps be taken to overcome this challenge. The purpose of this thesis project is to look into the history of Waco's poverty problem through statistical analysis of Census information and to form a picture of the challenges of securing a job in Waco through focus groups. Analysis of the history of Waco's poverty through statistical data reveal that one major contributing factor to poverty is not necessarily a lack in jobs, but a lack in higher paying jobs or livable-wage jobs. Thus the second part of the thesis describes and responds to focus groups of women who have struggled to secure jobs in Waco; participants specifically discuss the challenges of finding and maintaining a job in the city. It was concluded that livable-wage jobs in conjunction with increased education are key to decreasing poverty in Waco.

Tamara Sanderson, Entrepreneurship
Dr. William Petty, mentor

The Journey: Life after Exiting a Business

With an enormous rise in entrepreneurship during the last fifty years, a new mid-life transition has developed, causing entrepreneurs to make decisions regarding their purpose after exiting their businesses. The thesis begins with an overview of the half-life transition and also includes a literature review of the major sources utilized in the thesis. I then discuss background information on the harvesting process of private companies and independent donor philanthropy in order to give the reader a foundation to understand the issues addressed in the interviews that follow. In order to actually observe the half-life transition, I interviewed ten entrepreneurs and business leaders from different stages in the harvesting process. I derived the basic outline for the interview from the form illustrated in *Harvesting Investments in Private Companies* by Dr. William Petty and *Finish Well* by Bob Buford. After conducting the interviews, Bob Buford, the author of *Half-Time* and *Finish Well*, which are described in the literature review, provided his opinions on the half-life transition and the interviews conducted for the thesis. The thesis concludes by linking all of the research on exit strategies, philanthropy, and the half-life transition with the interviews conducted to provide a positive solution for entrepreneurs to transition successfully and leave a significant impact on the world.

Adam Schindler, University Scholar
Dr. James Marcum, mentor

Harvey, Descartes, and Galen: Perspectives on Circulation

This thesis is a critical look at the process that results in scientific discovery. The circulation of the heart, which has been studied since the dawn of anatomical inquiry, provides a unique look at this process. I have examined the models put forth by Galen, William Harvey, and Rene Descartes. The three models are connected by tradition and separated by their authors' respective scientific methods. Implicit in these models are their authors' philosophical understandings. The metaphysical assumptions which must underlie all verifiable assertions may be brought to light in the comparison between these three models of circulation. By understanding the debate between these great anatomists, it is possible to better understand scientific debate and science as a whole. I drew heavily upon primary sources as a means of pointing out the relevant points within each author's model, while making some use of secondary scholarship.

Jenny Smith, Biology

Dr. Rene Massengale, mentor

A Critical Review and Meta Analysis of Modern Bacterial Source Tracking Methods

Pollution of the earth's freshwater sources is a dangerous and indeed serious problem affecting billions. Fecal pollution is an especially important aspect of this problem because of the ability of animal feces to harbor enteric pathogens hazardous to both humans and other animals alike. While earlier methods of tracking this fecal pollution to its source were only marginally successful, modern bacterial source tracking methods can often pinpoint an exact source of contamination, whether it be a point or nonpoint source of pollution. This current meta-analysis seeks to critically review, compare, and analyze all publicly available bacterial source tracking studies which utilize modern methods, both genotypic and phenotypic. I will accomplish this by comparing the following variables in each study: differences in indicator organisms, experimental variables, numbers of source categories, source libraries, and statistical analysis methods used in each study. The results of this study provide a critical analysis and overview of bacterial source tracking studies that has not previously been done in the field, and this work will be submitted for publication in a peer-reviewed research journal. Governmental agencies and watershed managers should be able to employ the results of this study in making decisions about a particular method's usefulness, rate of success, cost effectiveness, difficulty in operation, and expected value of results in comparison to all currently available bacterial source tracking methods.

Amanda Stevens, Philosophy

Dr. Thomas Kidd, mentor

American Perspectives on Calvinism

In order to bring a greater understanding of Calvinism to a primarily Arminian culture, I examine different American perspectives on Calvinism in three time periods: the First Great Awakening, the Second Great Awakening, and the present. After outlining the current Calvinist/Arminian debate, I explore the early 18th century thought of Jonathan Edwards as presented in *Freedom of the Will*. Next, I survey major objections to Calvinism that surface as America transitions from a predominately Calvinist culture to an Arminian one. Finally, I offer a Calvinist critique of aspects of popular evangelical Christianity today. I conclude that Calvinism can help replace a humanistic tendency in popular evangelical Christianity with a God-centeredness. Primary sources include Jonathan Edwards's *Freedom of the Will*, works of John Wesley, Mark Noll's *America's God: From Jonathan Edwards to Abraham Lincoln*, and a variety of popular Christian literature.

Michael Tang, Biology

Dr. Myeongwoo Lee, mentor

*Characterization of alpha-integrin genes INA-1 and PAT-2
in the development of Caenorhabditis elegans*

Integrins are surface proteins that play a major role in cell adhesion to the extracellular matrix. This interaction is crucial for the migration of cells in the developing organism to their final destination. The structure of the integrin consists of an alpha and a beta subunit that form a dimer. *C. elegans* possesses two genes that code for the alpha subunit of the integrins, which are INA-1 and PAT-2. In order to observe the effects that these two genes have on the developing nematode, I employ RNA interference experiments. This method involves creating RNA molecules that disrupt a gene's ability to produce certain proteins. This thesis provides background information about *C. elegans* and then describes the materials and methods used along with the results obtained. This paper observes the effects that the two genes have on the development of this species of nematode and determines that they do not play a significant role in the development of this organism.

Catherine Tung, Biology
Dr. Michael Attas, mentor

The Evolution of the Patient/Physician Relationship: Have Things Changed for the Better?

This thesis examines how the role of a physician has changed over the past centuries, concentrating especially on recent years. In the past, physicians were highly respected and practiced medicine in a completely different manner. In the current day, when patients are asked about their main complaints concerning healthcare, the lack of physician concern and the lack of a personable relationship with their doctor seem to be at the top of the list. Healthcare personnel have begun to realize this trend and are trying to alleviate these problems, but too much damage may have already been done to repair the image of physicians as cold and distant. By interviewing personnel in various hospitals that manage patient satisfaction, I have become aware of the recent changes that are now being implemented in hospitals to accommodate patients' needs and create a more comfortable, pleasant visit for them. It is now a priority to address measures to increase patient satisfaction and enforce new policies that will benefit the patients' well-being. Hospitals have begun to take the right steps towards rectifying negative stereotypes, but much more work needs to be done in the future to continue to meet patients' increasing expectations.

David Vanderhider, History
Dr. Julie Sweet, mentor

Genocide and Holocaust

Unraveling all that encompasses the terms *genocide* and *holocaust* is a monumental task. This thesis first attempts to define the two terms, both in the context of history and modernity. Next, it conveys many similarities and differences between the two terms using the examples of American Indians and the European Jews of the Second World War. In examining the methods, implementations, rationalizations, and reasoning for both holocaust and genocide, it further seeks to prove that both the plight of the American Indians and the treatment of European Jews classify as genocide and holocaust, respectively. Moreover, the thesis defends the perception that *holocaust* suggests a much deeper, significant, and more modern form of mass murder than *genocide*. Finally, the thesis addresses the effects and significance of holocaust and genocide, including the means through which modern societies can proactively prevent the two from recurring.

Jessica Wallenmeyer, Biology
Dr. Michael Attas, mentor

Teaching Compassion in Medical School: Do We Need a Medical Humanities Curriculum?

In this work I explore the issue of incorporating medical humanities into the medical school curriculum. By researching some of the ways in which medicine and clinical practice have evolved over the last century and examining the current status of healthcare in America today, I propose that there is a crisis of care experienced by both patients and physicians caused by the insufficient education of doctors in medical humanities. I consider two specific models of medicine, the current Biomedical Model and the Humanistic Model, in order to point out the inadequacies of the first in satisfying patients in our modern-day healthcare system. By interviewing some directors of medical humanities programs at a few medical schools and also seeking students' perspectives on these classes, I explain some of the ways in which medical schools are striving to transform the focus of physician training and demonstrate the positive benefits these changes have upon our future doctors. Including medical humanities courses as a mandatory part of medical school curriculum is crucial in the education of professionals going into healthcare. In order to cure the crisis of care America is facing, we must reform medicine from the inside out, beginning with training compassionate doctors.

Mary Ward, University Scholar
Prof. Kay Mueller, mentor

Why Our Sisters are Dying: A Gendered Look at AIDS in Sub-Saharan Africa

In sub-Saharan Africa, where the AIDS pandemic rages, this disaster is taking a disturbing twist in its destruction. While transmission in this part of the world is primarily through heterosexual intercourse, women are contracting HIV and dying at a faster rate than men. This thesis examines the major reasons why this is happening. It seems that basic anatomical and physiological differences between the genders are making women more vulnerable to infection. But more importantly the patriarchal culture of this part of the world exacerbates the situation by creating an environment that oppresses women, making it difficult for them to stay healthy. This thesis looks at the social attitudes at the foundation of the AIDS problem and it discusses what hope this part of Africa has for tomorrow.

Golda Waselovich, Social Work
Dr. Jon Singletary, mentor

An Analysis of Living Wage Campaigns at Universities

The living wage movement has gained much momentum in the past few years, with living wage ordinances being passed in many cities and municipalities across the United States. Recently, the movement has spread to universities as well, with Harvard University being the first school to begin a living wage campaign in 1998. Since then, many other schools have followed suit. This paper will discuss what a living wage is and then analyze two successful campaigns—Harvard University and Georgetown University—from a social movement perspective. In addition, an analysis of an ongoing campaign at Baylor University and an outlook of the future of living wage campaigns as a social movement will conclude the paper. Research for the paper has been collected through personal interviews with campaign participants along with journal and newspaper articles. The paper argues that different social movement theory can be applied to living wage campaigns and that the movement will only grow stronger on college campuses in the years to come.

Andrea Westman, Biology
Dr. Sarah-Jane Murray, mentor

The Quest for St. Brendan: The Story of a Celtic Saint from Medieval Europe to Victorian England

My thesis explores the pan-European legends surrounding a medieval Irish holy man, St. Brendan. Several medieval works (Latin and vernacular) narrate Brendan's seven-year sea voyage. His story was also revived during the Victorian era thanks to a poem composed by Matthew Arnold. Taking as my point of departure the Latin *Navigatio sancti Brendani* (composed in the late seventh to early eighth century), I show that the *Voyage of St. Brendan* is a tale of adventure and self discovery, which illustrates the soul's journey towards God. Chapter One presents the cultural and historical grounding for my study. I examine here the Irish monastic expansion, through key figures like St. James, St. Patrick, and St. Columba. I also examine Celtic missionary saints who followed Brendan's example and became "fishers of men," with special attention paid to St. Columbanus. In Chapter Two, I analyze three medieval versions of the Brendan legends: the Latin *Navigatio*, composed by an Irish pilgrim monk on the Continent, and written for a monastic community; the Anglo-Norman *Voyage* composed for the court of Henry I; and the Dutch translation, which we assume was destined to secular audiences. Chapter Three takes a look at the enduring legacy of Brendan's story, by focusing on the work of Victorian poet Matthew Arnold. Arnold draws upon the episode of Brendan's visit to Judas, which contrasts starkly with other depictions of the traitorous disciple in medieval art and literature (e.g., Dante's *Divine Comedy*). St. Brendan's story is one of faith and hope. The universality of its profoundly Christian message provides the key to understanding why it has been translated for so many generations into so many languages.

Taylor Wootton, University Scholar
Dr. Kevin Pinney, mentor

*Combating the Viable Rim:
Novel VDAs Combined with Bioreductive Drugs for Enhanced Tumor Cell Death*

This study explores the pathophysiology of tumors and reviews past methods of combating cancer by exploiting such pathophysiology. I address current research on the subject, including advances in vascular disrupting agents (VDAs), which selectively target the rapidly proliferating tumor vasculature, causing occlusion of vessels supplying oxygen, nutrients, and waste removal, and thus resulting in cell death. VDAs are successful in causing necrosis in all areas of the tumor except the outer viable rim, a layer of cells not supported by the tumor vasculature. Without further treatment, these remaining cells can proliferate and regenerate the malignant growth. Current research, however, suggests that the problem of the remaining viable outer rim may be solved by bioreductive agents. These drugs take advantage of the tumor's hypoxic environment by forming cytotoxic agents, upon reduction, capable of causing tumor cell death. The goal of my research is to design and synthesize a novel VDA which incorporates the pharmacophores of colchicine and combretastatin-4 phosphate (CA-4P) as well as a bioreductive agent capable of combating the outer viable rim. The rationale for the novel VDA involves incorporating a seven-membered ring into the combretastatin scaffold, thus eliminating the problem presented by the more abundant and less active *trans* isomer of CA-4P. Additionally, I hypothesize that structural changes to CA-4P to more closely resemble colchicine will increase its tubulin-binding activity. The target molecule is completed by the coupling of a bioreductive agent to the novel VDA.

Hannah Zdansky, University Scholar
Dr. Sarah-Jane Murray, mentor

Refining the Soul: The Pilgrimage of Caritas in the Romances of Chrétien de Troyes

My thesis explores the relationship between twelfth-century theology and courtly romance. I specifically look at the connections between St. Bernard of Clairvaux's treatise *De diligendo Deo* (*On Loving God*) (ca. 1126) and the corpus of Chrétien de Troyes's Arthurian romances (ca. 1165-1190). In each tale, I analyze the progression of love made by the characters towards a complete attainment of *caritas* ("charity"). Chapter One investigates love from a medieval religious standpoint in order to establish Chrétien's cultural milieu. I consider works by St. Augustine, the *Canticum Canticorum* (Songs of Songs), Boethius's *Consolatio Philosophiae* (*Consolation of Philosophy*), as well as a mid-twelfth-century narrative poem composed in Old French, the *lai* of *Narcisus*. Chapter Two turns to two of Chrétien's early romances, *Érec et Enide* and *Yvain*. Here, I show how the protagonists—Erec and Enide, and Yvain and Laudine—grow as a couple. In Chapter Three, I discuss Chrétien's fourth romance, *Le Chevalier de la Charrette* (*The Knight of the Cart*), in light of his fifth and final work, *Perceval*, and the eleventh-century *Vie de saint Alexis*. Throughout the thesis, I draw upon medieval artwork (manuscript illuminations, stained-glass windows, sculpture) to enrich my analyses. In this way, I come to grips with the medieval worldview and, more particularly, the twelfth-century understanding of love and marriage. Working within a fictional framework, Chrétien echoes Bernard and suggests that the love between man and woman is a response to God's love; it is the first step towards spiritual perfection and happiness.

OTHER MAY OR AUGUST 2006 GRADUATES

Andrea Carver, Biology & Psychology

Dr. David Rudd, mentor

Lori Keith, Economics

Dr. Charles North, mentor

Travis Nick, Economics

Dr. Charles North, mentor

PROSPECTIVE DECEMBER 2006 GRADUATES

Cassandra Deere, University Scholar

Ashley Hayes, Philosophy

Jonathan Lee, Biology

Ta-Wei Lin, University Scholar

Joshua Shelton, Computer Science

Ben Walther, English

Nathan Wacker, Economics

Meaghan Wheeler, Marketing