

Annual Honors School Research Conference 2006

First Annual Honors School Research Conference

**Bey Hall, H.R. Young Auditorium
Tuesday, April 18, 11:00 a.m. – 4:00 p.m.**

It is with great pleasure that the The Honors School presents its
First Annual Research Conference

Student presenters include research in the fields of:

Biology	History
Business Management	Mathematics
Business Marketing	Music Industry
Communication	Political Science
English	Psychology

Additional students in the Thesis process who are unable to present:

Stacey Ciprich, Anthony D'Amico, Shannon Lance, Heather Meyers, Karen Mintz, and
Ashley Toth

Overview of Events

11:00—Welcoming Remarks—Brian Garvey, Ph.D

11:15—1:30-Session One—Krystle Hinds, Samantha Bourque-Trieff, Meghan Moratelli,
Subrina Mahmood, Christine Arsego, Lindsay Stetson, Casey Hennessey, Alanna Raines,
and Lauren Korcz

1:30—1:45—Break

1:45-4:00—Caitlin Graham, Lindsay Savage, Allison Lovenberg, Danielle DePasquale,
Preethi Pirlamarla, Dan Duffy, Lindsay Pino, Bettyann Monteleone, and Lauren Garry

Monmouth University Honors School
Dean: Brian Garvey, Ph.D 732-263-3620
Assistant to the Dean: Ms. Reenie Menditto 732-263-5308

PRESENTERS

Christine Arsego

The Million Dollar Hypothesis

Abstract: This thesis is based on a mathematical problem known as the Riemann Hypothesis, the solution for which is worth \$1 million dollars. The problem was first conjectured in 1859 by mathematician Bernhard Riemann and is considered one of the greatest unsolved mysteries in mathematics today. The Hypothesis has connections to different areas within mathematics, such as the prime numbers. It also has connections to fields outside of mathematics, such as physics. Discussion will be on the history and mathematics behind the Hypothesis.

Chief Advisor: Dr. Susan Marshall

Second Reader: Dr. Joseph Coyle

Samantha Bourque-Trieff

Analysis of Iterative Methods for Solving Matrix Equations

Abstract: There are many physical problems pertaining to the motion of waves that can be modeled using the Helmholtz equation. This partial differential equation is often difficult to solve and can be approximated using the finite element method. The finite element method is a matrix equation of the form $Ax=B$. When direct methods of solving this equation become too lengthy and inefficient, iterative methods can be utilized to find a solution to the given equation. A variety of methods have been studied carefully so that suggestions of the best method to use to solve the matrix equation formed by the finite element method can be made. These methods have been programmed and compared so that the suggestions can be supported by both graphical and algebraic evidence.

Chief Advisor: Dr. Joseph Coyle

Second Reader: Dr. Betty Liu

Danielle DePasquale

To Infinity and Beyond: The Search for Transcendental Numbers

Abstract: Every real number can be classified as either algebraic or transcendental, the most famous of the latter category being the constant π . Mathematicians have only been aware of the existence of transcendental numbers for a little over 150 years, when Joseph Liouville exhibited the first known example in 1844. This discussion will review some of the history of transcendental numbers, including contributions from George Cantor, Charles Hermite and Ferdinand von Lindemann. The discussion of the work in using Liouville's techniques will be used to produce new examples of transcendental numbers.

Chief Advisor: Dr. David Marshall

Second Reader: Dr. Bonnie Gold

Dan Duffy

Nihilism and Existentialism in Chuck Palahniuk's Fight Club

Abstract: With focus on Chuck Palahniuk's Fight Club. This thesis explores the use of the philosophical concepts of nihilism and existentialism and how they are used in literature. I will be comparing how these concepts have been used in 19th Century Russian literature, with special focus on Fyodor Dostoevsky's Notes from Underground, and how existentialism will come from Friedrich Nietzsche and his views on what these philosophies mean. This thesis is an exploration of the effective use of nihilism and existentialism in literature and how they are used to shape the literature of Palahniuk and Dostoevsky.

Chief Advisor: Dr. David Tietge

Second Reader: Dr. Stuart Dalton

Lauren Garry

Elizabeth Bishop: Exploring the Extraordinary

Abstract: This thesis will explore the work of Elizabeth Bishop and contribute new critical analysis of those parts of her work which are not represented in the existing critical literature. Through the eyes of Elizabeth Bishop, seeing is not necessarily believing (or unbelieving). Her poetry, drenched in imagery of the everyday and coated with simplistic diction and syntax, allows its readers to explore their imaginations through descriptions of seemingly common things, people and places. Bishop's works examine ordinary objects while focusing on the fantastic and mysterious through a calm and controlled lens. According to Sybil P. Estess, though Bishop's descriptions of reality may seem ordinary on the surface, if looked at a second, third or twenty third time they, "are actually much more: they are guides to her own vision of those realities" (219).

Chief Advisor: Dr. Prescott Evarts

Second Reader: Dr. Mary Kate Azcuy

Caitlin Graham

The Five Points of Celebrity

Abstract: This research takes a novel approach to enhancing Monmouth University's Athletic Program. It combines the research conducted by the Ladies Professional Golf Association (LPGA) on the "Five Points of Celebrity" model, business theory and an application related to "market orientation," and applies these principals specifically to Monmouth University's Women's Basketball team. The goals to be achieved include raising the appeal level of athletes to fans, increasing attendance at athletic games, attracting better athletes and students to the University, increasing respect for the athletes and the sport, and, finally, improving Monmouth University's national visibility and reputation.

Chief Advisor: Prof. James Cavazzini

Second Reader: Prof. Robert Mika

Casey Hennessey

Corporate Public Relations

Abstract: Competition in the global business environment is tough, and achieving a unique position and competitive advantage becomes more difficult and expensive. From the research to date, it appears that corporate branding is an important factor in determining a company's identity. The choices made in the development of a corporate brand are a major factor in determining customers' perception of any given business. With the proper corporate branding strategy, a company can create differences between competitors and build a loyal customer base. This thesis first reviews the importance of branding, the definition of corporate branding and what factors influence the effectiveness. Based on the literature review, a structured interview with five corporations is conducted to examine the concept of branding and the factors that influence the effectiveness of corporate branding.

Chief Advisor: Prof. Nancy Wienczek

Second Reader: Dr. Juyan Zhang



PRESENTERS (cont.)

Krystle Hinds

The Mathematics of Google

Abstract: The Internet has come a long way in a short amount of time. Due to the vast number of websites and structure of the Internet, Internet Search Engines have had to recreate their search criteria and processes many times. The most famous, and most successful of these, is Google's Page Rank Algorithm. This method is of particular interest due to its dependence on mathematics, as well as its success over other competitors. The purpose of researching Google's Page Rank Algorithm is to investigate the need and process of mathematics in internet searches, as well as to discover why Google's Page Rank is considered to be the best algorithm for search engines. A future endeavor will be to explore whether or not knowledge of the mathematics behind Google's Page Rank Algorithm can be used to manipulate the ranking of any given website.

Chief Advisor: Dr. Joseph Coyle

Second Reader: Dr. David Marshall

Lauren Korcz

Improving Relationships

Abstract: The purpose of the present study is to address the following research questions: "Can combining expressive writing with perspective-taking have a positive influence on dating romantic relationships?" Previous research regarding Pennbaker's (1997) writing paradigm suggests that expressive writing about various topics (e.g. traumatic events) can have a positive outcome regarding ones physical, emotional, and mental health. The basic writing paradigm involves expressive writing for 3-5 consecutive days, for 15-30 minutes per day. Research has shown a positive correlation between perspective-taking and overall relationship satisfaction in newlywed couples (Cast, 2004). Thus, there is a reason to believe that perhaps combining the two has potential for even greater positive outcomes for relationships. In this study, a pre-test will be given to measure perspective-taking, inclusion of other in the self, communication, relationship satisfaction, commitment, quality of alternatives, investments, and general happiness. Following the pretest, one of three possible writing conditions (writing about the self, taking the partners perspective, or control) will be assigned. Following the writing exercise, the same variables will be re-assessed during a post-test.

Chief Advisor: Dr. Gary Lewandowski

Second Reader: Prof. O. J. Sizemore

Allison Lovenberg

Military Madness: The Effects of the Vietnam War on Music

Abstract: Music has always played a vital role in popular culture. When rock and roll artists like Elvis Presley first appeared in the 1950s, many people felt threatened by this new kind of music and what effect it would have on its listeners. However, none of the music spoke about any serious issues facing society. During this time no music affected people enough to make them stand up and fight for what they believed in. When the Vietnam War began, however, and people started to realize how badly it was affecting their nation people began to fight for what they wanted to change. Musical artists changed the focus of their material to topics such as war, peace, the government, and protest. As a whole, society was greatly affected by this shift in music. Musicians found that they had the best way of expressing their thoughts and all that was taking place around them. As this became a realization to more people, the number and type of artists changed. Listeners changed with the music and took what they learned from it to do all they could to make a difference. Never before had a single event altered music and society so significantly. Most of the studies and research on this topic focused specifically on what the music said and how strongly the lyrical content opposed the Vietnam War. The actual change in music caused by the war has rarely been discussed. I plan to use the research on Vietnam War era music and apply it to my own theory on how specifically music and society was changed by the Vietnam War.

Chief Advisor: Prof. Ron Frangipane

Second Reader: Prof. Kristin Simoes

Subrina Mahmood

Bangladesh: Pathway From The Past To The Future

Abstract: A primary responsibility of governments is to ensure safety and security of its citizens. Security has traditionally been defined in military and defense related terms. In recent years, the notion of security has been expanded to include other dimensions to incorporate securing jobs, education, health, and other aspects to guarantee a life supplied with basic needs at a minimum; this broad idea of security is known as 'Human Security.' Human security is a primary concept that applies to everyone. It is a model that was created by the United Nations to include people's basic needs for living a decent life. The relevance and effectiveness of governments in terms of their capacity to ensure human security is an issue of paramount concern. However, the main concern of any fairly new country is economy because economy is the underlying cause that can reduce many or all of the social issues that any country may have. Given this, this thesis will focus mainly on the inadequate economic concerns of Bangladesh as well as explore the government of Bangladesh in its obligation to guarantee human security for its citizens. In addition, the relevance of an improved economy through an improved function of Grameen Bank to better serve the nation will also be investigated.

Chief Advisor: Prof. Roy Nersesian

Second Reader: Dr. Rekha Datta

Bettyanne Monteleone

Background Music, Memory, and Cognitive Abilities

Abstract: Music and its impact on learning were examined. The study also examined whether certain types of music had more of an impact on learning than others. In addition participants' level of musical expertise and typical learning behaviors were explored. Ninety Monmouth University students (45 males and 45 females) were shown an online presentation of 12 words. They were then asked to recall as many words as they could remember. Then they were shown another online presentation of 12 different words. While participants viewed this set of words Mozart or Black Eyed Peas played in the background, or there was silence. Finally, participants were asked to recall as many words as they could from the second list.

Chief Advisor: Dr. David Payne

Second Reader: Prof. Linda Foster



PRESENTERS (cont.)

Meghan Moratelli

A Mathematical Exploration of Crystallographic Groups and Frieze Patterns in Art and Architecture

Abstract: In mathematics, two dimensional and three dimensional objects can be classified according to their symmetries. Wallpaper patterns in the plane and frieze, or border, patterns are two such examples and prove to hold a special property of only admitting a finite number of possible symmetry groups. Throughout the world of art and architecture, wallpaper and frieze patterns are common and have been studied in many pieces of artwork. An explanation of wallpaper and frieze patterns will be given followed by several examples of these patterns in local art and architecture. My plans to continue studying wallpaper and frieze patterns during my studies abroad this summer will also be discussed.

Chief Advisor: Dr. David Marshall

Second Reader: Dr. Barbara Lynn Bodner

Lindsay Pino

German Propaganda to Advance Support for War

Abstract: Propaganda has been used extensively in wars to rally the cause among the citizens and the army. World War I had an extensive amount of propaganda used by countries fighting on both sides of the war. Germany in particular used propaganda in many mediums to exploit their cause, and this discussion will focus on German propaganda during World War I and the implications that followed as a result.

Chief Advisor: Dr. Fred McKittrick

Second Reader: Dr. Susan Starke

Preethi Pirlamarla

HIF-1 in the Ischemic Rat Testis

Abstract: Proper oxygen balance is essential to any organ of the body. If oxygen levels are compromised, a condition known as hypoxia can occur. Hypoxia can cause deleterious effects, such as tissue death. The protein hypoxia-inducible factor-1 (HIF-1) is the primary regulator of oxygen balance in many cells, and in the event of hypoxia, can trigger the expression of either cell survival or cell suicide genes. Testicular torsion is a condition in which the spermatic cord becomes twisted, causing a drop in the oxygen levels of the testes and leading to irreparable cell death and tissue damage. The purpose of this research is to advance our understanding of the role HIF plays in recovery after testicular torsion as well as the mechanisms of its activation.

Chief Advisor: Dr. Michael Palladino

Second Reader: Dr. Dennis Rhoads

Alanna Joy Raines

Writing Strategies to Improve the Self

Abstract: Self-understanding is defined as an individual's overall knowledge and comprehension of what makes them who they are (Lewandowski & Hampson, 2004). The present study examines the possibility that one's self-understanding can be improved through a writing exercise. It is hypothesized that participants asked to write a self-evaluation or life progress report will experience an increase in self-understanding on a third day post-test. Such an increase in self-understanding will be associated with increases in positive emotions, self-esteem, personal growth, self-acceptance, as well as decreases in negative emotions and perceived stress, compared to those in neutral writing condition. Thus, inciting an increase in self-understanding may support positive outcomes in people's lives, in terms of happiness and life satisfaction.

Chief Advisor: Dr. Gary Lewandowski

Second Reader: Dr. Michele Van Volkom

Lindsay Beth Savage

Education and Nationalism: A Fusion of Policy and Identity

Abstract: This paper proposes that a link between education policies and nationalism; that is, education policies are designed and implemented with the influence of creating a nationalist sentiment within a community. Nationalism is, in the context of this project, understood as the idea of identity within a particular community, and the desire to make this idea uniform and – most importantly – dominant. Idea of identity is understood as the shared characteristics of a specific population which, when viewed collectively, offer a definition of what, exactly, shows membership to that population (and, perhaps more importantly, what does not characterize membership to the population). In the context of this project, one of the most important components of nationalism is the promotion of a standardized language which is used in all forms of social behavior, at the home, school, and in the workplace. This paper will include a theoretical discussion of paradigms of nationalism (focus on Ernest Gellner's theory of High Culture), and then two case studies will be presented in order to illustrate the connection between nationalism and education. The two case studies selected are: the success of the French education system in creating a single-language community and the Ukraine's current struggle to build a national community after years of dominance by outside influences, and how education is employed in that struggle.

Chief Advisor: Dr. Kevin Dooley

Second Reader: Dr. Thomas Pearson

Lindsay Stetson

Communication and Gender Differences in Romantic Relationships

Abstract: The purpose of this study is to determine if Deborah Tannen's Genderlect Styles' Theory applies to contemporary romantic relationships. The present study investigates three of Tannen's principal concepts: independence vs. intimacy, status, and initiating conflict. Three couples from Monmouth University volunteered to take part in a group survey and discussion. They filled out a brief questionnaire, detailing their past relationships, and how long they lasted. The subjects also had the opportunity to voice opinions about their current relationships, about independence, intimacy, and conflict. The group then viewed two popular film clips and talked openly about what they had witnessed and how they felt about it. It was hypothesized that participants would follow Deborah Tannen's Theory of differences in romantic relationships, but differences would be based on age and experience, rather than gender, alone. Furthermore, participants described their differences and discussed communicating openly with each other in order to resolve future conflicts. The participants' gender played the most dominate role. Men showed more independence, women demonstrated more intimacy and affection, and men initiated most conflicts. While men took on a more dominant role in romantic relationships, the study also showed more equality and mutual understanding among couples.

Chief Advisor: Dr. Michael Lacy

Second Reader: Dr. Mary Kate Azcuy