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

Student presenters include research in the fields of:

Business: Accounting  Economics  Finance  Marketing
Art  Criminal Justice  Communication  Computer Science
Education  Foreign Language  History  Mathematics
Political Science  Psychology

9:00 a.m. Welcoming Remarks — Dr. William Mitchell
Dean of The Honors School

PRESENTERS
(in alphabetical order)

Gabrielle Antonello (EN/HS)  Poola Mevawala (BUBE)
Carly Athan (BUBK)  Kelly Murray (AR)
Josef Boyd (CS)  Sarah Opatovsky (BY)
Paul H. Cordasco (BUBA)  Christopher A. Rau (CJ)
Morganne Firstone (CO)  Andre Renaudo (BUBF)
Renae Hill (FA)*  Max Roberts (PY)
Ali Kliment (PS)  Lorena C. Salas (PY)
Danielle R. Lazzara (BY)*  Puja Sharma (BY)
Nicholas Macaluso (BUBA/BUBF)  Emma R. K. Simon (BY)
Carissa Maurin (BY)  Nicole Starinsky (BY)
Colleen McKendry (MA/EDS)  Erin Szulewski (BUBK)

*Completed thesis but not presenting at the conference.
"Your an American Girl You Love Your Life. You Believe You Have Chosen It": American Culture in the Novels of Joyce Carol Oates

Through the novels Black Water Blonde and My Sister My Love this thesis explores Joyce Carol Oates' use of historical and cultural changes of 20th century American life. During the mid-century the United States experienced transformative social and economic forces that greatly affected the nation's cultural values and identity. Social values of community self-sacrifice and industriousness began to shift toward an emphasis on individual self-reliance and material success. These changes both expanded the traditional vision of the American character while also limiting the nature of the American experience. This emphasis on the self has led to an emotional and psychological disconnect between people and a longing for a reestablishment or substitution of that loss. The desire for material success along with growing consumerism only encouraged industries like film entertainment and advertising to exploit girls like those Oates creates in her novels. The struggle with changing values has led to feelings of disorder isolation obsession internal conflict and ontological anxiety for Oates' characters. They are forced to navigate the tension between the restricting values of mid-century America with the increasing socially and sexually liberal culture. Despite advancement, social, familial, religious, and personal constraints remain while new pressures develop to manipulate the appearance, behavior, and desires of girls and women.

The Future of Advertising and the Hispanic Consumer

Companies routinely change their approaches to marketing and advertising to influence consumers to purchase their products and services. Companies that create new methods to influence the Hispanic population will be more successful due to the growth in the Hispanic population and its purchasing power. While some businesses have been responding to this expanding market, many companies still overlook this growing opportunity. To meet the needs and culture of this growing Hispanic population advertising modes and messages need to focus on things that Hispanics value, in a manner that creates a positive impression of the company and its products and services in their minds.

A Main-Memory Cache for the B+ Tree based on Node Popularity

An index speeds up record retrieval in a database by organizing data based on some key. The B+ tree is an advanced data structure used to index records. The tree is made up of internal nodes that guide a search along the shortest possible route to a leaf node, where pointers to actual records are stored. While the B+ tree makes queries faster, the structure's efficiency is limited by the fact that it resides on disk, where read and write operations are many times slower than in main memory. We propose two new variants of the B+ tree that place crucial parts of the tree structure in main memory. We use node popularity -- the idea that some records are accessed more (possibly much more) than others -- to decide which leaf nodes should be directly accessible through RAM. To minimize search time, we check main memory for shortcuts before going to disk. To account for changing popularities, the cache reorders itself when the system is idle to ensure that the most popular leaves can be accessed most quickly. Our tests show that cache search tends to have fewer average disk reads and writes than a standard B+ tree search.

The Sarbanes-Oxley Act of 2002

My thesis focuses on the corporate scandals which came to light during the turn of the 21st century. These corporate scandals in the American capital market resulted from insufficient self-regulation of the accounting industry as well as from unethical practices committed by top-management of many corporations doing business in the United States. As a result of these scandals, Congress passed the Sarbanes-Oxley Act of 2002 (SOX) to deal with the growing concerns about the truthfulness of corporate financial statements. This legislation attempts to regulate business accounting practices in as well as to create an obligation for top management to attest to the quality and integrity of the institution's financial statements. Investor confidence needed to be restored so that equity investments in publicly traded companies can be sustained. The thesis discusses the wide ranging impact of SOX.
Morganne Firmstone  
Chief Advisor: Dr. Nancy Mezey  
Second Reader: Dr. Eleanor Novak

Gendered language about sport in social networking  
Does it exist?: A blog content analysis among runners.

My research applies West and Zimmerman's (1987) theory of “Doing Gender” to the world of online communication. West and Zimmerman define “Doing Gender” as a product of human interaction which is constantly re-created and reinforced in social settings. In essence we “do gender” through our every day interactions. I expand West and Zimmerman’s contention that there is an audience in every social setting to the Internet age, where although invisible, the audience is still present. Bloggers post their writings with the assumption that someone is receiving their messages although the actual interaction may not be as visible as face-to-face contact. Through a grounded theory content analysis I have analyzed 20 blog entries (10 male 10 female) looking at language devices defined by researchers Tannen (2009) and Herring (1994) as typically female or typically male. Through this study I am looking to analyze how men and women communicate in the blogosphere and to shed light on any differences, if there are any at all. I chose sports-related blogs because of my strong connection to the subject as a Division I athlete and I chose running blogs to assure relatively equal numbers of men and women commenting on the topic. Ultimately my research question is: Do men and women “do gender” through their language in the blogosphere?

Renae Hill  
Chief Advisor: Dr. Aaron Ansell  
Second Reader: Prof. Maureen Dorment

How Indigenous Cultures in the Amazon May Regulate the Influence of Western Development

This project focuses on the Surui and Yanomami tribes of the Brazilian Amazon. These tribes are known for attempting to regulate encroaching western influences, while at the same time maintaining their traditional lifestyles. This research examines various factors within the tribes that affect the amount of western influence introduced into their culture. The paper begins with a background and history of each tribe, followed by a look at how they are acquiring and managing western-based health care and education systems within their cultures. The research also examines how the tribes are reaching out to private corporations and Non-Governmental Organizations (NGOs) for support. Additionally, the research will compare the techniques the Surui and Yanomami to manage western influences and assesses their success.

Ali Kliment  
Chief Advisor: Dr. Joseph Patten  
Second Reader: Dr. Thomas Lamatsch

Penny Wise and Pound Foolish: Health Coverage for Eating Disorders Across States

This paper examines why some states require insurance coverage for eating disorders while other states avoid such mandates. Research suggests that a limited number of insurance companies adequately cover eating disorder patients. Spearman’s rho correlation and logistic regression are employed to determine what aspects of a state correlate with that state’s decision to mandate or not to mandate insurance coverage of eating disorders. The Spearman’s rho correlation indicates that three independent variables are strongly correlated with those states that do mandate insurance coverage: percentage of female legislators, personal per capita income and percentage of the population with a bachelor’s degree or more. This finding suggests that wealthier, more educated states with a higher percentage of female state legislators are more likely to mandate insurance coverage for eating disorders. The logistic regression suggests that the significant independent variables include: ideology, percentage of female legislators, and percentage of the population with a bachelor’s degree or more. This finding strengthens the first finding in the sense that it also demonstrates that more educated states with a higher percentage of female state legislators are more likely to mandate insurance coverage for eating disorders.
Danielle R. Lazzara  
Chief Advisor: Dr. Ivan Gepner  
Second Reader: Dr. Dorothy Lobo

An in-depth Study of the Various Suspected Mechanisms Governing Melanocyte Depletion in Vitiligo

Vitiligo is a dermatosis characterized by the presence of depigmented macules which are well-demarcated and stark amongst normally pigmented skin. Various types of vitiligo have been described including generalized and local subdivisions thought to be governed by differing disease pathogeneses. Although the disorder is not deleterious to an individual’s health the resulting cosmetic appearance of affected individuals can be emotionally distressing. Thus it is imperative that an effective treatment granting patients permanent repigmentation of vitiligenous lesions be discovered. In order to devise such a treatment the disease pathogenesis which has yet to be fully identified and understood must be thoroughly researched. It is clear that pigment loss is the result of damage and subsequent depletion via apoptosis of melanin-producing cells called melanocytes. The mechanism by which melanocytes are triggered to enter apoptosis is primarily the question of concern. Much research conducted has given rise to several hypotheses rooted in various biological disciplines including genetic autoimmune cellular biochemical neural concentrations. The actual mechanism of melanocyte depletion is suspected to be a synthesis of the mentioned hypotheses. This literature review aims to consolidate the proposed autoimmune cellular biochemical neural and eclectic hypotheses; thus functioning to serve as a synthesized pathogenesis of the skin disorder vitiligo.

Nicholas Macaluso  
Chief Advisor: Prof. Paul Savoth  
Second Reader: Prof. Joe Reynolds

The Implementation, Advantages and Disadvantages of Solar Power

This thesis explores how different types of solar power systems can be implemented and how they compare economically and environmentally. My project examines methods to incorporate more solar power into America’s energy industry, while at the same time analyzing the advantages and disadvantages solar power on different fields and industries. I investigate the means by which the United States could potentially resuscitate the energy issue considering the future depletion of fossil fuels. I cover the implementation of basic forms of solar power, focusing on suppliers, funding, government involvement, and required improvements. Industries both advantaged and disadvantaged by solar power and creative alternative forms of solar power are studied. Finally, I shed light on Monmouth University’s efforts to clean up its energy supply.

Carissa Maurin  
Chief Advisor: Dr. Ursula Howson  
Second Reader: Dr. John Tiedemann

Movement patterns and site fidelity of long-spined sea urchin Diadema antillarum on Bahamian patch reefs

Long spine sea urchin Diadema antillarum is native to the coral reefs of the western Atlantic and Caribbean basin. D. antillarum suffered a mass mortality in 1983 throughout the entire Caribbean, which caused a 95 – 99% decline in D. antillarum population densities. This dramatic population decrease destroyed coral reefs. Macroalgae is the main food source of D. antillarum, and without their grazing pressure, the algae overtook coral reefs. This research explores techniques to increase the population of D. antillarum across the Caribbean. While D. antillarum occasionally occur in high-density, localized populations, it is unclear whether they will migrate to unexploited habitats. Artificial transplantation may be an effective technique for increasing D. antillarum populations on low-density reefs. Transplantation studies were conducted in Eleuthera, The Bahamas to determine the efficacy of the technique in increasing populations of D. antillarum on suitable but unexploited reefs. Quadrat surveys were conducted on patch reefs to determine baseline densities in order to identify source and transplant sites. Abiotic parameters and presence of predators were noted for each site. D. antillarum were collected from high-density patch reefs, marked with marine paint, and transplanted to low-density patch reefs and artificial reef balls. Daily (for 2 wks post-transplantation) and annual surveys were conducted to evaluate the retention and survival of transplanted D. antillarum at each of four sites. Preliminary results indicate that turbidity, current strength, and predation are the main factors that decrease the survival of D. antillarum.
**PRESENTERS (cont.)**

Colleen McKendry  
Chief Advisor: Dr. Richard Bastian  
Second Reader: Dr. Suneal Chaudhary

**The Importance of Design of Experiments: Factorial Designs**

This project analyzes the advantages of design of experiments, specifically the use of factorial designs, in producing valid, usable results in a study. A history is given, along with a seven step process which describes how to properly plan a successful experiment. The focus then shifts to the factorial design, where the goal is to highlight the advantages and applications of this particular type of design. Factorials are analyzed by a statistical test called analysis of variance, and the mathematical details involved, as well as their implications, are discussed. A factorial experiment was conducted using the correct procedure using data from the National Education Longitudinal study of 1988. Then, the same variables were analyzed without a proper design. A comparison of the two results demonstrates that utilizing a design process produces more valid results.

Pooja Mevawala  
Chief Advisor: Dr. Steven Pressman  
Second Reader: Dr. Robert H. Scott III

**Breaking Okun’s Law**

Since its creation in 1962, economists have been skeptical about Okun’s Law. Focusing on the relationship between GDP and the unemployment rate, Arthur Okun proposed that a 1% reduction in the unemployment rate, would create 3% more output measured by GDP. As the number of workers increases, the production level should rise as well. Okun used quarterly data from the second quarter of 1948 through the fourth quarter of 1960 to develop his initial study and equation. As the economy has changed, economists have become even more skeptical as to whether or not Okun's law is still relevant. This paper examines the equation that Okun created, followed by alternative versions of his law. It recreates Okun's original relationship, using his same data. A comparative analysis uses the data from the first quarter of 1963 through the fourth quarter of 2009 (using twelve year intervals) to understand whether Okun’s Law is a reliable forecasting tool. If it is not, possible reasons as to why it has become irrelevant will be tested.

Kelly Murray  
Chief Advisor: Prof. Vincent DiMattio  
Second Reader: Prof. Anne Massoni

**Commodity**

The term ‘commodity feminism’ describes how advertisers incorporate the cultural power and energy of feminism into product campaigns while simultaneously neutralizing its social and political critique. This advertising strategy has converted the feminist agenda into female narcissism, consequently selling the gendered female role back to women in the form of make-up, diets, anti-aging products - even health food. The elevated consciousness of the feminist movement has been subverted by advertising and imagery that prey on female insecurities maintained by patriarchal power. The typical marketing message aimed at women is “this product will empower you by making you beautiful”. This trend raises the questions “Do women really need this product to be beautiful?” and “Who’s standard of beauty are we trying to live up to?” In the artwork, Commodity, I have photographed the female form ¬– honestly, without manipulation. The images have then been tailored to fit into empty cosmetic compacts illustrating how women are constantly imprisoned by what they should look like and what is considered the ideal female physique. The persistence of female objectification does not symbolize how far we have come but how far we have left to go.
Sarah Opatovsky  
Chief Advisor: Dr. Donald Dorfman  
Second Reader: Dr. Liora Brosh

**Effects of ethinyl estradiol on the coloration of male guppies (Lebistes reticulatus)**

The purpose of this study is to determine if ethinyl estradiol effect coloration of male guppies. Through pregnancy or non-point source pollution, human females ingest synthetic contraceptive chemicals, such as ethinyl estradiol. They use only a certain amount of these hormones and the excess hormone leaves the body as water soluble waste. After the chemicals leave the body during urination, only 85-99% of the synthetic hormone is removed by sewage treatment plants. By subjecting male guppies to hormone gradients already found in the environment, measuring the changes in color in males, and comparing them to the color of unaffected males, reveal the impact of estrogen on the male fishes’ physical attributes. Fifteen male guppies exhibiting bright orange and yellow spots were removed from their holding tanks. Five fish were placed into each of three separate plastic containers. Aged fresh water containing ethinyl estradiol in concentrations of 0 parts per billion, 25 ppb and 50 ppb separated into three plastic containers were kept at room temperature (about 200 C or 680 F) throughout the experiment. Pictures of each fish were taken daily for 26 days with a field microscope with attached Coolpix camera, and anesthetized with tricaine mesylate (MS 222). Total area of the left side of each of the fish was compared to the area of color spots in the fish. Specific colors were identified and recorded for each fish and numbers were assigned to each color, one being the brightest and 10 being the darkest. Comparisons were made using a color wheel and spectrum chart printed on a transparency. The study is currently in progress. Funding for this project was provided by Monmouth University Biology Department.

Christopher A. Rau  
Chief Advisor: Dr. Peter Liu  
Second Reader: Dr. Ronald Reisner

**Perceptions of Distracted Driving**

Every year thousands of lives are lost or injured due to motor vehicle crashes across the nation. For people ages fifteen to twenty, motor vehicle crashes are the leading cause of death, with nearly a quarter of crashes resultant of distracted driving. This study examines factors that are hypothesized to influence distracted driving. There are five main hypotheses that are based upon gender, age, environment, driving instruction, education and the legality of acts. A survey questionnaire disseminated to two hundred respondents from the general population was conducted with a convenience sample of the non-probability type. Statistical analysis is employed to reveal any significance of the proposed hypotheses with the ultimate goal of rejecting the null hypothesis.

Andre Renaudo  
Chief Advisor: Dr. Susan Gupta  
Second Reader: Dr. Nahid Aslanbeigui

**The Viability of a Microcredit Program in Macheke, Zimbabwe**

This thesis examines the viability of a microcredit program as a solution to poverty in Macheke, Zimbabwe. After brief sections discussing Zimbabwe and Macheke, I examine various microcredit models that have been implemented around the world. An analysis of a survey of Macheke residents conducted in January 2011 indicates that a Grameen type model of group-lending is viable in Macheke.
Action, Omission and Spatial Proximity's Influence On Moral Judgment Across the Gender Role Ideology Spectrum

This study examines how spatial proximity, action and omission, intention, indirect agency, and method of consideration affect moral judgment and moral acceptability. The influence of these factors is examined across the gender role ideology spectrum. A sample of 88 (61 females, 27 males) participants were randomly assigned to one of three groups (separate consideration 1, separate consideration 2, and joint consideration) and then responded to a series of moral dilemmas. Participants stated whether or not they found the action stated in the dilemma appropriate, rated the moral acceptability of that same moral action and then reported how much negative emotion they experienced during the decision-making process. The BEM Sex Role Inventory was completed to examine levels of masculinity and femininity (androgyny was omitted). Independent and paired-samples t-tests revealed, as predicted, that spatial proximity and action/omission had a significant affect on moral judgment and moral acceptability. Linear regression analyses revealed, as predicted, that femininity was a significant predictor of moral acceptability and negative emotion in the dilemma dealing with proximal proximity, and that masculinity was a significant predictor of moral acceptability in the dilemma dealing with omission.

The Influence of Father Absence: Behaviors and Attitudes Regarding Alcohol Consumption, Cigarette Smoking, and Risk-Taking

The impact of father absence on risky behaviors and attitudes was investigated. The dependent variables included age of first alcoholic drink, frequency of alcoholic drinks per month, self-classification of alcohol use, attitudes regarding acceptable alcohol consumption, age of first cigarette smoked, frequency of cigarette smoking per day, attitudes regarding acceptable cigarette consumption, and a total risk-taking score regarding several non-smoking, non-drinking risky activities. Two-hundred college students served as study participants. All data were obtained using questionnaires. Participants were divided into three groups: father present, early father absent (from birth to age 6), or late father absent (from 7 to age 13). Because only seven males were identified from father-absent homes, two separate analyses were done, one including all participants and one including only females. Paternal absence was significantly associated with high alcohol use, especially when both males and females were included. Smoking frequency and attitudes regarding acceptable cigarette consumption were also influenced by father absence, but these differences were only marginally significant. However, among girls, those who continued to have high contact with their fathers even though they no longer lived together smoked their first cigarette at a significantly lower mean age compared to those who had low contact with their absent fathers. When only the female participants were examined, late father-absent girls exhibited a greater interest in non-smoking, non-drinking risky behaviors compared to both late father-absent and father present girls. Overall, these results are consistent with the hypothesis that father absence influences risky behaviors and attitudes. Furthermore, they suggest for girls at least that risk-taking behaviors of various types are most likely when father absence occurs late between 6-13 years of age.

Essential Oil Blends as Antibacterial Agents Against Hospital-Acquired Methicillin Resistant Staphylococcus aureus (MRSA) and Methicillin Sensitive Staphylococcus aureus (MSSA)

Methicillin Resistant Staphylococcus aureus (MRSA) is an example of a bacterial strain of Staphylococcus aureus that has resistance to methicillin, an antibiotic which is a member of the beta-lactam class of antibiotics. Methicillin Sensitive Staphylococcus aureus (MSSA) is a type of staph infection that is moderately sensitive to these antibiotics. Previous research conducted with ten essential oils against twelve patient samples, which included MRSA and MSSA, from Jersey Shore University Medical Center (JSUMC), revealed four of these oils demonstrated superior antibacterial activity. These four oils, wintergreen, cinnamon, thyme white and lemongrass, were further tested in two oil combinations (double blends), three oil combinations (triple blends), and a four oil combination (quadruple blend) against MRSA and MSSA (from JSUMC) bacteria by the disk-diffusion (Kirby-Bauer) method of testing. Results reveal that combinations of miscible oils were more effective than the essential oils alone, and combinations of immiscible oils were observed to have fewer efficacies than the individual oils. The antimicrobial properties of essential oils against multidrug resistant bacteria could be beneficial towards treating hospital patients in the United States and underdeveloped countries with people infected with MRSA or MSSA.
Privacy, though not clearly defined by the United States Constitution, has long been considered one of the fundamental unlisted rights. The degree of this right and the restraints placed upon it have been formed and then reformed by numerous court decisions. The roots of this fundamental right are found in multiple amendments as well as the Bill of Rights. However, as society and technology continue to evolve, the right to privacy must evolve along with them. The newly proposed and implemented airport security screening measures raise new questions about privacy rights. In order for these new measures to become accepted a new balance must be defined between public safety and individual privacy rights. An analysis of the landmark cases that have determined the role of privacy in American lives yields a framework for balancing constitutionally protected rights with the potentially invasive airport security screening procedures carried out by the Transportation Security Administration.