

The Honors School
SPRING Research Conference 2012

Wilson Auditorium
Friday, April 27, 2012
9:00 a.m.

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

Student presenters include research in the fields of:

Biology Business Chemistry Communication
English Education Health Studies Political Science
Music Psychology

9:00 a.m. Welcoming Remarks – Dr. Kevin Dooley

Dean of The Honors School

PRESENTERS

(in alphabetical order)

Miriam Basiouny (CE)
Karly Butler (EN/EDE)
Lea Callahan (EN)
Michele Cox (MU/CO)
Anderson Haxton (BUBF/BUBR)
Jewell Huffman (HE)
Susette Ingram (CE)
Jenna Intersimone (CO)
Caitlin Kelly (BUBI)
Kristen Kohm (PY)
Courtney Luk (EN)

Vincent Marchese (BY)
Bryan Martin (BY/CE)
Donald McCarthy (PS)
Leona Mostowski (EN)
Anthony Panissidi (CO)
Dharm Patel (BY)
Kyle Reinhardt (PY)
Jessica Rohr (EN)
Matthew-Donald Sangster (PY)
Gillian Shaw (CE)
Rebecca Stewart (EN)

PRESENTERS

Miriam Basiouny

**Chief Advisor: Dr. Carolyn Supplee
Second Reader: Dr. William Schreiber**

Isometrization of Frondosin B

Frondosin B is extracted from the marine sponge *Dysidea frondosa* and is known to inhibit the binding of Interleukin-8 which can stop the progression of cancer. Frondosin B is typically synthesized in 8-20 steps. Efforts to reduce the number of steps have been unsuccessful due in part due to the isomerization reaction of bulky alkenes. Research, to date, has been focused on the synthesis of bulky alkenes to determine the isomerization conditions and will be presented.

Karly Butler

**Chief Advisor: Dr. Stanley Blair
Second Reader: Dr. Lisa Vetere**

Anti-Patriarchy in the Pines

A gender studies approach will be taken to examine the society depicted in Charles J. Peterson's best-selling 1855 novel *Kate Aylesford*. This novel shows a time when the Feminist movement was encouraging not only women to redefine their own gender roles but men as well. Originally roles in other words social norms were assigned to men and women. However there were times when society did condone men and women crossing gender boundaries. *Kate Aylesford* shows a society where men and women not only take on non-traditional gender roles but are tolerated and even praised for doing so. Therefore the gender studies interpretation will be applied to both male and female characters in order to determine what defines a character's gender as well as the true meaning of masculinity and femininity.

Lea Callahan

**Chief Advisor: Dr. Sue Starke
Second Reader: Dr. Lisa Vetere**

Heathcliff: Self-Made Man in a World of Homogeneity

Heathcliff is a popular topic of discussion in the literary conversation surrounding *Wuthering Heights*. His mysterious background and strange behaviors have given critics much to talk about since the novel's release in 1847. Thrust into a world full of aristocrats, Heathcliff functions in the book as a cultural other; with age, he transforms into a self-made man, and explodes the hierarchy of the patriarchal society that oppressed him as a youth. A mystery in a recognizable universe, Heathcliff is not the romantic that he is often painted to be. I look at *Wuthering Heights* not as a love story, but as a bildungsroman of Heathcliff.

Michele Cox

**Chief Advisor: Prof. George Wurzbach
Second Reader: Dr. Joseph Patten**

Copyright Reform in the Music Industry

The 2011 proposals of the Stop Online Piracy Act (SOPA) by the United States House of Representatives and the Protect Intellectual Property Act (PIPA) by the Senate have raised questions to the music industry and consumers alike of whether current copyright law by itself is sufficient to protect its creators' intellectual property from piracy. These proposed bills emphasize the impact of the internet and digital technology in respect to piracy and intellectual property. This project examines the current copyright issues in the music industry. It addresses the methods of self regulation that the music industry has employed to protect itself and all of its creators the past landmark legal cases and significant legislation that have greatly impacted the industry and its consumers and finally the SOPA and PIPA acts that were proposed by the House and Senate respectively.

PRESENTERS (cont.)**Anderson Haxton****Chief Advisor: Prof. Peter Reinhart
Second Reader: Dr. Joseph Patten****“A Tale of Two Cities”**

A comparative study of the two cities of Asbury Park and Long Branch will examine why Long Branch was successful and Asbury Park was not and the factors influencing that outcome. In the analysis there will be a discussion of Aristotle's views on a strong economic environment in the context of this case study of Long Branch and Asbury Park and whether or not the findings of this case study confirm or refute Aristotle's views.

Jewell Huffman**Chief Advisor: Dianne Van Arsdale
Second Reader: Dr. Karen Pesce****An Analysis of Some of the Destructive Effects of America's Modern Medical Treatments and Proposal of Integrative Medicine as a More Viable Option**

Attitudes towards Complementary and Alternative Medicine (CAM) have been as widely varied as the numerous modes of treatment in this realm of health care that is often thought to contain no intellectual or scientific basis. Unfortunately many of these opinions are formed without adequate knowledge of CAM. The lack of knowledge leads to wariness avoidance and dismissal of CAM as a reliable option for healing. The ancient practices of Ayurveda and Traditional Chinese Medicine that have sustained civilizations for thousands of years are met with skepticism and even labeled as “quackery” by many medical professionals. One of the main objectives of this project while advocating more holistic methods of medical treatment is to examine the United States' deteriorating health care system with its many connections to politics and the pharmaceutical industry and propose a different more unconventional tactic to remedy the many problems Americans face regarding their health such as chronic disease and increased insurance premiums. This of course is an extremely difficult task as the extremely flawed system that runs this country is so deeply ingrained into the very foundations of our society that it seems nearly impossible to initiate any kind of change without causing controversy (as evidenced by the current dispute of the Affordable Health Care Act). The purpose of this project is to highlight the importance and advantages of integrating alternative methods of healthcare into the safest of Western medical practices in order to establish a more synergistic effect against illness and disease.

Susette Ingram**Chief Advisor: Dr. Carolyn Supplee
Second Reader: Dr. Robin Kucharczyk****The Importance of Homogeneous Catalysis and Their Chemical Transformations**

The development of catalysts for asymmetric synthesis with n-alkanes as starting material is of great importance and has significant applications in the petroleum and pharmaceutical industries including the use of alternative feed stocks to produce new and existing products, the development of new materials, and the synthesis of pharmaceuticals and other bio-active compounds. Recently Goldman Brookhardt and others have demonstrated that “pincer-type” ligand metal complexes are useful catalysts in the formation of aromatic hydrocarbons. It has been suggested that the reactivity of these catalysts was due to the sterics of the phosphorus atom while others contended that the metal -phosphorus plane was the key factor on how substrates coordinate to the metal center. Research efforts have focused on widening the carbon skeleton of the phosphine ligand in an attempt to affect the stereochemistry of the resulting chemical transformation. The importance of transition metal catalysis and their chemical transformations will be presented.

PRESENTERS (cont.)**Jenna Intersimone****Chief Advisor: Dr. Aaron Ansell****Second Reader: Dr. Michael Phillips-Anderson****Western Media's Portrayal of Afghan Culture**

This paper explores how American journalists are portraying Afghans and what differences exist between their portrayals and the accounts of cultural anthropologists. I will evaluate why these discrepancies exist and the way coverage of Afghanistan could benefit from anthropological insights. I will argue that it is important to understand culture if one wishes to interpret Afghan political conflict. I will do this by discussing three aspects of Afghan culture that are ignored in the media but which anthropologists capture in their work: the role of the mullah, family values, opium production, and the game of buzkashi. Understanding these aspects would help Americans understand the political conflict. In order to speak to these issues I will track different embedded journalists and look at how these journalists are portraying Afghan culture and compare their reports to secondary sources ethnographies written by anthropologists.

Caitlyn Kelly**Chief Advisor: Dr. Susan Gupta****Second Reader: Dr. Joseph Rocereto****A View into Personality and Attitudes of "Twilight" Consumers**

Consumers fuel trends in society and ultimately cause either their success or demise. Recently one of the most popular trends among female college-aged consumers focuses around the fantasy-based concept of vampires. From the *Twilight* novels and media series to HBO's *True Blood* and beyond these trends have brought forth wild fans and consumers that are loyal. A survey was conducted to identify potential attitudes and/or behaviors that can be linked to the success of the ever popular *Twilight* series in hopes of finding a correlation among consumers which can then be used in the marketing of emerging products aimed at a similar target audience.

Kristen Kohm**Chief Advisor: Dr. Robyn Holmes****Second Reader: Dr. Christine Hatchard****The Influence of Strength of Attachment on Children's Behavior**

This study explored attachment strength on children's play and self-regulation abilities. Participants were 14 preschool children (10 boys and 4 girls) between the ages of 4 and 5 years and 14 caregivers (4 men and 10 women) between the ages of 33 and 40 years. Caregivers completed a written survey that assessed strength of attachment from both the caregiver and child's perspective. In the self-regulation task children chose whether they wanted a toy before they were asked several non-invasive questions about themselves for 5 minutes. The amount of time the child waited to receive the toy was the measure of self-regulation. Children were observed in the classroom during free play. Observations were coded using a standardized play scale. Results suggested that attachment strength influences children's behavior and development. Future research might pursue the influence of attachment across other developmental domains and with ethnically diverse children.

Courtney Luk**Chief Advisor: Dr. Frank Fury****Second Reader: Dr. Linda Littman****The Dragon's Pearl – Study of Harmony in Human Nature**

This creative writing thesis is a short story that incorporates the Chinese mythology of the dragon and the phoenix in order to demonstrate the parallel relationship that people share with these mythical creatures. Harmony between the dragon and the phoenix is required to fulfill the yin and yang union and create balance in the world. As individuals we need to find this harmony within ourselves and in our relationships whether they are bonds of friendship or of romance to become balanced emotionally and mentally. My story uses literary aspects of the Romantic era such as an emphasis on the individual and nature. One of the main characters Gong has a personality that exemplifies a very individualistic disposition which gradually diminishes as he discovers his true purpose and the sense of equilibrium that Mei brings to him. Nature is imperative as it is a main factor in distinguishing parallel realms. This thesis resembles a fairytale integrating supernatural features in a natural world. It also touches the idea of equality among the male and female characters neither ultimately obtaining the upper hand. The incorporation of these elements influences the main idea of harmony as well as the portrayal of these parallel worlds.

PRESENTERS (cont.)**Vincent Marchese****Chief Advisor: Dr. Ellen Doss-Pepe
Second Reader: Dr. Dennis Rhoads****Regulation Of E-Cadherin Activity In Fibroblast And Fibrosarcoma Cells:
Influence Of Culture Density Mmp-9 Expression And Mapk Activity**

Cadherins are integral proteins that play an important role in cellular adhesion. If E-cadherin is cleaved releasing an 80 kDa fragment, it is no longer active. Interestingly this 80 kDa product has been found to be increased in several types of cancers. In this work the presence of an 80 kDa protein reactive with E-cadherin antibody consistent with the inactive cleavage product of E-cadherin has been detected in normal fibroblasts (BJ cells) and fibrosarcoma cells (HT-1080) and is expressed at a slightly higher level in subconfluent cells than confluent cells. Similarly matrix metalloproteinase-9 (MMP-9) which is capable of cleaving cadherins is also expressed more in subconfluent cells. Therefore obtaining a confluent state is correlated with decreased MMP-9 expression and loss of the 80 kDa fragment. Extracellular signal regulated kinase (ERK) is upregulated in proliferating cells and may also upregulate expression of MMP-9. To investigate the potential role in the regulation of MMP-9 expression and E-cadherin activity dexamethasone treatment was used. Dexamethasone treatment resulted in lower expression of phosphorylated ERK and a possible decrease in the expression of the 80 kDa E-cadherin fragment in confluent fibrosarcoma cells. These results suggest a relationship between increased culture density ERK activity, MMP-9 expression, and regulation of E-cadherin activity.

Donald McCarthy**Chief Advisor: Dr. Joseph Patten
Second Reader: Dr. Kevin Dooley****Is The Electoral College Keg Tapped Out?**

For over two hundred and twenty years the United States of America has utilized the Electoral College to select a citizen to serve as President. The Founding Fathers compromised and debated before creating the Electoral College which was designed to be representative of both large and small states provide political stability limit corruption and tyranny and produce a figure with national appeal. Currently forty-eight states and the District of Columbia allocate their electoral votes via the winner-take-all method while Maine and Nebraska utilize the congressional district method. After each contentious presidential election there are arguments both for and against the Electoral College and the method the States use to allocate their electoral votes. This paper will address the question: Should the Electoral College be eliminated altered or preserved? It will examine the origins of the Electoral College how it functions criticisms how alternative methods like the proportional and congressional district methods compare to the winner-take-all system and provide case studies recoding the presidential elections of 1976 and 2000. Abolishing altering or preserving the Electoral College and how the states apportion their electoral votes all affect the selection of our President and the future of the United States of America.

Bryan Martin**Chief Advisor: Dr. Dennis Rhoads****Tianeptine vs Ethanol - The Battle for the Adolescent Brain**

Recent molecular pharmacological studies have demonstrated that ethanol inhibits the transmission of an action potential via Ionotropic Glutamate Receptors (IGR) thus resulting in overexpression of these proteins. Increased IGR density may cause excitotoxicity, seizures and tremors, which may be aggravated during adolescence. Pathological studies have demonstrated seizures and tremors to be a symptom of Ethanol Withdrawal Syndrome(EWS). A novel anti-depressant Tianeptine acid, proposed to regulate the expression of the AMPA form of IGR, has demonstrated effectiveness in attenuating the seizures associated with EWS. The purpose of this study was to assess variations in relative receptor densities of the AMPA IGR from microsomal and synaptosomal fractions of juvenile Long Evans rat brains at 5 day, 11 day, and 18 day intervals during a 3 week time course. The rats were placed on one of three diets: Alcohol, Tianeptine, and control. Following the drug administration period microsomal and synaptosomal brain tissue fractions were obtained. The tissues were subjected to SDS-PAGE and transferred to a PVDF membrane for chemiluminescent immuno-detection. Densitometry was used to assess the relative amount of AMPA IGR. The results indicate that chronic exposure to ethanol increases AMPA receptor densities in both the synaptosomal and microsomal fractions. The overexpression of AMPA IGR due to chronic alcohol consumption may result in excitotoxicity and account for the seizures observed during EWS. Conversely chronic exposure to Tianeptine decreases AMPA receptor densities in the both the microsomal and syaptosomal fractions and thus may prove to be an effective treatment for EWS.

PRESENTERS (cont.)**Leona Mostowski****Chief Advisor: Dr. James Konopack
Second Reader: Prof. Tresa Dusaj****The Anxiolytic Properties of a Creative Arts Intervention among College Students**

This study seeks to address the effects of a creative arts intervention on state anxiety levels among a college student population. Nationally last year's incoming college students reported record-low levels of emotional health with high rates of anxiety. Due to increased anxiety levels a need has developed for low-cost interventions to aid in anxiety reduction. Recent research has shown that participating in a creative arts intervention may reduce levels of anxiety and therefore serve as an effective tool for reducing stress and anxiety among college students. This study explored the effects of a 15-minute creative arts intervention on levels of state anxiety among undergraduate college students.

Anthony Panissidi**Chief Advisor: Dr. Eleanor Novek
Second Reader: Prof. John Morano****Advertising and Newspaper Journalism's Dying Standards**

The lack of devotion to public service journalism exhibited by today's newspaper industry can be attributed to its long-time advertisement-funded structure; the economics of the newspaper industry fuels a corporate mentality that continues to plague newspapers nationwide. Together these two factors are essentially destroying the newspaper industry's primary purpose of informing the U.S.'s democratic citizenry. The solution to these problems appears to lie in revamping the entire funding structure of the newspaper industry by eliminating its heavy reliance on advertisements for revenue. This thesis will explore this proposal as well as why the current state of newspapers should matter to average citizens an explanation of the newspaper industry's advertisement-funding structure the beginnings of a corporate mentality in the newspaper industry the failure of the newspaper industry's funding structure in the digital age the printing of soft news in place of hard news to attract greater readership other effects of the newspaper industry's advertisement-funded structure and the effects of cutbacks at newspapers.

Dharm Patel**Chief Advisor: Dr. Michael Palladino
Second Reader: Dr. Ellen Doss-Pepe****Effects of *E. coli* and *P. aeruginosa* Lipopolysaccharide-Induced Inflammation on Hypoxia-Inducible Factor-1 in the Rat Testis**

Bacterial infections and resulting inflammation of the male reproductive tract are known to impair fertility through mechanisms that include decreased sperm mobility through the tract blockage of the tract and reduced androgen output. Hypoxia-Inducible Factor-1 (HIF-1) is a transcription factor that is considered the master regulator of hypoxia. We hypothesize that HIF-1 in the rat testis is upregulated following lipopolysaccharide (LPS)-induced inflammation. Inflammation was induced via intraperitoneal administration of LPS from *E. coli* and *P. aeruginosa* for 1 3 6 and 12 hours (n = 3-5 animals/time point) at a dosage of 5 mg/kg body weight. Measurement of serum testosterone levels indicated the occurrence of inflammation in the testis following LPS treatment. Western Blot analysis of testicular cytoplasmic protein extracts demonstrated an increase in HIF-1 protein. Messenger RNA levels of HIF-1 were measured in LPS and saline injected rats via qPCR which demonstrated no change in testicular HIF-1 mRNA. To examine potential mechanisms involved in the up-regulation of HIF-1 DNA binding activity and protein levels of nuclear factor- κ B (NF- κ B) were measured. Electromobility shift assays (EMSA) suggest a decrease in NF- κ B binding activity following LPS treatment while Western Blot analysis shows no change in NF- κ B and I κ B protein levels. We conclude that HIF-1 is upregulated following LPS-induced inflammation. However in contrast to other tissue types in which HIF-1 is up-regulated through transcriptional activation via NF- κ B we conclude that HIF-1 is not upregulated through an increase in HIF-1 mRNA. These novel results demonstrate that the testis is physiologically distinctive in responding to infection and inflammation. Further experiments will be performed to examine effects of inflammation on downstream targets of HIF-1. The overall objective of this work is to elucidate the link between hypoxic and inflammatory responses in the testis at the molecular level following inflammation.

PRESENTERS (cont.)**Kyle Reinhardt****Chief Advisor: Dr. Gary Lewandowski
Second Reader: Dr. Natalie Ciarocco****Level of Learning and Evaluation Scores on Online vs. In-Class Testing in an Undergraduate College Student Population**

The use of online testing has increased greatly over the past several years but research on its effectiveness is lacking. This study seeks to examine the effect that the expected form of testing (online vs. in-class/traditional) would have on amount of studying quiz grades and learning among a college student population. Participants received a packet of information to study and were told they would take a quiz on it later. Half were told they would take the quiz on paper with a proctor and with no study materials. The other half were told they would take the quiz on a computer without a proctor and with study materials. The study compared the quiz scores and level of learning for students in the two groups.

Jessica Rohr**Chief Advisor: Dr. Stanley Blair
Second Reader: Dr. Lisa Vetere****A Monomythic Interpretation of the Harry Potter Saga**

Campbell's monomyth is used as a guide for theorists to create their own versions of how a hero's journey was developed. He elaborates his theoretical approach in his novel *The Hero with a Thousand Faces* on how a hero's journey has been told for thousands of years. Studies show that each novel is based off of one structural plot and it is up to us the reader to further research the hidden meaning of one single plot. Leeming Propp and Cousineau who were inspired from Campbell created a theoretical approach to show the conventions of a hero's journey. Each theorist relies on a similar plot structure to focus on how a hero grows and develops from birth to defeating the villain. Harry Potter can be drawn from both literary theory and theoretical approaches. Writers such as J. K. Rowling focus on creating literary works based off of the structures theorists believe people enjoy a hero winning his or her journey. I formatted my own monomythic interpretation by synthesizing parts of Campbell Leeming Propp and Cousineau into literary theory and literary criticism and showing how J.K. Rowling's *Harry Potter* saga is meaningful when approached from an interdisciplinary perspective.

Mathew-Donald Sangster**Chief Advisor: Dr. Gary Lewandowski
Second Reader: Dr. Bianca Aceveeb****An fMRI Study of Sensory Processing Sensitivity**

The present study sought to examine the role of sensory processing sensitivity (SPS) in emotionality and activation in the mirror neuron system (MNS). An fMRI experiment on highly sensitive people involved in romantic relationships found that those with high levels of SPS presented with heightened activations in regions associated with emotionality due to emotion-eliciting stimuli. Additionally highly sensitive people were found to have substantial activations in the MNS across all contrasts. These results provide for a greater understanding of highly sensitive people emotionality the mirror neuron system and the connections between these constructs.

Gillian Shaw**Chief Advisor: Dr. Carolyn Supplee
Second Reader: Dr. William Schreiber****Green Chemistry and the Synthesis of Functionalized Organic Compounds**

Selective oxidation of carbonyl groups to their corresponding acids in compounds containing both alcohol and aldehyde groups is of growing interest in the specialty chemicals and pharmaceutical industry. Compounds containing alcohol and carboxylic acid functional groups are used in waterborne and powder coating systems. An example of a compound that is of interest to both the coatings and pharmaceutical industries is dimethylolpropionic acid (DMPA). The current reported synthesis and production of DMPA is carbon inefficient requires a lot of energy and is not catalytic. Research efforts to date have focused on a novel "greener" synthesis of DMPA. Green chemistry and the impact of this research will be presented.

PRESENTERS (cont.)**Rebecca Stewart****Chief Advisor: Dr. Stanley Blair
Second Reader: Prof. Susan Douglass****The Effect of Narrative Structure on Reader Psychology in
Tim O'Brien's *The Things They Carried***

In renowned author Tim O'Brien's fourth book *The Things They Carried* readers are introduced to Tim O'Brien the narrator who recounts his experiences before during and after the Vietnam War through a number of short stories told at one set time later in his life as a 43-year-old veteran and writer. Critics and reviewers alike have often categorized this book as a work of Vietnam War literature or as belonging to the more general category of war literature. However to label O'Brien as a war writer and this book as a war story would be to detract from the complexity of the book's narrative structure. This paper proposes that by looking at the text as a complete and correlating novel and by freeing it from the genre of war literature it can be understood as a much more important work in the literary continuum as one that focuses as much on form as on function. This paper suggests that rather than serving as a cathartic work for the author the novel attempts to psychologically militarize readers putting them in the mindset of a veteran through narrative techniques.



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