



WILSON AUDITORIUM | FRIDAY, MAY 3, 2013

THE HONORS SCHOOL SPRING RESEARCH CONFERENCE

— 2013 —

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

Student presenters include research in the fields of:

*Anthropology, Art, Biology, Business
Chemistry, Foreign Language, Mathematics, Psychology
Software Engineering, Social Work & Sociology*

**MONMOUTH
UNIVERSITY**
WHERE LEADERS LOOK *forward*

PRESENTERS

(in alphabetical order)

Allison Ardolino (PY)

David Atherton (BY)

Emily Blanchette (ARMA)

Brian Carlsen (BY)

Cortney Cavanaugh (CE)

Amanda DiVita (PY)

Carly Gross (AN/SO)

Sheila Harvey (FS)

Megan Holt (BUBI)

Casie Illig (MA)

Jazmin Juarez (BY)

Ernest Kirstein (SE)

Caroline Lay (BY)

Jacquelyn Schadewald (SW)

Rachel Werner (PY)

Welcoming Remarks

DR. KEVIN DOOLEY, *Dean of The Honors School*

Presenters

ALLISON ARDOLINO | *The Influence of Gender and Parenting Style on Perception of Bullying and Upstanding Behavior*

Chief Advisor: Dr. Lisa Dinella

This study examined the interactive effect of gender and parenting style on the recognition of acts of bullying, perceived severity of bullying, and the likelihood that an individual would choose to upstand, or intervene, in a situation involving bullying. To date there have been no studies looking for complex relationships among these key variables. Furthermore, since there has been very little research to date on factors influencing upstanding behavior, this study also investigated the complex roles of parenting style and gender in predicting the likelihood of upstanding behavior. A sample of college students rated vignettes on the presence and severity of bullying and the likelihood that they would intervene in the situation. They also completed the Parental Authority Questionnaire (PAQ; 1991) in order to identify their parenting style. Findings are discussed in light of their applications in school communities addressing bullying and victimization, in family therapy contexts, and/or parent education.

DAVID ATHERTON | *Identification and Analysis of N,N-diethyl-m-toluamide (DEET) Biodegradative Genes from an Acinetobacter Species Isolated From a Sewage Treatment Plant*

Chief Advisor: Dr. Karen Pesce
Second Reader: Dr. Ellen Doss-Pepe

Pharmaceutical and personal care products (PPCPs) include many different varieties of chemicals such as medicines, cosmetics and insect repellants. PPCPs are a global concern due to their high persistence and mobility in the environment (Costanzo et al., 2007). Some points of entry for PCPPs into the environment are runoff or improper disposal along with sewage treatment plant effluent. (Boxall et al., 2012; Kolphin et al., 2002). Not only do PPCPs contribute to environmental pollution but they may also cause adverse health effects to humans and other organisms. For example, some PPCPs have been shown to act as endocrine disruptors or possibly contribute to an increased risk of cancer (Boxall et al., 2012). Some bacterial species have the capability to break down PPCPs as a carbon and energy source. One such organism is an Acinetobacter bacterial species that we have isolated from a sewage treatment plant. This species can metabolize N,N-diethyl-m-toluamide (DEET), the active ingredient in many commercial insect repellants. Although the precise mechanism is unknown, we have discovered a gene, dthA, that codes for a DEET hydrolase enzyme. In order to locate additional genes in this pathway, we performed a Southern blot assay and subsequently cloned a 4 kb fragment of genomic DNA containing the dthA gene into Escherichia coli. This DNA fragment was sequenced and characterized. Understanding how bacterial species metabolize PPCPs is critical to developing successful bioremediation strategies.

EMILY BLANCHETTE | *The Seven Deadly Sins: A Sculpture Series*

Chief Advisor: Prof John Tiedemann

This series of seven sculptures explores the age-old themes of the Seven Deadly Sins and how they apply to life today. Each sculpture was made with intentions of leading the viewers to recognize these sins in their own lives. Every aspect of these sculptures including color, shadows, facial expressions, and symbols were chosen to evoke feelings and spark reactions to the Seven Deadly Sins and how they affect our society.

RACHEL WERNER | *Parents Perspectives of Support Services in Relation to heir Anxiety Level Throughout Their Child's Hospitalization*

Chief Advisor: Dr. Michelle Scott
Second Reader: Dr. Laura Jannone

The current study examines the role of support services in the perceived anxiety level of parents of hospitalized children. This study combines two important and heavily researched topics in the field of medical science: anxiety and support services that are offered to families of hospitalized children. The support services that families of hospitalized children are provided with should lower their anxiety and create a more comfortable experience for them. The study used a non-experimental correlational survey research design. The participants were parents who spent time at Ronald McDonald House of Long Branch while their child endured an inpatient or outpatient hospital treatment. It is hypothesized that many of the support services offered will decrease anxiety. It is also hypothesized that positive interaction from the doctors and nurses will decrease anxiety. Mothers are expected to have higher anxiety levels and be more easily influenced by the support services than fathers. Results will follow.

Congratulations to all of our Graduates.

Looking forward to seeing you at Commencement.

Sincerely, The Honors School

ERNEST KIRSTEIN | *Software Engineering Methods and Resources for Multimedia Development*

Chief Advisor: Dr. Cui Yu
Second Reader: Dr. Joseph Chung

Digital multimedia contributes to billions of dollars in revenue for a variety of industries every year. This paper focused on improving some of the software engineering methods and resources in this area. In this research, several open source multimedia technologies were explored through rapid prototyping. The research centered primarily on multimedia production technologies including: image deformation algorithms, binary serialization in version control, video encoding, audio encoding, and image selection methods. Open-source contributions were thusly produced for dynamic audio encoding, linear binary version control, and image selection utilities. A new method was also devised for improving the speed of Igarashi's deformation algorithm by using unique matrix design patterns and also by sacrificing quality in the deformation algorithm's realism. These contributions compose a small part of an ever-growing open-source ecosystem on which the digital revolution hinges. Online education and digital social networks are just two emerging examples of how freely shared multimedia technology will affect our global community.

CAROLINE LAY | *Targeted Gene Delivery Using PLGA Nanoparticiles: High Transfection Efficiency with Low Toxicity*

Chief Advisor: Dr. Xudong Yuan
Second Reader: Dr. Karen Pesce

The purpose of this research is to formulate a biodegradable nanoparticle delivery system that has both high transfection efficiency and low cytotoxicity. This will be tested through the transfection of human embryonic kidney cells (HEK 293T) and human colon carcinoma cells (HT29) with a GFP plasmid using PLGA nanoparticles as a carrier system. In addition chitosan and albumin nanoparticles will also be tested. If effective in both cells the delivery efficiency of plasmid DNA will be tested in CD8+ cells. Once the gene delivery to the CD8+ cells is successful shRNA will be delivered to the cells in hopes to silence the GFP protein. Conjugation of the CD8+ cell antibody to the nanoparticle will be used to increase the specificity as well as the transfection efficiency. The ultimate goal for this project is to silence target genes with shRNA using biodegradable nanopartilces through the use of antibody recognition.

JACQUELYN SCHADEWALD | *Exploring Open Adoption*

Chief Advisor: Dr. Kimberly Paglino
Second Reader: Dr. Thomas Lamatsch

Many studies support the notion of openness in adoption as being optimal for all members of the adoption constellation. However there has also been research that contributes to the idea that adoptive parent's perspective on openness in adoption is mixed. The purpose of this research is to gain insight into the experience of openness within the adoptive family. This study seeks to increase knowledge of adoptive parent's approaches in involving their child in the open relationship with their birth family. Research has indicated that when children are younger, parents are more open about adoption. However, once the children grow older, adoptive parents may reduce discussion of and interaction with the birth family. This research sought to explore the open adoption connections between birth and adoptive family members in order to determine the nature and quality of the relationship. Additionally, this study also sought to identify whether the level of openness in the adoption changes with the child's age.

BRIAN CARLSEN | *A Comparative Northern Diamondback Terrapin (*Malaclemys terrapin terrapin*) Habitat Analysis in the Sedge Island Marine Conservation Zone and Shark River, New Jersey*

Chief Advisor: Prof. John Tiedemann
Second Reader: Dr. John Wnek

The northern diamondback terrapin (*Malaclemys terrapin terrapin*) is listed as a species of special concern in the state of New Jersey. This research evaluates and compares optimal living conditions for these animals at the Sedge Island Marine Conservation Zone in Barnegat Bay and the Shark River Estuary. Differences between each region are identified using a Terrapin Resource Index (TRI), which was created based on the findings of numerous studies which were able to identify optimum living conditions for diamondback terrapins. The TRI revealed that the Sedge Island Marine Conservation Zone exhibits many optimal environmental conditions for diamondback terrapins and confirmed that this region is able to support a sustainable population. The Shark River Estuary exhibited a marginal suitability rating which means that this area contains a few necessary aspects of a sustainable terrapin habitat. However, the Shark River Estuary is most likely unable to host a stable population of these animals because the region experiences extreme tidal fluctuations and lacks appropriate nesting area due to development associated with South Riverside Drive.

CORTNEY CAVANAUGH | *G-quadruplexes as Targets for Anticancer Drugs*

Chief Advisor: Dr. Massimiliano Lamberto
Second Reader: Dr. Tsanangurayi Tongesayi

The American Cancer Society estimates that in the year 2013 there will be approximately 1660290 Americans diagnosed with some form of cancer besides basal and squamous cell skin cancers (American Cancer Society 2013). Consequently a great deal of research has focused on curing the disease. The purpose of this research is focused on describing the use of G-quadruplexes as targets for anticancer drugs. In addition to the literature review the synthesis and biological studies of novel potential anticancer drugs will be discussed.

AMANDA DIVITA | *Pink Fighter Jets and Blue Tea Sets: The Role of Toy Type and Toy Color in Adults' Gender Attitudes*

Chief Advisor: Dr. Lisa Dinella
Second Reader: Dr. Nancy Mezey

Gender-typed play is an important part of children's development. Past research suggests that children use implicit color labels to determine interest in and stereotypes of gendered toys (Weisgran Dinella & Fulcher 2011). It is important to also understand adults' perceptions because adults are the primary purchasers of toys for children. The present study investigates undergraduate students' perceptions of masculine and feminine children's toys. A repeated measures ANOVA indicated that while males had lowest personal interest in feminine toys regardless of color females were more interested in masculine toys when in feminine colors than masculine colors. Additionally participants perceived girls to also have higher interest in masculine toys with feminine colors than masculine toys with masculine colors. With regard to participants' stereotypes of gendered toys a chi square analysis revealed that participants stereotyped masculine toys in feminine colors to be more for both genders than for either only boys or only girls. These results suggest that girls are "allowed" to play with masculine-typed toys in feminine colors allowing girls to expand masculine-type behaviors. Implications for gendered play are discussed along with children's interests in and stereotypes of toys.

CARLY GROSS | *Understanding Pathways to Youth Homelessness: An Analysis of the Ten States with the Highest Rates of Homeless Youth*

Chief Advisor: Dr. Nancy Mezey

While homelessness affecting any population is an important social problem homeless youth in wealthy industrialized nations present a particular social problem because they become invisible to societal establishment and institutions; for invisibility is often the nature of homelessness in America. Homeless youth are a group specifically defined by under the age of twenty-five that has spent one or more nights away from home without the knowledge or consent of their parent and/or guardian (Marquez 2011) Within the United States there are an estimated 575000 to 1.6 million youth living without a home or a family on the streets or within shelters (Corliss 2011 p. 1683). This study evaluates the outreach programs of several shelters and programs targeted at homeless youth in the ten states with the highest rate of youth homelessness. Using a content analysis of the websites of 40 shelters and programs based in these ten states results showed there is a lack of attention to the identified risk factors leading youth to becoming homeless. There is evidence to show that a better understanding of the pathways that lead youth to become homeless can provide better outreach and rehabilitation programs to reinstate youths back into productive society.

SHEILA HARVEY | *Americans' Attitude Toward the Hispanic Community in the U.S.*

Chief Advisor: Dr. Thomas Lamatsch

The purpose of this study is to examine Americans' attitude toward the Hispanic community in the U.S. The central hypothesis is that Americans perceive the Hispanic population as a single ethnic group rather than a mix of diverse cultures. The study relies on empirical data from over 500 American students of Monmouth University. By examining their responses based on the following Hispanic-related topics: the Spanish Language the origin of Hispanic immigrants legal status labor values and beliefs and expressions of nationalism observations can be made of how students overall perceive the Hispanic population in the U.S. Although it would be unjust to generalize Americans as sharing the same opinion towards the Hispanic community it is reasonable to make observations according to their tendencies of perceiving the ethnic group. This data functions as a crutch in proving the imperative of the education system to focus more time on teaching students of the diversity within the Hispanic community. In 2012 based on data from the U.S. Census Bureau "Hispanics constituted 16.7% of the nation's total population" not including the "3.7 million residents of Puerto Rico a U.S. territory" (25). In coincidence with this figure it is projected that the Hispanic population on July 1 2050 will constitute 30% of the nation's population (25). Looking to the future perhaps the history textbooks should not be so largely focused on Western Civilization if a third of the population will be tracing its roots back to countries of Central and South America and the Caribbean. Should the U.S. education system be accommodating to these changes as the nation continues to transform? Although the U.S. is currently experiencing a rather significant demographical shift the manner in which Americans tend to perceive the Hispanic population as sharing the same language values culture etc. fails to acknowledge the immense amount of diversity within the single ethnic group. Although the population of Hispanic newcomers increases more and more each year and an increasing number of Hispanics are born in the U.S. the American attitude toward this ethnicity remains stagnant. Due to a lack of education of the diversity within the Hispanic population often Americans make assumptions and generalizations that can be considered discriminatory. Based on the interview responses of several Hispanic students of Monmouth University this is indeed an issue that hinders the ability of members of the Hispanic community to socially integrate into the U.S. As the Hispanic population in the U.S. continues to grow it is imperative that the U.S. education system devotes more time to teaching different Spanish and World Cultures courses that would present our future leaders with a better idea of the diversity that exists within the Hispanic population in the U.S. Being in tune to these differences would enhance American students' perception of the Hispanic community thus reducing offensive generalizations and stereotypes as Hispanics move from the fringes of our changing society into the mainstream.

MEGAN HOLT | *Individualism-Collectivism in Global Virtual Teams: Preference for Similarity in Team Composition and Style of Collaboration*

Chief Advisor: Dr. Susan Gupta

The purpose of this thesis is to identify valence of individualism-collectivism in the work preferences of individuals in global virtual teams. Geert Hofstede rated the degree of individualism in nations in his landmark study published in 1980. Hofstede's cultural rankings are used in this study to test whether the national culture score for individualism will predict a preference for individualistic team composition and work style. The data used in this thesis was collected as part of the X-Culture project directed by Professor Vas Taras and consists of survey data collected from more than 1500 students across 250 virtual teams composed of 5-7 members from differing nations. This study compares data from the United States (which Hofstede identified as strongly individualistic) and Indonesia and Malaysia (both of which Hofstede identified as strongly collectivistic) to analyze whether they are responding as predicted by Hofstede's value for their nation. There is a lack of research that studies global virtual teams (GVT). This study adds to the literature in a way that will shed light on the preferences of GVT members to aid managers in their efforts to create productive teams and provide relevant team training.

CASIE ILLIG | *The Exploration and Application of the Theory of Logistic Regression*

Chief Advisor: Dr. Richard Bastian

One of the most valuable aspects of statistics is the ability to determine the probability of a given outcome based on a variety of independent or predictor variables. Logistic regression is one type of regression that can be used to determine the probability of a particular outcome. This thesis explores the history of logistic regression its theory and the interpretation of the results in statistics. Much of the theory of logistic regression is based upon a quantity called the odds ratio. Also the statistics test of odds ratio is based on a chi-squared distribution. My thesis will show how these methods are connected to formulate the logistic regression equation which is the output of the logistic regression process. Interpreting the logistic regression equation leads to a prediction of a given outcome.

JAZMIN JUAREZ | *Mitogen-Activated Protein Kinosis and Epithelial Cadherin*

Chief Advisor: Dr. Dottie Lobo
Second Reader: Dr. Ellen Doss-Pepe

Cancer is the leading cause of death worldwide (World Health Organization 2013). Metastasis is the progression of cancer from a primary site of formation to a distant location and is the most pervasive problem in the development of cancer. Research on the biochemical and cellular process of metastatic progression has left many unanswered questions on the regulation of this process.