
H A R R I E T L . W I L K E S
HONORS COLLEGE
FLORIDA ATLANTIC UNIVERSITY™

6th Annual
Harriet L. Wilkes
Honors College
Symposium for
Research and Creative Projects
Featuring the Chastain Honors Symposium
Guest Lecture Series

***Friday, April 4, 2008
8:30 a.m. – 4:00 p.m.***

*6th Annual
Harriet L. Wilkes
Honors College Symposium
for
Research and Creative Projects*

Featuring the Chastain Honors Symposium Lecture Series

Dr. Jeffrey Buller, Dean
Dr. Mark Tunick, Associate Dean

*Research and Creative Projects
Symposium Committee*

Dr. Eugene Belogay, Assistant Professor of Mathematics & Computer Science

Dr. Chitra Chandrasekhar, Instructor of Chemistry

Dr. Julie Earles, Associate Professor of Psychology

Dr. Christopher Ely, Associate Professor of History

Dr. Michael Harrawood, Associate Professor of English

Dr. Michelle Ivey, Assistant Professor of Chemistry (chair)

Dr. Yu Jiang, Assistant Professor of Art History

8:00	Registration, AD Lobby					
	Student Presenters					
	AD 102	AD 103	AD 104	AD 202	AD 204	AD 206
9:00 - 9:15		Tyler Stubbs Municipal Privatization: A Case Study of Sandy Springs, Georgia			Pierre Louis Pentecostalism, Development, and Democracy in Latin America	
9:15 - 9:30	Jessica Mahoney Identification of Gene Expression Patterns during T-Cell Development	Rebeca Campos The Private Provision of Public Goods in the Voluntary Carbon Market in the United States	Savannah McClelland "He is dead": an examination of sacrifice and Modern Rites of Passage in Virginia Woolf's <i>Mrs. Dalloway</i>	Jarred Reiling Domestic Violence and Native American Women: Disrupting Colonialism and (Re)claiming Sovereignty	Matthew Saccento The Tolan Committee and the Internment of Japanese Americans	Olivia Carollo The relationship between proactive coping and PTSD symptom severity in a college student sample
9:30 - 9:45	Ashley Hydrick Overexpressing dynactin's microtubule domains to determine their function	Joann Skaria Are Homeowner's Associations "Environmentally Friendly?" An Analysis of HOA rules in residential communities of Jupiter, Florida	Jaime Neudecker A Search for Self: DeLillo's <i>Americana</i> , <i>Mao II</i> , and <i>Falling Man</i>	Victoria Ryan Death and Insanity in Shakespeare: Feminine Sexuality and Masculine Immortality	Mark Goldberg-Foss "They Forget I am an Irishman": Socialist Internationalism and the Question of Nationality in Ireland, 1896-1916	Raquel Borges-Garcia Gender Differences in Self-Reported Proactive Attitudes, Coping, Self-Efficacy, and Posttraumatic Stress Disorder Symptoms
9:45 - 10:00	Kevin McCaffrey The Genetic Alteration of Superoxide Dismutase in Order to Increase Longevity in Yeast Cells	Stephanie Lucas, Hank Smith Status of the Gull-billed Tern in Florida	Joel Simundich "The Depths of an English Heart": Wittgensteinian Private Language in Ford Madox Ford's <i>The Good Soldier</i>		Lauren Bimmler The Grassroots Gospel: How Spirituals and Freedom Songs Democratized the Civil Rights Movement	Jodi-ann Thomas, Dr. Laura Vernon Relations Among Positive and Negative Emotional Responses to Trauma and Posttraumatic Stress Disorder Symptoms
10:00 - 10:15	Jovonia Washington, Nicholas Quintyne Ph.D Dichloroacetate: A Potential Treatment for Cancer	Benjamin Ross Relationship between individual size and number of internal symbiodinium in the larger algal bearing foraminifera <i>Sorites dominicensis</i>	Natalie Clair Stetson America's Flawed Dream: F. Scott Fitzgerald's View of the American Dream in the Roaring Twenties and the Great Depression	Kathryn Cruikshank Frailty, Thy Name is Orsino: Appetite, Bestiality, and Femininity in <i>Hamlet</i> and <i>Twelfth Night</i>	Peter Salomone A Fistful of Facts: Reconsidering Dziga Vertov's Cinematic Truth	David Martin Fear, Hope, and Personality: An Empirical Study of Political Persuasion
10:15 - 10:30	Rebecka Epps Your Teacher was Right: You Can't Get an A if You Don't Show up to Class and Do Your Homework	Samantha Fow The Political Economy of Domestic Corn Ethanol Production	Michelle Cannon The Painful State of Pleasure in Charlotte Bronte's <i>Jane Eyre</i>	Amanda Puehn Twinship and Doubt As It Relates to <i>Twelfth Night</i>	Maria Thompson The Security of America's Fourth Amendment: A Study on National Security Letters	Justin Bright You Should Be Ashamed of Yourself: A Study of Moral Development and the Moral Emotions
10:30 - 10:45	Break					
10:45 - 11:00	Richard Scherle Delivery Failure Close-Out: An Event Study on the Effects of Newly Adopted Regulation SHO Amendments	Cara Piccirillo How Green is the Mouse?	Randi Gingerich The Evolution of Beauty in Toni Morrison's <i>Song of Solomon</i> , <i>Tar Baby</i> , and <i>Jazz</i>	Ryan Raska The Philosophy, Science, and Culture of Early Modern European Gardens	Cynthia Avari A Comparative Analysis of the French and American Judicial Systems and the Cultural Effects of Judicial Decisions	Sara Kico, Dr. Laura Vernon Reappraisal and Suppression: An examination of adaptive and maladaptive coping mechanisms
11:00 - 11:15	Peter Pantina Nuclear and Mitochondrial Interactions in <i>S. cerevisiae</i>	Julie Schnee Property Tax Levy Limits: Reducing Horizontal Inequities in Florida's Tax System	James Capp Telling the Truth: Creative Nonfiction in Capote's <i>In Cold Blood</i> & Mailer's <i>The Executioner's Song</i>	Caitlin Currie An Empirical Look at Identity Politics and the Liberal Arts Curriculum: The Hispanic Literature Example	LauraLynn Kirk Collective Memory of Japanese Naming Rituals Through the Incorporation of Anime and Manga	Kristin Schwab The Importance of Individual Characteristics in Determining Liking for Art
11:15 - 11:30	Don Pham Antidepressant Mediated WNT Neurogenesis: An Insight Into How Antidepressants Work	Echo Keif Logrolling In the Supreme Court	Jenna Fitzgerald The Gentle Gender?: Shakespeare's Tamora and Lady Macbeth as Models of Revenge	Ian Depagnier Supreme Court Politics: Opinion Assignment During the Rehnquist Era 1986-2004	Sandra Lazo de la Vega The Activism of the Catholic Church on Immigrants' rights in the United States: Catholic Social Teaching and Rational Choice Theory	Jeanette Carney City Space, Crowds, and Masks: James Ensor's Critique of Modern Urbanization
11:30 - 11:45	Titilola Sode The effects of Active Telomerase in Yeast Mitochondria	Sarah Fannin Toward Climate Neutrality: Florida Atlantic University's Greenhouse Gas Emissions Inventory, 2004-2007	Kyle Ashby Transforming Transgender: The Re-Gendering of American Media	Alan Saladrigas Deterrence and Guns	Alan Manuel Peña Secularism in Latin America? Looking at the Effects of Social Welfare and Leftist Parties on Religiosity.	
11:45 - 12:00	Daniel Gopman Mythical Strings and Glass Beads: Metaphysics and Transcendentalism in Modern Physics	Jana Seidl Deconstructing the Politics of Culture Jamming: True Cost Economics	Kathleen Schindler Postscripts to Paradise: Wonder Woman and the Problems of Feminist Iconography	David Skyler Smith An Empirical Examination of the President as a Policy Entrepreneur: Health Care (1959-2004)	Michael McMillan The Role of Church-State Conflict in the Growth in Religious Pluralism in Latin America	Kelley McKee An Illustrated Guide to the Abacoa Greenway
12:00 - 1:00	Lunch Break					

1:00 - 2:00	Honors College Forum, AD Auditorium Dr. Tracy Caldwell, NASA Astronaut	
	Poster Session HC Building Reception, HC Atrium	
	Hester Bennett Detection of Phosphorous Oxyanion Removal for Everglades Restoration	Carlos Monroy The Function of the Motor Protein KIF9
	Danielle Boutté Age and Memory for Events	Samantha Montgomery “□ Love Her □ Hate Her (Check One)”: Priming effects of magazine covers in the 2008 Presidential campaign
	Amber Brittain Development of a protocol for assays to analyze SOD mutants	Jasmine Nguyen Ending Tumor Progression: A Live Cell Analysis of Centrosomal Hypertrophy and Spindle Multipolarity
	Stacey Caplan, Dr. Eugene Smith Biological Electron Transfer: An Investigation of Riboflavin	Jinal Patel, Dr. Nicholas Quintyne Preferential Clustering of Centrosomes during Coalescence
	Fernanda Charles Functionality of the p150glued subunit of dynactin in driving	Cara Piccirillo, Joann Skaria Environmental Photography
	Samantha Chong, Dr. Eugene Smith Factor Analysis of Flavin Adenine Dinucleotide	Lea Priamou Broken Shells: A Review of Threats to Sea Turtles
	Mila Curry Britney, Obama, Tiger, or Trump: Do personality traits predict news preferences?	Whitney Ruddock Unicoloniality in the brown rover ant <i>Brachymyrmex obscurior</i>
	Tiffany Gaston Food Source of <i>Sorites dominicensis</i>	Bilal Shaikh The Effects of Paclitaxel, Nocodazole, and Colcemid on Cancer Cells of Various Origins
2:00 - 4:00	Daniel Gopman, Dr. Korey Sorge, Dr. Eugene Belogay, Manuel Perez, Santimukul Santra Nanoparticles in the mirror are smaller than they appear	Tiffany Snow, Dr. Jon Moore Fishes of the Abacoa Greenway
	Chris Harris, Donna Devlin, Ellen Grefsrud, Dr. Jon Moore, Dr. Ed Proffit and Amber Shawl Assessment of Multiple Paternity for the Queen Conch, <i>Strombus gigas</i>	Tory Spokane Memory and Aging: Face Recognition
	Anna Leech False crawls by loggerhead sea turtles in Palm Beach County, Florida	Nathan Van Zee, Christina Hamalian, Danielle Boutte The Effect of Familiarity on Making Conjunction Errors
	Maria Mandina Andalusian Traits and their Connection to the Color Genes	Andrea VanDam, Kirt Rusenko Sea Turtle Nest Predation by Raccoons on Boca Raton's Public Beaches
	Tatiana Mendoza, Dr. Jon Moore Occurrence and Demographics of URTD in the Abacoa Greenway	Jennifer Wiseman Memory for Complex Events: Implications for Eyewitness Testimony
	Visual Arts Projects HC 115	
	Diego Arenas "Traffic Cone"	Julie McKean Untitled
	Danielle Boutté "Straws & Hubcaps"	Lauren Nys "Spring"
	Christina Hencken "From Chaos to Order"	Jinal Patel Colors of India
	Ariel Lepoff "If Walls Could Talk"	Lea Priamou "Papillon"
	David Martin "Pears"	Malika Prisarohn, Nicole Hencken "Dahoon Keep" (Series)
	Madison Martin "Gekkonidae"	Paloma Reiter Untitled

Talk Abstracts

Kyle Ashby

Transforming Transgender: The Re-Gendering of American Media

Advisor: Dr. Wairimu Njambi

Media representations of queer bodies, especially transgendered individuals, are highly regulated within the confines of homonormativity and second-class Otherness. These portrayals, while simultaneously celebrated and criticized by Queer scholars for their mere existence, do not create a foundation of gender anarchy that scholars like Susan Stryker see as necessary for a comprehensively built trans-movement. Gender anarchy, understood in this paper as the unregulated effort to critically and socially dismantle common assumptions about gender and sex, must use feminist and queer theories of postmodern bodies, media identities and their conveyed politics to combat popular and oppressive queer and heterosexist bodies dominant in the zeitgeist. This paper argues that while transpeople and transgender issues are increasingly represented in the popular media, this very representation nevertheless further marginalizes and alienates diverse queer lived experiences by playing to established notions of gender behavior and sexual desire. Such marginalization quiets feminist, progressive, and critical queer politics in favor of homonormative and heteronormative ideas about how gender develops and matters to today's world.

Cynthia Avari

A Comparative Analysis of the French and American Judicial Systems and the Cultural Effects of Judicial Decisions

Advisor: Dr. Jacqueline Fewkes

The histories of France and the United States of America are often compared alongside the judicial systems of each country. While the histories of the countries, starting with the French and American revolutions, have similarities, the judicial systems themselves are based on different schools of thought. The French method of judicial decision making is based on the Napoleonic code whereas the American method is based on that of common law. In available literature regarding comparisons of France and the United States, it is an assumption that, if the American and French judicial systems are based on different legal theories, the cultural effects of those systems must also be different. Contrary to these expectations, however, my analysis of court cases focusing on labor unions' right to strike demonstrates that there are similarities in judicial decisions' effects on society.

Lauren Bimmler

The Grassroots Gospel: How Spirituals and Freedom Songs Democratized the Civil Rights Movement

Advisor: Dr. Chris Strain

Samuel A. Floyd, Jr. calls the Civil Rights Movement “the greatest singing movement this country has ever experienced.” The prevalence of freedom songs across the South during this period cannot be ignored. Music could be heard during mass meetings, at demonstrations, in jails, among other places. Everywhere the activists sang, they made their voices heard. The songs gave everyday people both a chance and a way to speak for themselves. Singing provided an outlet for expression which directly included people in the action. Without these songs, the African-American communities across the South may not have been able to band together to become such a force for change; while the activists were the facilitators for change, the songs were the inspiration. Freedom songs democratized the Civil Rights Movement, enabling the participation of ordinary people at a grassroots level, therefore creating a strong mass movement.

Raquel Borges-Garcia

Gender Differences in Self-Reported Proactive Attitudes, Coping, Self-Efficacy, and Posttraumatic Stress Disorder Symptoms

Advisor: Dr. Laura Vernon

Past research has found that women who report greater proactive attitudes, proactive coping, and self-efficacy also report lower levels of Posttraumatic Stress Disorder (PTSD) symptoms. However, these findings do not take into consideration the gender differences affecting these measures. In our study, we investigated the difference between proactive attitudes, proactive coping, self-efficacy, and PTSD symptoms as reported by men and women. We found that women reported higher levels of proactive attitudes and higher levels of two PTSD symptom clusters, re-experiencing and hyperarousal. Contrary to expectations, there were no significant differences in scores on self-reported gratitude and growth scales. There were also no significant differences in their reported levels of proactive coping and self-efficacy. The implications of these findings for understanding and treating responses to trauma will be discussed.

Justin Bright

You Should Be Ashamed of Yourself: A Study of Moral Development and the Moral Emotions

Advisor: Dr. Laura Vernon, Dr. Amy McLaughlin

Lawrence Kohlberg theorized that an individual's moral-cognition develops according to a series of moral stages. This theory was later modified by James Rest, who developed an objective measure of moral development, known as the Defining Issues Test. In the current study, we examine the relationship between moral development and the moral emotions of shame, guilt, and empathy. Participants completed the Defining Issues Test, and a variety of self-report questionnaires measuring trait shame, trait guilt, and empathic disposition. There is a trend for a significant positive correlation between higher-level moral reasoning and trait shame ($r=.26, p<.06$). An index measuring consistency across moral stages was positively correlated with both trait shame ($r=.32, p<.05$) and trait guilt ($r=.38, p<.05$). Neither index was significantly correlated with empathic disposition. Implications of the findings will be discussed.

Rebeca Campos

The Private Provision of Public Goods in the Voluntary Carbon Market in the United States

Advisor: Dr. Keith Jakee

This paper will analyze the private provision of public goods in the voluntary carbon market in the United States. The voluntary carbon market is a new market that has emerged in the past decade in the United States. Since clean air is a public good that directly affects the voluntary carbon market, I will examine public goods very thoroughly. In addition, I will look at four different factors that are likely to influence the outcome of success of the voluntary carbon market in the future. The four factors are health threats, financial problems, size of the group, and warm-glow feeling. Also, I will develop a very simple heuristic model to represent the relationship between the four factors and the likelihood of success of the voluntary carbon market. Therefore, this paper will focus on the assumptions from the model and its four variables.

Michelle Cannon

The Painful State of Pleasure in Charlotte Bronte's *Jane Eyre*

Advisor: Dr. Hilary Edwards

The heroine of Charlotte Bronte's *Jane Eyre* is torn between her physical desire to remain close to Mr. Rochester and her psychological need for distance from him. Jane's need for distance tends to dominate her desire for closeness, and this internal conflict is reproduced externally in her relationship with Rochester, with Rochester's desire for physical proximity conflicting with Jane's desire for distance. These internal and

external power struggles create a healthy sense of tension necessary both to Jane, and to her relationship with Rochester because it prevents either of them from being fully satisfied, and ensures that both remain in a perpetual state of self-inflicted suffering. The suffering these characters impose on themselves and each other is necessary for the preservation of desires, which would be destroyed by fulfillment. Through my reading of the novel we gain a greater understanding of how the pain of unfulfilled desires becomes synonymous with pleasure, and the beneficial role pain, tension and unfulfilled desires plays in the text.

James Capp

Telling the Truth: Creative Nonfiction in Capote's *In Cold Blood* & Mailer's *The Executioner's Song*
Advisor: Dr. Laura Barrett

In the American creative nonfiction genre, the line between fact and fiction is ever-blurring. Two novels which strive for realness and are thematically related in their focus on a cause célèbre and the death penalty, Truman Capote's *In Cold Blood* and Norman Mailer's *The Executioner's Song*, offer clues that might help approach the question of what makes a specific work fall under the category of creative nonfiction. I analyze the creative techniques that the authors use in their novels, and I consider details from the texts about the activeness and reliability of the narrators in the two books, as well as consequent political implications. Additionally, I ground my examination of these novels in a discussion of the progress from the early novel's drive for realism to twentieth-century literary journalism.

Jeanette Carney

City Space, Crowds, and Masks: James Ensor's Critique of Modern Urbanization
Advisor: Dr. Christopher Ely, Dr. Yu Jiang

James Ensor's depictions of Belgian cities and their inhabitants offer a derisive critique of modern urban space, and the resulting societal transformations, that developed during the nineteenth century. His illustrations of the contemporary urban societies of Brussels and Ostend generally always include images of crowds and masks, elements which represent the horror and emptiness of the modern city. In aligning these images Ensor criticized modern urbanization, denouncing both the redevelopment and the resulting societal transformations as insensible and destructive.

Olivia Carollo

The Relationship Between Proactive Coping and PTSD Symptom Severity in a College Student Sample
Advisor: Dr. Laura Vernon

This study investigated the relationship between Posttraumatic stress disorder (PTSD) symptoms and various coping mechanisms for 341 undergraduate men and women. Participants were administered the Proactive Attitude Scale, Proactive Coping Inventory, General Perceived Self-Efficacy Scale, and the PTSD Checklist. After an initial exploratory factor analysis, it was determined that the proactive and self-efficacy measures could be collapsed into one proactive factor of coping. The three symptom clusters of PTSD- reexperiencing, avoidance/numbness, and hyperarousal- were also collapsed into a single PTSD score. The dependent variable, PTSD symptom severity, was negatively correlated with the proactive factor ($r = -.16$, $p < .001$, one-tailed). This suggests that those individuals who generally employ more proactive coping strategies and feel more effective, ultimately report fewer, and less severe PTSD symptoms.

Kathryn Cruikshank

Frailty, Thy Name is Orsino: Appetite, Bestiality, and Femininity in *Hamlet* and *Twelfth Night*
Advisor: Dr. Michael Harrawood

The plays of William Shakespeare delve into the mysteries of the feminine and masculine spheres, exploring

the creation of gendered characteristics that seem to define all men and all women. No play is more in support of a divide between the sexes than is Hamlet, whose protagonist's critique of his licentious mother stems, in his opinion, from the womanly weaknesses that make her unfit to be considered a human. However, the notion of gender specific qualities comes under attack in Twelfth Night, in which the Duke appears to emulate Gertrude's own frailties and even exaggerate them to the degree that he may have foregone his masculinity, making him a suitable partner for Cesario and not for Viola. This reversal creates both the comedic and the tragic components of Twelfth Night: femininity is no longer specific to women, but anyone who associates with femininity is perpetually damaged for having done so.

Caitlin Currie

An Empirical Look at Identity Politics and the Liberal Arts Curriculum: The Hispanic Literature Example
Advisor: Dr. Martin Sweet

This project examines politicization of the university. Critics have long charged that politics, and specifically identity politics, has infiltrated the classroom via radical professors. Scholars who lament the decline of the western canon claim that a massive wave of new untested works – largely written by women and people of color – have replaced the works of dead white men leaving our students ill-prepared. While most of the scholarship in this area has been written in the area of English literature departments, this project focuses on the field of Hispanic Literature. If identity politics has challenged the canon in the university, it is expected that within identity-based disciplines the infiltration of politics should be substantial. To test the politicization of the university, I examined 33 Hispanic Literature survey courses from a variety of American universities. I found a high degree of consistency among these syllabi and concluded that critics of the university have at best overstated their case.

Ian Depagnier

Supreme Court Politics: Opinion Assignment During the Rehnquist Era 1986-2004
Advisor: Dr. Martin Sweet

My thesis examines Chief Justice Rehnquist and opinion assignment to Supreme Court justices. The two dominant theories for opinion assignment are the attitudinal model and the strategic model. My research examined whether partisan alignment in Congress affected opinion assignment, as well as examining assignment of salient (important) cases. The attitudinal model best explains the actions of Chief Justice Rehnquist- his federal legislation opinions increase after Republicans took control of Congress and he authored 23% of salient cases as chief justice.

Rebecka Epps

Your Teacher Was Right: You Can't Get an A if You Don't Show up to Class and Do Your Homework
Advisor: Dr. Robin Jordan

Dr. Robin Jordan of Florida Atlantic University and I analyzed data from Physics classes to see if a correlation between attendance and class performance existed. We found that, while consistent attendance betters a student's likelihood of achieving a higher grade, it does not ensure exceptional class performance. Also, we analyzed data from his classes to see if homework and class performance have a correlation with one another. With this analysis, we found that participation on homework betters a student's probability of receiving a particular letter grade (e.g. B+), but does not significantly increase a student's probability of a higher score within the interval of the letter grade (i.e. a student with a B+ is just as likely to get an 87 as they are an 89). Furthermore, we constructed a multiple linear regression to determine the extent to which attendance and homework scores combined can predict student grades.

Sarah Fannin

Toward Climate Neutrality: Florida Atlantic University's Greenhouse Gas Emissions Inventory, 2004-2007

Advisor: Dr. Bill O'Brien

This study provides an inventory of FAU's greenhouse gas emissions and their sources from 2004-2007. Colleges and universities across the country have been taking the initiative to reduce their ecological footprints at this crucial period of the onset of global climate change. Here at Florida Atlantic University, steps are being taken to join this nationwide collegiate effort through President Frank Brogan's recent signing of the American College and University Presidents Climate Commitment. The commitment requires the completion of a greenhouse gas emissions inventory, and the results will serve as a benchmark for creating a plan for measuring future progress toward climate neutrality.

Jenna Fitzgerald

The Gentle Gender?: Shakespeare's Tamora and Lady Macbeth as Models of Revenge

Advisor: Dr. Michael Harrwood

Twelve years separate the plays *Titus Andronicus* and *Macbeth* and yet the similarities between Tamora and Lady Macbeth seem to indicate that the former served as a model for the latter female revenge character. Despite the many characteristics that connect the two powerful women, Shakespeare not only intensifies Tamora but questions her maternal traits, exaggerates her competition with the male characters, and replaces her motives for madness in order to create Lady Macbeth. While it is often assumed that a female's identity is defined through her male counterpart, the opposite is true of the male characters in *Titus Andronicus* and *Macbeth* who are defined through the strength and personality of Tamora and Lady Macbeth, respectively. Analyzing the characteristics of these two women offers a new perspective on the characters, challenging the traditional observation that they are cruel and evil. Rather than viewing them as supernatural, controlling beings, my analysis allows the characters to simply be considered as driven, yet flawed women equal to the tragic heroes they encounter in the plays.

Samantha Fow

The Political Economy of Domestic Corn Ethanol Production

Advisor: Dr. Keith Jakee

Since its inception, the domestic corn ethanol industry in the United States has been dependant on federal subsidies and trade restrictions to keep afloat. Although this political support has allowed the industry to grow, there have been a number of negative externalities as a result, namely the growing demand for corn causing significant increases in the prices of many consumer goods. Despite the fact that consumers are facing rising prices in agricultural and energy markets, ethanol still maintains a level of support among the general American populace that is counterintuitive given its economic reality. In this paper, I contend that much of ethanol's support is maintained through the intentional manipulation of the product's public perception on behalf of politicians and industrial superpowers. I will demonstrate this phenomenon through the use of both Stigler's (1971) capture theory and Peltzman's (1976) model of iso-majority.

Randi Gingerich

The Evolution of Beauty in Toni Morrison's *Song of Solomon*, *Tar Baby*, and *Jazz*

Advisor: Dr. Laura Barrett

Toni Morrison's award-winning first novel *The Bluest Eye* deals with the relationship of race and gender to beauty and stereotypes. Aspiring to a standard of beauty that excludes them, several of the black female characters in *The Bluest Eye* fail in their goals to become beautiful. Morrison's later works show a newer, more confident black woman who can find perfection tailored to her own features. Using three novels that

span Morrison's career, *Song of Solomon*, *Tar Baby*, and *Jazz*, I will trace the shift in Morrison's portrayal of African-American women's relationship to standards of beauty.

Mark Goldberg-Foss

"They Forget I am an Irishman": Socialist Internationalism and the Question of Nationality in Ireland, 1896-1916

Advisor: Dr. Christopher Ely

Politics in early twentieth-century Ireland were dominated by overlapping layers of social and ideological conflict. As a factionalized nationalist movement sought varying levels of independence from the British Empire, a crescendo of working-class upheaval in industrial centers and a bitter legacy of religious conflict in the northeast complicated efforts to define and realize a unified, independent Irish nation. My paper examines the theories of James Connolly, a labor activist and socialist who died a martyr for Ireland. It will criticize his theoretical and practical attempts to link anti-colonial nationalism and socialist internationalism, examine his views against those of his contemporaries in the labor and nationalist movements, and situate his theory and practice within a context of influential events such as the Dublin Lockout, the First World War, and the Easter Rising.

Daniel Gopman

Mythical Strings and Glass Beads: Metaphysics and Transcendentalism in Modern Physics

Advisor: Dr. Christopher Ely

String theory has captivated the theoretical physics community for nearly twenty five years. Despite the optimism that string theory will lead physicists to a deeper understanding of the universe, no unique theory has emerged from a long series of conjectures and loosely related facts. While the Large Hadron Collider is set to start running experiments this year in Geneva, it is doubtful that its observations will be able to confirm or reject string theory. String theory has emerged in a rare period in the history of physics, during which experimental thresholds have been met and theory seems to break down above that threshold. I argue that the emphasis on mathematical symmetry and harmony in string theory physics is part of a neo-Platonic metaphysics tradition that has emerged in previous epochs in the history of physics when experiment and theory have failed. However, in contrast to other periods when neo-Platonic metaphysical ideas have been helpful to resolve dilemmas in physics, string theorists have allowed themselves to become estranged from experiment as well as other viable theoretical research programs in contemporary physics.

Ashley Hydrick

Overexpressing Dynactin's Microtubule Domains to Determine their Function

Advisor: Dr. Nicholas Quintyne

Dynactin is a multisubunit protein complex that consists of a number of cargo binding domains, which allows it to be involved in many important cellular functions. Dynactin is essential to the functionality of dynein as well as kinesin II. It is necessary for mitosis and for subcellular movement. The largest subunit of dynactin, p150^{Glued}, contains dynactin's two microtubule binding domains: CAP-Gly and Basic. While the structure and localization of dynactin has been extensively studied, relatively little is understood about the function and regulation of these two microtubule binding domains. In order to study the functionality of dynactin's microtubule binding domains, we have overexpressed CAP-Gly and Basic both individually and together. We have used immunofluorescence microscopy to visualize target structures within the cell, and have quantified the effects of overexpression of these microtubule binding domains on microtubule structure, centrosome integrity, mitotic index, and localization of the Golgi complex and lysosomes.

Echo Keif

Logrolling In the Supreme Court

Advisors: Dr. Keith Jakee, Dr. Terje Hoim

While studies have considered the presence and impact of logrolling (vote trading) on legislative actors, little work has questioned the possibility of judicial logrolling among Supreme Court Justices. Supreme Court Justices are usually assumed to be free from constituencies and political party pressures. This assumption is derived from life-long appointments that do not require the endorsement of reelection. However, public choice would predict the presence of logrolling in cases where intense differences in preferences exist among justices. We only expect to see logrolling when vote trading has the potential to change voting outcomes. Thus, in order to study the probability of logrolling both plurality (5-4) and unanimous decisions (9-0) must be considered. Essentially, I will be altering previous models of legislative logrolling in accordance with the conditions of the Supreme Court. This study does not aim to prove the existence of logrolling among Supreme Court Justices, only that it is a possibility.

LauraLynn Kirk

Collective Memory of Japanese Naming Rituals Through the Incorporation of Anime and Manga

Advisor: Dr. Jacqueline Fewkes

I describe how members of Japanese society perpetuate collective memory through the utilization of Japanese media to include past and present Japanese socio-political name alterations. I explain the reasons behind the name alterations and how knowledge and use of the naming rituals continue through collective agency. Manga and anime are visual and auditory vehicles of cultural repetition which subconsciously stimulate a united response in audiences. Each socio-political anime and manga example correlates to past and present naming rituals. Social name alterations occurred at birth, genpuku (initiation into adulthood), marriage, and changes in levels of skill. Political alterations occurred from hostage exchange or adoption, change in ideologies, occupational change, or the assumption of new roles and recognition from a higher ranking member of society. While members of Japanese society learn socio-political naming traditions from daily interactions with other people, further encouragement of expected behavior and customs become reinforced through the media.

Sara Klco, Dr. Laura Vernon

Reappraisal and Suppression: An Examination of Adaptive and Maladaptive Coping Mechanisms

Advisor: Dr. Laura Vernon

Past research has shown that people react to stress with a variety of strategies known as coping mechanisms. One such mechanism is suppression, in which an individual avoids thoughts or emotions produced by a stressor. Another such coping mechanism is reappraisal, which includes cognitive reframing of thoughts in order to alter their emotional impact. Whereas suppression has been found to be largely maladaptive, research indicates that reappraisal is adaptive. This study examined the relationship between suppression and reappraisal with symptoms of anxiety, depression, stress, and physical health. As expected, reappraisal was found to be significantly negatively correlated with stress ($r = -.36$) and there was a trend for a negative association with depression ($r = -.12$), anxiety ($r = -.03$), and health ($r = -.19$). In contrast, cognitive suppression was significantly positively correlated with stress ($r = .59$) and health ($r = .33$) and displayed a trend of positive association with depression, ($r = .10$) anxiety, ($r = .24$) and stress ($r = .17$).

Sandra Lazo de la Vega

The Activism of the Catholic Church on Immigrants' Rights in the United States: Catholic Social Teaching and Rational Choice Theory

Advisor: Dr. Timothy Steigenga

The purpose of this paper is to test the hypothesis that the Catholic Church acts as a rational actor and will therefore be more active and outspoken on issues of immigrant's rights when it faces increased competition. The present study looks at the United States, using Catholic Dioceses as units of analysis to test this hypothesis. Each Diocese is given a "competition" score and these data are correlated with data about the activism of the Church within each Diocese regarding immigrant's issues. The findings do not support Joel Fetzer's and Anthony Gill's rational actor hypothesis as applied to the Catholic Church. In this study, increased religious competition was a poor predictor of Catholic Church activism on issues of immigration.

Pierre Louis

Pentecostalism, Development, and Democracy in Latin America

Advisor: Dr. Timothy Steigenga

The recent explosive growth of Protestantism in Latin America has led a number of scholars to predict that the region may be on its way to reaching a significantly higher level of socioeconomic development. These are important claims for a region that has struggled with both economic development and democratic consolidation. This thesis argues that Protestantism in Latin America does not follow the classical Weberian pattern of development. Because the majority of Protestant growth in the region is Pentecostal, the causal assumptions of the "culture and development" school do not hold. Furthermore, a context of neoliberalism, a significant colonial legacy, and wide income disparities continue to hinder the potential for development. Based on a review of secondary sources and specific data from the case of Guatemala, this thesis argues that while individual Protestants may experience some upward social mobility, the growth of Protestantism has done little to advance the socioeconomic and political development of the region.

Stephanie Lucas, Hank Smith

Status of the Gull-billed Tern in Florida

Advisor: Dr. Jon Moore

The Gull-billed tern is a globally distributed species. Distribution in the United States is extremely limited, however, with the majority of breeding birds being found in Texas. The remainder can be found scattered throughout the southeast. Florida has a mere 1.6%. This study has accumulated all records of breeding Gull-billed Terns in Florida since 1973. Distribution trends were analyzed. It was determined that during the time frame studied, the population of these birds has fluctuated widely and experienced an alarming decline of about "95% between 1975 and 1999" (Smith, in press.). It has therefore been determined that the current status of this bird in Florida mandates that further conservation efforts occur rapidly in order to protect its diminishing population. This study looks at those conservation measures already in place, as well as those pending, such as my petition to list this species as "threatened" under the endangered species provisions of the Florida Wildlife Code (Chap. 39 F.A.C.).

Jessica Mahoney

Identification of Gene Expression Patterns during T-Cell Development

Advisor: Dr. Paul Kirchman

The production of T-cells (lymphocytes) is a critical function as they are one of the key players in the upkeep of the body's immune system. Correct development of t-cells in the immune system is critical for several reasons including prevention of autoimmunity, and maintaining populations of t-cells available to attack

foreign bodies and other particles damaging to normal body function. While the stages of development of t-cells in the thymus are well known, beginning with hematopoietic stem cell precursors and resulting in single positive cells marked with CD4+ or CD8+, the gene program that controls these unique stages is not well understood. The purpose of this research project is to collect specific populations of t-cell progenitors from the thymus and analyze these populations via micro-array gene chip experiments to determine and examine gene interactions that occur between populations. Three novel genes have been identified: Btg1, Gtf2h4 and Mef2d.

David Martin

Fear, Hope, and Personality: An Empirical Study of Political Persuasion

Advisor: Dr. Kevin Lanning

Consequences of policy decisions may be framed as potential risks or opportunities, and as affecting the near (proximal) or distant (distal) future. Sensitivity to distal risks, distal opportunities, proximal risks, and proximal opportunities may be associated with personality traits. Individuals high in conscientiousness are expected to be particularly sensitive to distal risks and opportunities. Similarly, neuroticism is expected to be associated with distal and proximal risks, and extraversion and agreeableness with distal and proximal opportunities, respectively. In addition to these differential affects, this research also examines abstract issue frames and their effect on concrete issues such as global warming, health care, infrastructure, and terrorism.

Kevin McCaffrey

The Genetic Alteration of Superoxide Dismutase in Order to Increase Longevity in Yeast Cells

Advisor: Dr. Paul Kirchman

Aging is often explained by the free radical theory, which accounts for the fact that, through respiration, free radicals such as hydrogen peroxide and superoxide (O_2^-) are produced. The theory proposes that these free radicals cause oxidative damage to cellular components. The accumulation of free radical damage eventually renders entire systems inoperable, resulting in the death of an organism. Superoxide dismutases repair the oxidative damage and in some cases, prevent it from occurring. The goal of this experiment was to use random mutagenesis in the process of directed evolution to create a more efficient superoxide dismutase gene (SOD2). Error prone polymerase chain reaction (PCR) was used to mutagenize the manganese-superoxide enzyme (MnSod) from *S. Cerevisiae* (yeast). Mutations with increased activity were selected for in an *E. coli* strain that lacks superoxide dismutase. DNA sequencing of the SOD2 gene from one isolate, confirmed that there was a mutation from the original form, which showed increased activity. This gene was then transfected into *S. Cerevisiae*.

Savannah McClelland

"He is dead": An Examination of Sacrifice and Modern Rites of Passage in Virginia Woolf's *Mrs.*

Dalloway

Advisor: Dr. Hilary Edwards

Anthropological analysis provides new interpretations of the mysterious rite that the heroine of Virginia Woolf's *Mrs. Dalloway* undergoes over the course of the novel: René Girard's theories about sacrifice inform the argument for Septimus' status as not merely a minor double of the main character, but an important participant in the ritual; Victor Turner's exploration of rites of passage shed light on Clarissa's transition from one status to another; finally, Mary Douglas' arguments on human motives for enacting rituals clarify the potential significance of Septimus' death for Clarissa. This thesis will argue that Clarissa is undergoing a rite of passage from one stage of womanhood into another, more mature stage, and that Septimus dies as a sacrifice, which is necessary in order to make her change of status possible. This thesis also aims to explore the status of ritual and sacrifice in Virginia Woolf's post WWI literature.

Kelley McKee

An Illustrated Guide to the Abacoa Greenway

Advisor: Dr. Jon Moore

The Abacoa community enjoys the unique social, economic, environmental, and aesthetic benefits of a 259-acre greenway system. For my thesis I am collaborating with Dr. Moore to develop an educational field guide to the Abacoa greenway. I am contributing illustrations and the body text. The body of the guide will discuss the planning and land-use history of the area, the social and environmental importance of greenways, as well as the ecology of pine flatwood and wetland ecosystems. The completed guide will consist of: an introduction and overview of the greenway; a map delineating the various tracts; a checklist of endemic flora and fauna species; and illustrations of selected species with captions. The finished product will function as an educational guide to the Abacoa greenway. In addition, I am writing a research essay exploring the various aspects of the greenway in detail.

Michael McMillan

The Role of Church-State Conflict in the Growth in Religious Pluralism in Latin America

Advisor: Dr. Timothy Steigenga

Since the 1960s Latin America has experienced a religious transformation, with several countries developing significant Protestant populations. These religious changes have influenced the political processes of several Latin American nations, playing a prominent role in elections and the formation of political platforms. Several theories attempt to account for the recent growth in religious pluralism, particularly social anomie theory and religious market models. These theories ignore or downplay the role of conflict between the state and civil society, especially violent confrontations between the government and the Roman Catholic Church. This study focuses on four case studies with varying amounts of church-state conflict and differing religious pluralistic growth rates: Colombia, Guatemala, Haiti, and Southern Mexico. This study finds that church-state conflict serves as a catalyst, and in some cases a useful predictor, of growth in religious pluralism.

Jaime Neudecker

A Search for Self: DeLillo's *Americana*, *Mao II*, and *Falling Man*

Advisor: Dr. Laura Barrett

In my thesis I look at three novels by Don DeLillo: *Americana*, *Mao II*, and *Falling Man*. These three novels, published in 1971, 1991, and 2007 respectively, represent the full range of DeLillo's body of work, and demonstrate a clear progression of the major themes in his writings. Each of these novels presents a protagonist who is on a journey of self-discovery, effectively seeking what many critics have identified as an outdated form of self – a Modernist notion of self. The problematic nature of identity in these novels is exacerbated by changes in representation and warfare, particularly the perceived loss of originality and the rise of terrorism. Thus, I not only trace the continuation of the search for self in these novels, but also DeLillo's inclusion of terrorism in the novel. The changes in warfare give rise to an anxiety that further complicates the search for self in America.

Peter Pantina

Nuclear and Mitochondrial Interactions in *S. cerevisiae*

Advisor: Dr. Paul Kirchman

In eukaryotic cells, both the nucleus and mitochondria contain genetic material. Mutations in either genome often lead to deficiency or death of the cell, but can occasionally prove beneficial. In this experiment, we randomly mutagenized the nuclear DNA of a strain lacking mitochondrial DNA. After mutagenesis, mitochondrial DNA was returned to the mutants, which were allowed to grow competitively for many

generations in liquid cultures. After enriching for rapid growth, cells were spread on plates to screen for more rapidly growing colonies, which resulted in the isolation of strains that outgrew the original parent. We used qualitative observations and inferred that the induced nuclear mutation stemmed from a reversion of the ADE2-1 allele. Using PCR and gene sequencing, we were able to compare the new strain with the parent, and found that the ADE2-1 allele was indeed reverted during random mutagenesis, proving the utility of the method.

Alan Manuel Peña

Secularism in Latin America? Looking at the Effects of Social Welfare and Leftist Parties on Religiosity
Advisor: Dr. Tim Steigenga

Researchers sometimes classify religious organizations as rational actors, arguing that religious organizations attempt to minimize costs and maximize membership. Anthony Gill and Erik Lundsgaarde use the rational actor model to explain organized religion's diminished competitiveness and the correlated increase in secularity against governments with high social welfare programs. They conclude that government welfare programs contribute to increased secularity. Survey data indicates that Chile, Cuba, and Uruguay have significantly higher proportions of secularity related to the rest of the region. This thesis tests the hypothesis that increased secularity in Chile, Cuba, and Uruguay is caused not only by Gill and Lundsgaarde's social welfare hypothesis, but also by the historical presence of far left parties in these nations. The ideologies of longstanding far left parties are often anti-religious and may contribute to increased secularity, suggesting that rational actor considerations and social welfare programs play a smaller role than Gill and Lundsgaarde presume.

Don Pham

Antidepressant Mediated WNT Neurogenesis: An Insight Into How Antidepressants Work
Advisor: Dr. Paul Kenny

Depression has become the leading cause of disability in America. The difficulty in medically treating depression is that little is known about the mechanisms which mediate it, let alone how the treatments themselves work. Recent research has implicated neurogenesis (proliferation of new functional neurons) as somehow involved, though depression and antidepressant action are still rudimentary at best. Separately, neurogenesis has been shown to be regulated by the WNT signaling cascade, a molecular signaling pathway important in cellular development. We sought to show that antidepressant mediated neurogenesis occurs through activation of the WNT signaling cascade by measuring the effects of chronic antidepressant treatment in mice at the behavioral and molecular level. These animals were treated with two different antidepressants of different classes, a psychoactive drug, or an addictive drug, where antidepressant action was measured by the tail-suspension test. RNA and Protein levels were measured by RT-PCR and SDS-PAGE/Western Blot.

Cara Piccirillo

How Green is the Mouse?
Advisor: Dr. Bill O'Brien

My project "How Green is the Mouse?" analyses the ways in which the Disney Company utilizes various green marketing strategies in an effort to appeal to the growing number of eco-conscious consumers. My study examines different strategies of green marketing and evaluates the use of these strategies in relation to discussions of the "greenwash" concept. Examples of such strategies include green selling, when a company continues to manufacture a pre-existing product with changes only in marketing and not policy or output, and green partnerships, when a company undertakes a more eco-friendly appearance simply by collaborating with a well-known environmental organization. In this study, I investigate the various methods of green marketing utilized throughout the parks and other attraction areas of Walt Disney World, located near Orlando, Florida.

Amanda PuehnTwinship and Doubtfulness As It Relates to *Twelfth Night*

Advisor: Dr. Michael Harrawood

Medical ideas of twinship and sexual identity during the 17th century are played upon by Shakespeare in *Twelfth Night* by using the sexual identities of twins Sebastian and Viola. Analysis of their sexual identities reveals reasons for their actions within the play as well as the importance of their presence. Shakespeare also uses the idea that what we think we are and what others perceive us as are two different things and as a result cause a doubleness, or twinship, within ourselves; often resulting in conflict. Based on this research and analysis, an alternative meaning to the play can be derived.

Ryan Raska

The Philosophy, Science, and Culture of Early Modern European Gardens

Advisor: Dr. Michael Harrawood

Francis Bacon wrote that a Garden is the purest of human pleasures and the greatest refreshment to the spirits of man. The presentation will concern the development of Gardens in Northern Europe during the early modern period that was based upon principles of design borrowed from the Italians. It will touch upon the philosophy behind the design, the different sciences incorporated into the formation of the overall structure and within certain individual elements, as well as various cultural developments pertaining to the pleasure derived from their use. Finally, to try and answer why many of the most influential people of this age seemed to have a fascination bordering on obsession with Gardens and the many events that transpired within them.

Jarred Reiling

Domestic Violence and Native American Women: Disrupting Colonialism and (Re)claiming Sovereignty

Advisor: Dr. Wairimu Njambi

According to the U.S. Department of Justice, Native American women experience the highest rate of violence than any other social group in the United States (2004). In this paper, I will contextualize the problem of domestic violence against Native American women within the colonial, male-dominated landscape of the United States. With the help of contemporary feminist scholars, I examine how Native American women resist both colonialism and domestic violence. One of the problems that Native American women face in such struggles is that they are forced to seek protection from the very same legal system responsible for colonizing Native Americans and enforcing white male form of domination in their cultures. I argue that disrupting colonization in Native American communities cannot be actualized until equality is sought for all; thus, gender inequality and racial displacement must be at the forefront of any discussion of (re)claiming sovereignty and reducing violence against Native American women.

Benjamin RossRelationship Between Individual Size and Number of Internal Symbiodinium in the Larger Algal Bearing Foraminifera *Sorites dominicensis*

Advisor: Dr. Jon Moore

Sorites dominicensis is a common epiphytic foraminifera living throughout the Caribbean and South Florida, and is commonly found living on turtle grass, *Thalassia testudinum*. *S. dominicensis* plays host to algal symbionts related to those found in coral. Estimates for the numbers in these symbiotic populations are few, of limited scale, and vary widely. The goal of this study is to perform a large scale survey of the populations of algal symbionts living within the *S. dominicensis* population of Jupiter Sound, Florida. This data will then be used to identify and evaluate the relationship between foraminiferal size and number of algal symbiotes, as well as to examine variability within the Jupiter Sound population.

Victoria Ryan

Death and Insanity in Shakespeare: Feminine Sexuality and Masculine Immortality

Advisor: Dr. Michael Harrawood

I will argue that the repression of sexuality in Shakespeare leads inevitably to insanity or death for women whereas the loss of control over female sexuality is what leads to the demise of men. I will make this argument by examining passages that equate women's sexuality with their mind, and by explaining how women's unfulfilled sexual desire can be equated with a lack of reason. Men in Shakespeare, however, do not die because of their own sexual repression because controlling sexual appetite is a natural state for them. Instead, the inability to be sure of a woman's loyalty and fidelity does. Loosing control of women's sexuality was not just a social threat for men, but a spiritual one, because their posterity was their immortality. I will primarily examine Venus and Adonis and Othello in order to make my argument.

Matthew Saccento

The Tolan Committee and the Internment of Japanese Americans

Advisor: Dr. Christopher Ely

Within three months of the Japanese attack on Pearl Harbor, President Franklin Roosevelt issued Executive Order 9066, which allowed military commanders to establish zones of military importance within which they could remove any person considered dangerous, specifically those of Japanese descent. The Tolan Committee, a House committee examining the logistics of the new wartime economy, was immediately sent to the West Coast in order to evaluate the merit of the President's policy. They were presented with the most complete set of arguments both supporting and opposing internment, and were therefore in a unique position to make a well-informed decision regarding the internment of over 100,000 persons. Despite the strength of the arguments of the opposition, the Committee abdicated their power and submitted to the will of the President and the military. In succumbing to fear, the Committee legitimized the policy of internment without making a truly objective decision.

Alan Saladrigas

Deterrence and Guns

Advisor: Dr. Martin Sweet

Within the last several years there has been a movement, ostensibly spear-headed by pro-gun lobbyists, to remove the "duty to retreat" requirement placed on individuals confronted with deadly threats. Florida first passed "stand your ground" legislation in 2005, and has since been followed by at least 12 other states. Policy advocates claim that such a legal change should decrease crime, as crime victims will no longer be legally encumbered by the duty to retreat. This study examines the reasons why states adopted such legislation and the relationship between this legislation and crime. I find that stand your ground legislation is associated primarily with southern states and republican governors, and that such legislation does not significantly affect either violent crime or property crime rates in large U.S. cities.

Peter Salomone

A Fistful of Facts: Reconsidering Dziga Vertov's Cinematic Truth

Advisor: Dr. Mark Tunick

In 1919, the Soviet filmmaker Dziga Vertov declared a "death sentence" on fictional films. Vertov championed his own unique method of non-fiction filmmaking, called Kino-Eye, which is based on Vertov's ideas regarding truth in cinema. Although he does not write specifically about Vertov or film, the philosopher Nelson Goodman offers a contrasting view of truth in general. By comparing the Kino-Eye method to

Goodman's philosophy, we can better understand Vertov's radical ideas and see more clearly how the concept of cinematic truth has changed over time.

Richard Scherle

Delivery Failure Close-Out: An Event Study on the Effects of Newly Adopted Regulation SHO Amendments
Advisor: Dr. Keith Jakee

Naked shorting, a generally illegal form of short selling in United States equity markets whereby a seller of stock essentially sells shares that do not exist, has negative consequences that result from its ability to be used to artificially inflate an issuer's stock supply. Newly adopted amendments to Regulation SHO will require the mandatory close-out of previously grandfathered delivery failures, as well as the tightening of market maker exemptions for naked shorting.

This study examines the consequences of this new regulation, in terms of share price and volume, for those few securities that have the most persistent delivery failure problems. Using technical analysis techniques, such as return normalization and volume surge detection (using moving volume averages), the performance of the target securities will be compared with appropriate benchmark indices for the purpose of detecting unusual activity which may be indicative of naked short covering.

Kristin Schwab

The Importance of Individual Characteristics in Determining Liking for Art
Advisor: Dr. Kevin Lanning

There are several attributes unique to individuals that determine their liking for various types of art. These attributes of the person include personality characteristics such as Sensation Seeking, Ambiguity Tolerance, and the 'Big Five' (Agreeableness, Openness to Experience, Neuroticism, Conscientiousness, and Extraversion), demographic characteristics such as sex and age, experience with art, and intelligence. I utilized a survey of literature, from which I derived taxonomies of art and individual differences that I then compiled and analyzed, both separately and in conjunction with each other. A variety of art types were examined, the majority of which investigated liking for pictorial art, as opposed to performance art or spatial art. The art taxonomy was dichotomous and included physical, spatial, affective, and formal properties of art. In contrast, the personality and the individual differences taxonomies, excluding sex, were multi-dimensional and rated, more often than not, on a continuum.

Kathleen Schindler

Postscripts to Paradise: Wonder Woman and the Problems of Feminist Iconography
Advisor: Dr. Christopher Strain

Since her creation in 1941, cultural critics have cited the comic book character Wonder Woman as an emblem of powerful femininity. Her creator, psychologist William Moulton Marston, advertised the character as a revolutionary new woman who was strong, beautiful, and able to dominate men. In 1972, the American mainstream feminist movement – through Ms. magazine – officially accepted the character as a representation of feminism. Since then, Ms., scholars, and Wonder Woman comic writers and cartoonists, have continued to support the belief that the character is an acceptable symbol of feminism. However, although the character is purportedly a strong feminist leader, she conforms to the notions of femininity prescribed to her by American society. As a consequence of her existence within mainstream society, she does little to challenge prevailing concepts of womanhood, particularly the exclusion of minority women from feminist movements, and has at times run counter to the feminist movement.

Julie Schnee

Property Tax Levy Limits: Reducing Horizontal Inequities in Florida's Tax System

Advisor: Dr. Keith Jakee

In 1992, the State of Florida passed a constitutional amendment to cap the increase in the annual assessment of homestead properties. The amendment, known as Save Our Homes, has created a horizontal equity problem as neighboring homeowners may be paying substantially different amounts of property taxes. In light of the recent property tax reform attempts, it is appropriate to analyze the effect of a change in Florida's homestead exemption and Save Our Homes provision. In this paper I will show that replacing the homestead exemption and Save Our Homes Cap with a property tax levy limit and adjusting the millage accordingly has the potential to alleviate the horizontal inequities associated with Florida's property tax system.

Jana Seidl

Deconstructing the Politics of Culture Jamming: True Cost Economics

Advisors: Dr. Keith Jakee, Dr. Jacqueline Fewkes

Culture Jammers, an activist guerilla-like movement, entered the global scene in the 1990s and, through public performances, attempt to draw attention to their claim that the US economic structure is facing a fundamental need to shift away from a consumer-oriented capitalist economy. As an alternative, the activists propose True Cost economics, a model that includes costs of negative externalities that are accrued through the production and use of goods in the pricing of commodities. In this paper, I focus on culture jammers' critique of neoclassical economics, more specifically, the clash of the "new paradigm" (True Cost economics) and the "old paradigm" (neoclassical economics). In evaluating whether True Cost economics is a feasible alternative, I graphically examine how the True Cost solution and the neoclassical market model correct for negative externalities to reveal similarities in the two models.

Joel Simundich

"The Depths of an English Heart": Wittgenstinian Private Language in Ford Madox Ford's *"The Good Soldier"*

Advisor: Dr. Hilary Edwards

In Ford Madox Ford's 1915 novel "The Good Soldier," John Dowell comments "I had never sounded the depths of an English heart," as he painstakingly reconstructs his "extreme intimacy" with his late wife and their two closest friends. Throughout his narrative, Dowell approaches the limits of language, struggling to connect with lost companions by bringing language into scenes of miscommunication and silence. By translating emotional impasses and wordless exchanges from memory into narrative, Dowell seems to make these wordless interactions wordful. Ludwig Wittgenstein's investigation into "private language" helps elucidate Dowell's realization that he cannot fill wordlessness with words to reconstruct his memories. If Dowell can't fill wordlessness with words, his failure to "sound the depths of an English heart" isn't a failure at all, but rather an exposition on "private language" as public language, demonstrating that misunderstandings can be our best attempts at understanding each other.

Joann Skaria

Are Homeowner's Associations "Environmentally Friendly?" An Analysis of HOA rules in residential communities of Jupiter, Florida

Advisor: Dr. William O'Brien

This study examines the environmental standards and practices promoted in homeowner's association (HOA) guidelines for residential areas in Jupiter, Florida. Comparing these HOA rules with the "best practices" found in particular communities in the United States, my research addresses issues such as architectural changes

(which includes installation of solar panels and composting units), water usage, landscaping, domestic chores, solid waste/recycling programs and transportation issues. The study considers each neighborhood within the town boundaries (with the exception of apartment communities) that publishes an official document of covenants, conditions and declarations. The study also addresses trends in HOA rules that have emerged over time in Jupiter with regards to the environment, as well as considerations that shape the HOA guidelines in newer communities.

David Skyler Smith

An Empirical Examination of the President as a Policy Entrepreneur: Health Care (1959-2004)

Advisor: Dr. Martin Sweet

My study focuses on oscillating political context to find what factors are conducive to the proposal and ultimate success of executive-generated, liberal health care policy. When it comes to initiating policy change, most of the existing literature concentrates on individuals in Congress or local level politicians. Beginning with the advent of the so-called “Modern Presidency” during the early years of the twentieth century, the President has increasingly played an active role in government, particularly with respect to legislation—he can be considered a “policy entrepreneur.” I use data on variables from 1959 to 2004 and employ the Two-Stage Conditional Maximum Likelihood Model. I find that a more liberal President is likely to propose health care legislation that necessitates increased government involvement, and I also determine that Congress is more likely to approve a liberal Presidential proposal when public opinion polls indicate people are more receptive to government intervention.

Titilola Sode

The effects of Active Telomerase in Yeast Mitochondria

Advisor: Dr. Paul Kirchman

Recent studies have shown that human telomerase reverse transcriptase is exported from the nucleus to the mitochondria via an N-terminal leader sequence. As a result of hTERT expression in the mitochondria, evidence has revealed an increase in hydrogen-peroxide-mediated mitochondrial DNA damage. As a thesis project I have proposed to test the effects of active telomerase in the mitochondria of yeast cells in order to observe the extent of oxidative damage of mtDNA. In conducting my experiment I will construct a gene for yeast telomerase which contains an N-terminal leader mitochondrial import sequence controlled by the expression of an inducible promoter. Results of my experiment should confirm that telomerase is an effective agent in mitochondrial mutagenesis. Therefore, the results can also demonstrate that telomerase can play a role in apoptosis, aging as a result of oxidative damage, and even implicate it as a key player in cancer lines with mutagenic mtDNA.

Natalie Clair Stetson

America’s Flawed Dream: F. Scott Fitzgerald’s View of the American Dream in the Roaring Twenties and the Great Depression

Advisor: Dr. Laura Barrett

F. Scott Fitzgerald’s work is intrinsically connected to the American dream, which is the belief that through hard work and determination one can achieve success. The lives of the male protagonists in *The Great Gatsby* and *Tender Is the Night*, however, reveal the many flaws of the American dream. The most significant flaw, as Fitzgerald demonstrates, is that although a certain level of success is possible, a dreamer is never satisfied. Despite the passage of nine years between the publication of the two novels and the changes the nation underwent between 1925 and 1934, Fitzgerald’s opinion is not altered; he remains pessimistic. He concludes in both novels that American dream cannot be attained.

Tyler Stubbs

Municipal Privatization: A Case Study of Sandy Springs, Georgia

Advisors: Dr. Martin Sweet, Dr. Keith Jakee

Governments across the country have been outsourcing traditional government services at an ever-increasing rate. Yet researchers debate the efficiency of privatization, and evidence exists both for and against increased private production of public goods. At the local level of government, a growing trend is privatization in the form of public-private partnerships. To determine the efficiency of these partnerships between municipal governments and private companies, this study examines the “most” privatized city in the United States, Sandy Springs, GA. I compared spending in Sandy Springs to five similar nearby cities and derived cost estimates of government services. I found that the “Sandy Springs Model” of local government lowered costs and increased efficiency when compared to traditional municipalities.

Jodi-ann Thomas, Dr. Laura Vernon

Relations Among Positive and Negative Emotional Responses to Trauma and Posttraumatic Stress Disorder Symptoms

Advisor: Dr. Laura Vernon

The current study investigated positive and negative emotions after trauma and their relationship to posttraumatic stress disorder (PTSD) symptom severity. The participants were 140 undergraduate students who were administered the Life Events Emotion Questionnaire and the PTSD Checklist. An Exploratory Factor Analysis with positive emotions indicated a two-factor solution (strong and grateful), and with negative emotions a six-factor solution was indicated (anger, fear, guilt, sadness, shame, and surprise). Regression analyses revealed that the guilt and sadness factors were independently positively related to PTSD symptom level. This suggests that emotional responses of guilt and sadness were predictors of PTSD symptom level over and above the contributions of the other negative and positive emotions measured. The findings of this study also draws attention to the potential influence of negative emotions experienced after a trauma on the development and maintenance of PTSD.

Maria Thompson

The Security of America's Fourth Amendment: A Study on National Security Letters

Advisor: Dr. Mark Tunick

National Security Letters allow the Federal Bureau of Investigation to obtain records on individuals from corporations without prior judicial intervention or approval. Statutory changes, most significantly those resulting from the passage of the United States Patriot Act in 2001, have substantially altered the four different federal statutes from which National Security Letters originate. In creating these National Security Letters the government intended to protect its citizens from national security threats. This goal has been regarded historically as legitimate, but the legislation potentially limits rights, which raises the question of whether these letters are acceptable. Drawing on relevant case law and scholarly opinion, I argue that use of these letters is unacceptable and may render the Fourth Amendment’s protection of person and property from unreasonable searches meaningless in certain federal investigations.

Jovonia Washington, Dr. Nicholas Quintyne
Dichloroacetate: A Potential Treatment for Cancer
Advisor: Dr. Nicholas Quintyne

Dichloroacetate (DCA) is a drug that is used to treat various metabolic disorders that was found to have practical applications in treating cancer. DCA's effect on the cell is to reverse mitochondrial damage that induces glycolysis in cancer cells and by doing so, inhibit the proliferation and growth of tumors. Previous studies indicated that DCA could kill cancer cells while leaving non-cancerous cells unperturbed (Bonnet et al., 2007). This project examines the effects of DCA on a greater number of cell lines, both cancerous and non-cancerous. The effects of DCA on cells were observed using different concentrations of the drug as well as exposing the cells for several days. We find that the non-cancerous cell lines are not affected by DCA except at the highest concentrations. Interestingly, preliminary data for the cancerous cell lines show mixed results, with some lines being more responsive to the drug than others.

Poster Abstracts

Hester Bennett

Detection of Phosphorus Oxyanion Removal for Everglades Restoration

Advisor: Dr. Michelle Ivey

Stormwater treatment areas (STAs) are included in the Comprehensive Everglades Restoration Plan (CERP) to improve the quality of the runoff from Everglades Agricultural Area (EAA) before reaching the Everglades. The STAs are designed to remove excess nutrients, specifically phosphorus. This study aims to use ion chromatography to detect phosphorus to examine effectiveness of the stormwater treatment areas in preventing phosphorus from entering the Everglades system, by examining various forms of phosphorus including phosphite, hypophosphite, and phosphate. Water samples will be taken at various points along the Everglades system, such as Lake Okeechobee, within the Everglades Agricultural Area, stormwater treatment areas, and water conservation areas. Water samples will be analyzed using ion chromatography, which separates the ions based on their size and charge. The ions are then detected by conductivity, allowing trace concentrations of phosphorus oxyanion to be detected.

Danielle Boutté

Age and Memory for Events

Advisor: Dr. Julie L. Earles

Event memory studies have shown that older adults typically have poorer memories for events than do younger adults. Unfortunately, these studies tested memory for events that contained only young adults as actors. It could be that the younger adults remembered the events better due to an own age bias. One particular type of event memory error is called unconscious transference. In unconscious transference, a binding error results in false conjunction memories. Several studies have shown that older adults are more likely to make these errors. This study aims to look more closely at the effects of own age bias on face recognition and conjunction errors made in memory for events. Younger adults were tested on their memory for both younger and older adults seen performing simple actions in video clips as well as in mugshot photograph tests.

Amber Brittain

Development of a protocol for assays to analyze SOD mutants

Advisor: Dr. Paul Kirchman

Reactive oxygen species (ROS) are generally small molecules that are very reactive because they contain unpaired electrons in their valence shell. Reactive oxygen species play a huge role in aging and many harmful diseases. Therefore, investigation into agents, such as superoxide dismutase, that can reverse or eradicate the harmful effects of reactive oxygen species is extremely important. Superoxide dismutase has been used in the treatment of many diseases, such as ischemia/reperfusion, and it has been theorized that it may have anti-aging effects. If a mutant form of SOD can be isolated that exhibits a higher level of activity compared to wildtype SOD, then perhaps this SOD can be used more effectively in the treatment of certain diseases. This experiment uses the technique of western blot and enzymatic activity assays in order to begin an investigation into a mutant form of SOD to characterize and investigate its usefulness.

Stacey Caplan, Dr. Eugene Smith

Biological Electron Transfer: An Investigation of Riboflavin

Advisor: Dr. Eugene Smith

Most living organisms utilize electron transport chains in order to obtain energy. Riboflavin, commonly known as vitamin B₂, is the central component of the redox coenzymes flavin adenine dinucleotide (FAD) and flavin

mononucleotide (FMN). These cofactors serve as a prosthetic group to flavoproteins and function as the energy-carrying molecules in electron transfer reactions. In this study, the different ionization and oxidation states of riboflavin were identified and quantified as a function of solution potential and pH. To accomplish this task, spectroelectrochemical titrations of riboflavin at different pH were performed. Spectroscopic data offers clues concerning the identity of underlying species, such as oxidation/ionization states and the controlling equilibria. The large data sets obtained from these titrations were analyzed and the acid dissociation constant for reduced riboflavin was determined.

Fernanda Charles

Functionality of the p150^{glued} subunit of dynactin in driving efficient cellular motility

Advisor: Dr. Nicholas Quintyne

The multiprotein dynactin complex is essential for cellular vesicle transport. Coupled with cytoplasmic dynein, dynactin drives vesicular motility to the minus-ends of microtubules. Dynactin acts as a tether for dynein via its p150^{glued} component, allowing for long-distance motility. Dynactin has no motor activity, and is thought to skate along with the motor. Therefore, the interaction between p150^{glued} and the microtubule must be transient. p150^{glued} contains two domains which can bind microtubules named the CAP-Gly and the basic domains. In order to analyze the respective contributions of these domains to dynactin-based motility, we have devised an assay to study in vivo motility. We used the fluorescent dye Nile Red to mark lipid droplets in Cos-7 cells and analyzed distance traveled and velocity of these molecules. With this assay, we can knock out endogenous p150^{glued} and replace it with a mutant that lacks the basic domain to examine its contribution to motility.

Samantha Chong, Dr. Eugene Smith

Factor Analysis of Flavin Adenine Dinucleotide

Advisor: Dr. Eugene Smith

Flavin adenine dinucleotide, FAD, is a vital coenzyme present in mammals. A two-electron acceptor, FAD is reduced to FADH₂ and multiple theoretical papers suggest a two electron/two proton process. To probe this mechanism, spectroelectrochemistry is often employed to analyze the structure of molecules based on differences in the absorbance of electromagnetic radiation. The spectra produced show the specifics of the redox reaction of FAD, illustrating the reduction of FAD over time at various pHs. Factor Analysis is a statistical method that transforms the spectral data into linear combinations. These linear combinations can then be analyzed using principle factor analysis to determine the number of species present in the solution. Further analysis with windows factor analysis can be used to extract concentration profiles providing the oxidation and ionization states of FAD. The pKa value(s) of compounds influence many characteristics of the compound. Specific to this study, the pKa values are of major importance in determining the activity of enzymes and hence how the physical behaviour of the enzymes are affected by ionization. Cytochrome b₅ reductase, CB5R, is a FAD-containing enzyme in the blood. It controls the amount of iron in your red blood cells, and helps the cells carry plenty of oxygen. In this study, the factor analysis of spectroelectrochemical data obtained for CB5R was analyzed and the pKa of the reduced state was obtained. Our model suggests that in its oxidized state FAD has one component. In contrast, FAD has two components and is pH-independent in its reduced state.

Mila Curry

Britney, Obama, Tiger, or Trump: Do personality traits predict news preferences?

Advisor: Dr. Kevin Lanning

The current study examines the relationship between the Five-Factor Model of Personality and preferences for news headlines. This is an online study in which participants are presented two headlines and are asked to

choose one of them. Next, participants are asked to fill out a personality inventory. In the results we examine whether certain personality types are more likely to read certain news stories. We predict that people high in Openness to Experience will be more likely to choose news headlines about countries abroad, in particular Arab countries. Arab countries are included because we want to determine if out-group biases exist since the United States is currently at war against Iraq. Individuals high in Conscientiousness were predicted to choose headlines related to health, careers, and justice. Similar predictions were created for Extraversion, Agreeableness, and Neuroticism in that three distinct items were chosen to represent each of these traits.

Tiffany Gaston

Food Source of *Sorites dominicensis*

Advisor: Dr. Susan Richardson

A healthy *Thalassia testudinum* seagrass bed in the intracoastal waterway near Jupiter Lighthouse supports an adequate population of the foraminiferal species known as *Sorites dominicensis*. The locality of the study site is unique because epiphytic diatoms, characteristic of Caribbean and more temperate environments, are expected to make up the biofilm community. According to the scientific literature, diatoms compose a large part of the foraminiferan's diet. This study was two-fold. First, we scraped the entire biofilm off 20 seagrass blades and dissolved the organic matter in order to identify the diatom assemblage. Second, we used scanning electron microscopy to determine which diatom species are selected by individual foraminiferans as food items, by noting the identification of diatoms entrapped in pseudopodial nets or found in debris piles of digested diatoms adjacent to the foraminiferal tests (shells).

Daniel Gopman, Korey Sorge, Dr. Eugene Belogay, Manuel Perez, Santimukul Santra

Nanoparticles in the mirror are smaller than they appear

Advisor: Dr. Eugene Belogay

Nanoparticles in the mirror are smaller than they appear! Nanoparticles are so small, they are invisible! Their typical size, from 1 to 100 nm, is much smaller than the wavelengths of visible light. Yet, size matters when magnetic nanoparticles are used in targeted drug delivery and medical imaging. Even though they are invisible, there is a way to size up these particles indirectly -- for instance, by measuring and analyzing their behavior in strong magnetic fields. The magnetization of a single particle is modeled by the Langevin function -- a nonlinear function of particle size and applied magnetic field. The ensemble magnetization of particles with various sizes is an integral of the Langevin function and the size distribution density function. The sizes of synthetic nanoparticles often have a lognormal distribution, which makes the integral intractable. To find the theoretical size distribution that best fits our magnetic measurements, we approximated the integral by a sum and performed non-linear optimization on a computer. The resulting median size of 5 nm appeared to be smaller than predicted by tunnel emission microscopy; this difference provides an important insight into the magnetic structure of the nanoparticles.

Chris Harris, Donna Devlin, Ellen Grefsrud, Dr. Jon Moore, Dr. Ed Proffit, and Amber Shawl

Assessment of Multiple Paternity for the Queen Conch, *Strombus gigas*

Advisor: Dr. Jon Moore

The commercially important queen conch, *Strombus gigas*, has been observed copulating with multiple partners and laying multiple egg masses during a reproductive season (Randall, 1964). While multiple paternity has been confirmed using microsatellite based genetic analysis for a variety of other gastropods, this technique has not been employed for *S. gigas*. Determining whether or not this species is capable of multiple paternity is important to understanding and maintaining genetic diversity of both natural populations and those being raised in captivity. In this study, we conducted a genetic analysis of three *S. gigas* maternal parents and

their progeny from the Florida Keys, using eight polymorphic microsatellite molecular markers previously established for the species (Zamora-Bustillos et al. 2007).

Anna Leech

False crawls by loggerhead sea turtles in Palm Beach County, Florida

Advisor: Dr. James Wetterer

Southeast Florida has the largest aggregation of nesting loggerhead sea turtles (*Caretta caretta*) in the United States, and is second in the world only to Oman. There is concern that recreational activity along the Florida coast may disturb sea turtle nesting. For my thesis, I wished to examine whether human activity may increase the occurrence of false crawls, where sea turtles emerge from the ocean, but do not nest. Using the data collected between 2001 and 2005 by the Loggerhead Marinelife Center in Juno Beach for the turtles nesting on a 9.7-km stretch of beach in Jupiter and Juno Beach, Palm Beach County, Florida. I compared rates of false crawls on weekends versus weekdays, and among the different segments of the beach with varying levels of public access.

Maria Mandina

Andalusian Traits and their Connection to the Color Genes

Advisor: Dr. Jon Moore

Andalusian horses can be white, bay, or black in color. Historically the white-colored horses were most highly valued, but a recent fad for black color has created a demand for those horses. Because of the long preference for white Andalusians, I hypothesize that lineages composed of white Carthusian ancestors are of higher quality than non-white Andalusian horses whose lineages are comprised of ancestors either bay or black in color, with black being the color gene carrying the most genetic defects. My research question is, “Are negative breeding traits in Andalusian horses genetically connected to color genes?” This hypothesis was tested in two different manners based on my observations and on the observations of Spanish judges throughout the centuries. I attended two horse shows in Florida and took notes on exactly 50 horses present, their color and their faults as show horses. I then researched each horse and the ancestors in their lineages. The second method used was a program called MELPI containing every registered Andalusian in history and information vital to my study including: their lineages/ancestors, color, judged faults, breeding quality scores, success in the show ring, offspring, etc. Two hundred and fifty horses were randomly chosen and researched on this program to complete my study. The results for both methods of evaluation supported my hypothesis that negative breeding traits in Andalusian horses are genetically correlated to the color genes.

Tatiana Mendoza, Dr. Jon Moore

Occurrence and Demographics of URTD in the Abacoa Greenway

Advisor: Dr. Jon Moore

Upper Respiratory Tract Disease (URTD) is a highly contagious illness, caused by the bacteria *Mycoplasma agassazii*. URTD has affected the gopher tortoise population in the Abacoa Greenway, and is believed to have a high mortality rate. In this study, 18 samples of tortoise blood were collected from this location. Enzyme-linked immunosorbant assay (ELISA) was used to measure the antibodies in the blood that were produced as a result from exposure to the *M. agassazii* bacteria. Fourteen of the 18 samples were collected from individuals who had been tested previously. Comparisons between the previously tested tortoises were made to obtain further information on their mortality rate. Results show that there is no documented mortality rate with URTD in Abacoa. Some tortoises have continued to test positive for the antibodies for several years, suggesting a chronic state of the disease. Other tortoises have gone from positive results to negative results indicating that their immune system’s production of antibodies has tapered off and suggesting that they are able to recover from the disease.

Carlos Monroy

The Function of the Motor Protein KIF9

Advisor: Dr. Nicholas Quintyne

Kinesin motor family proteins are important to cells in various aspects of their function. Kinesins are divided into many sub-families, which are defined by structure and function. A family may be involved in (+) or (-) end directed motility or microtubule stability. Most sub-families of kinesin have been analyzed and their function elucidated, however, Kinesin Family 9 remains uncharacterized. The KIF9 gene has a highly conserved motor domain that it shares with the rest of the Kinesin family members. This domain is located at the N-terminus end of the protein, suggesting that it would move in a (+)-end direction. To determine the function of KIF9 proteins, we are utilizing overexpression and siRNA-mediated knockdown of the KIF9 protein in the fibroblast cell line COS-7. Preliminary analysis shows that abrogation of KIF9 function leads to a defect in mitosis, where we see almost synchronous initiation of anaphase and cytokinesis.

Samantha Montgomery

“□ Love Her □ Hate Her (Check One)”: Priming effects of magazine covers in the 2008 Presidential campaign

Advisor: Dr. Kevin Lanning and Dr. Wairimu Njambi

The primary objective of this research was to investigate the effects of passive exposure to actual media primes on several measures of attitudes. Participants rated the aesthetic properties of a series of Time magazine covers prior to completing measures of ambivalent sexism, narcissism, system justification, and personality. Ambivalent sexism includes two positively correlated components, benevolent sexism and hostile sexism. System justification may be defined as a motivated investment in the status-quo and includes both gender-specific and diffuse forms. The research is significant in that it is grounded in a feminist theoretical framework and contributes to the limited pool of experimental knowledge concerning the relationship between ambivalent sexism, system justification, narcissism and personality.

Jasmine Nguyen

Ending Tumor Progression: A Live Cell Analysis of Centrosomal Hypertrophy and Spindle Multipolarity

Advisor: Dr. Nicholas Quintyne

Centrosomal hypertrophy occurs when the cell contains more than a pair of centrosomes co-existing as a result of over duplication, aborted division, and cell fusion. In addition to initiating genomic abnormality, centrosomal abnormalities promote multipolarity within the cell and inevitably tumorigenesis. Previous studies have shown that the concentration of two spindle-forming proteins, the motor cytoplasmic dynein and the scaffold protein NuMA, are critical for the cell to prevent multipolarity via a process called coalescence. Excess NuMA can block the activity of dynein and cause multipolarity. The purpose of my study is to observe the rescue of multipolar cells to bipolar using live cell analysis using siRNA-mediated knockdown of NuMA in fluorescently-labeled oral cancer cells with elevated levels of the protein. A better understanding of the cellular response to centrosomal hypertrophy could lead to the development of therapeutic applications.

Jinal Patel, Dr. Nicholas Quintyne

Preferential Clustering of Centrosomes during Coalescence

Advisor: Dr. Nicholas Quintyne

In bipolar cell division, two centrosomes serve to organize microtubules into a spindle. Some cell lines exhibit more than two spindle poles due to extra centrosomes being present. Spindle multipolarity is correlated with tumor progression (Salisbury et al., 2004). Usually, normal cells can overcome multipolarity through coalescence of centrosomes to ensure bipolarity (Quintyne et al., 2005). Preliminary studies suggest that there may be preferential clustering of centrosomes to one pole (Quintyne et al., 2005). There are three known

proteins that localize to the mother (older) centriole – APC, γ -tubulin and EB1 (Stearns et al., 2003). It is possible that clustering is directed by one or more of these proteins, promoting or preventing clustering around the centrosome that contains the mother centriole(s). To test this, Hek293 and OSCC103 cells were used. In each cell line, we induced clustering and used antibodies to mother specific-proteins to see if there was preferential clustering.

Cara Piccirillo, Joann Skaria

Environmental Photography

Advisor: Professor Dorothea Lemeh

In our study of various methods of nature photography, we experiment with plant and animal portraits, close-ups, black and white images, as well as explorations of our own campus environment. Throughout the course of our project we have studied several noted photographers in the field of natural imagery in an effort to learn from their techniques and apply several of their guidelines to our own personal photographic styles. We have utilized knowledge gained through these studies, along with technical study of the camera and general photographic composition, in an effort to capture the true beauty of nature in our images. The result is a collection of photographs that we feel reflect our personal work as artists as well as the beauty of the natural Florida environment.

Lea Priamou

Broken Shells: A Review of Threats to Sea Turtles

Advisor: Dr. Jon Moore

The seven species of sea turtles are unquestionably in grave threat. This research review is to assess the nature of such threats, and what they mean in terms of sea turtle conservation in general. Several research articles on this subject were read and analyzed. Each article and/or source contained data from research or sea turtle care organizations which pertain to their welfare. In light of the review, it is clear that we have made tremendous leaps in preserving and rehabilitating these marine reptiles. However, it is also clear that we still have much to learn in this field.

Whitney Ruddock

Unicoloniality in the brown rover ant *Brachymyrmex obscurior*

Advisor: Dr. Jim Wetterer

Invasive ant species often form networks of connected colonies rather than individual discrete nests. These "supercolonies" lack intraspecific aggression, thus fighting between colonies is absent. The presence of unicoloniality is believed to be an adaptive mechanism that allows for invasive ant species to reach higher population density and achieve ecological dominance. In this study, I use aggression assays to analyze unicoloniality within and between colonies of the invasive brown rover ant, *Brachymyrmex obscurior*, on the John D. MacArthur campus of Florida Atlantic University in Jupiter, FL.

Bilal Shaikh

The Effects of Paclitaxel, Nocodazole, and Colcemid on Cancer Cells of Various Origins

Advisor: Dr. Nicholas Quintyne

Chemotherapeutic drugs are a common tool used to combat various kinds of cancer. Many of these medications act upon the microtubules of cancer cells. The danger with these chemotherapy treatments is that they can harm normal, healthy cells and also inhibit stem cell proliferation. The purpose of my study is to examine the effectiveness of various drugs on different types of cancer cells and see if some cells are more responsive to a particular drug. The normal cell line Cos-7 and cancer lines HeLa and UPCI:SCC103 were

chosen for this study due to their morphology and tractability. The effects of the drugs nocodazole and colcemid have been determined using a microtubule regrowth assay, as well as determining the lowest effective concentration in the cell lines tested. To examine cells respond differently to the drug paclitaxel, mitotic index experiments have been performed on the cells after treatment.

Tiffany Snow, Dr. Jon Moore

Fishes of the Abacoa Greenway
Advisor: Dr. Jon Moore

The Abacoa Greenway is a manmade artificial water system constructed in the late 1990s, and home to an array of aquatic flora and fauna. There has been no previous survey of the species residing in this area; therefore this will be a foundation for future comparisons. The goal of this study was to compile a preliminary species list of fishes inhabiting the freshwater systems of the Abacoa Greenway Ranges IV and V, as well as a classification of exotic and native species inhabiting the area. A total of 11 species have been collected and identified between March 2007 and May 2008. Of these, three species have been classified as exotic or introduced and the other eight as native species naturally existing in Florida freshwaters.

Tory Spokane

Memory and Aging: Face Recognition
Advisor: Dr. Julie Earles

This study provides evidence for an age bias in face recognition. Younger adults viewed short video clips of actors of a similar age or actors over the age of sixty performing basic actions. One week later, participants were tested on their memory for these video clips. The clips were either the same, completely new, or a conjunction item and the total number of yes responses was recorded. Young participants performed well at picking out the new and old items, but had more difficulty distinguishing between the conjunction items. Younger actors did significantly worse at recognizing the conjunction items with older adult actors. This study supports that people are better able to recognize and distinguish others within a similar age range compared to people outside of that range.

Andrea VanDam, Kirt Rusenko

Sea Turtle Nest Predation by Raccoons on Boca Raton's Public Beaches
Advisor: Dr. James Wetterer

In the Eastern US, Florida is a major sea turtle nesting area, with 85% of all sea turtle nests. Four sea turtle species nest in Florida: the green (*Chelonia Mydas*), leatherback (*Dermochelys coriacea*), loggerhead (*Caretta caretta*) and hawksbill (*Eretmochelys imbricata*) turtles. One major threat to sea turtle nests in Florida is predation by racoons. In my thesis, I examined the prevalence of racoon predation on sea turtle nests on beaches in Boca Raton, Florida. Analysing data collected by researchers at the Gumbo Limbo Nature Center over the past decade, I found that racoon predation was most prevalent where human activity was the greatest.

This result suggests that in areas with high human presence, protecting sea turtle nests against racoon predation may be necessary in order to preserve nesting populations.

Nathan Van Zee, Christina Hamalian, Danielle Boutte

The Effect of Familiarity on Making Conjunction Errors
Advisor: Dr. Julie Earles

This research demonstrates that the probability of making a conjunction error increases with increased familiarity with the actor for both young and old adults. Participants viewed a series of events in which an

actor completed a simple action, which was followed by a series of pairs of photographs of actors in which they were asked if they had seen either of the pictured actors perform a specific action. Young adults were administered a recognition test after either no delay or a three week delay, and older adults were tested after no delay. It was found that exposure to the photograph along with the question about the same action increased the incorrect responses for young adults who returned after both no delay and a three week delay. For older adults, exposure to the photo increased false recognition of the conjunction events even when the question was not about the same action.

Jennifer Wiseman

Memory for Complex Events: Implications for Eyewitness Testimony

Advisor: Dr. Julie Earles, Dr. Alan Kersten

Mistakes in combining components of stimuli are called binding or memory conjunction errors. They occur when people mistakenly associate two previously seen stimulus features that were not previously seen together. Participants saw 16 continuous events, each containing four actions performed by four different actors. One week later they returned for a recognition test and were shown more video clips. There were old, new action, and conjunction items. A conjunction item was composed of a familiar actor performing a familiar action that had previously been performed by someone else. Half of the conjunction items involved a familiar actor who was seen in the same event during encoding, and half involved a familiar actor from a different event. For each clip, participants were asked if they saw this person perform this action before. Participants responded “yes” to conjunction same context items more often than they did to conjunction different context items.

Visual Art Presentations

Diego Arenas

“Traffic Cone”

Advisor: Professor Dorotha Lemeh

Thinking abstractly takes your critical thinking skills to another level. Here, I present you my abstract painting of stacked traffic cones on a road.

Danielle Boutté

“Straws & Hubcaps”

Advisor: Professor Dorotha Lemeh

This piece, entitled “Straws & Hubcaps,” is an abstract painting and 3-dimensional work. The acrylic painting was based on a close-up photograph taken of a random collection of straws in a cup. The painting explores the use of gel medium and color overlay. The 3-dimensional aspect of the piece is based on the geometric designs of various hubcaps photographed on Main Street. The geometric designs are attached by adhesive to the painting and explore the space beyond the borders of the canvas. This project was completed for Professor Lemeh’s Honors Painting class during the Spring 2008 semester.

Sarah Fannin

"Hey, babe: take a walk on the wild side"

Advisor: Professor Dorotha Lemeh

As pretty or primped as possible, everyone still has to do it, and most choose a toilet to do it in. The realm of the “natural” (relief of the body’s waste) and the “unnatural” (high-heels, fancy underpants, toilets) collide in this piece to show that there is really no clear distinction. A toilet, high-heels, underwear, and a nice clean bathroom may seem at first glance completely unrelated to nature, but with a second thought of what happens in this space ultimately shows that the seemingly “unnatural” world of human society lives intertwined with and part of a world of “natural” processes.

Christina Hencken

“From Chaos to Order”

Advisor: Professor Dorotha Lemeh

Curvilinear forms are brought together in a palette of cool blue and green acrylic pigments in this triptych artwork titled “From Chaos to Order”. In combining the primary (blue) and secondary color (green), I created a band of tertiary colors that radiated throughout the painting surface.

My observation of the inner shapes of flowers along with the convex form of car hub caps was all part of the careful blending of these colors in to an abstract design. Visually bringing these organic and inorganic forms together allowed me to reconsider how various shapes flow and move in order to create motion.

David Holz

“An Experiment in Long Exposure and Panoramic Works”

Advisor: Professor Dorotha Lemeh

With the increasing availability of complex computer software and powerful photographic tools a wide variety of formats and environments have been opened up to the amateur photographer. Large panoramas and extremely low lighting landscapes, two previously difficult areas for photography, are explored in this project.

Several large panoramic works are presented, many composed of over a dozen images in lighting conditions unusual for the format. Panoramas are manually aligned with PTGUI and blended with Photoshop CS3. All shots are taken in 16-bit raw to preserve low lighting details and further photographic processing is done through time-lapse methods to create and present several images in high dynamic range.

Ariel Lepoff

“If Walls Could Talk”

Advisor: Professor Dorothea Lemeh

What if a wall could talk? What would it say? Every human feels the same emotions, good and bad, but they are usually hidden behind the walls we build for protection. The stripes are pastel colors and indicate the calm inexpressive façade. The wall is worn and old from time and the wallpaper begins to peel up. The red paint represents everything that has been said in a room depicting hot emotion, stress, anger, passion, greed, love, hate and everything in between. As the emotions pour from the opening, they run down and spill over onto the floor. Words begin to slowly form and emerge. If a wall could talk, it would say things we have all heard and spoken once before.

David Martin

“Pears”

Advisor: Professor Dorothea Lemeh

Still life.

Madison Martin

“Gekkonidae”

Advisor: Professor Dorothea Lemeh

This piece is abstracted from various comprised elements of gecko skin. The goal was to portray a blending of texture to suggest the raised nature of gecko skin. The blue areas are fashioned after the shape of gecko feet. Combined together, the goal was to create a dynamic portrayal of different textures.

Julie McKean

Untitled

Advisor: Professor Dorothea Lemeh

Our first big project in the Honors Painting class was to paint a still life. At first I found the still life study very boring. Who wants to paint a bunch of random objects that hold no significant meaning? These were my initial thoughts as I began to paint. But with every soothing brush stroke, I found that I was able to pour more and more of my imagination into the work. Instead of painting exactly what was in front of me, I just used the objects as a simple guide, and allowed my imagination to fill in the blanks. It made me realize that as long as you can unleash your imagination, you can turn even the most uninteresting subject into something fascinating.

Phoebe Nixon

aMEba

Advisor: Professor Dorothea Lemeh

I chose to submit my most recent painting for Research Day. The assignment for this piece was to abstract something from nature. Instinctively I started my search at the beach, where I came across a group of six seashells laying in the sand. The composition of the altogether shape that they formed caught my eye. The five whole shells were clumped together, overlapping to the point that their outline formed a single shape,

larger than the sixth shell which was actually broken and about a fifth of the size of the five shells put together. The abstract shapes represent a living “being” while the inside designs portray the “stuff” of which living “beings” are made of (i.e. cells, veins, etc.).

Lauren Nys

“Spring”

Advisor: Professor Dorothea G. Lemeh

The piece of artwork that I would like to submit to the Symposium is an abstract of a living form. The base of my piece is made out of a flower pot covered in sunflower patterned fabric, and at the center of the pot there are five sunflowers emerging from twisted wire clothes hangers rising from the patterned fabric. Sunflowers actually follow the sun as it moves across the sky, which is how they got their name. When the sunflower is fully developed, it will face east and no longer move with the sun. Something so beautiful and changing has the ability to remain in a fixed position, giving an overall example of the processes of nature. Life in natural habitats changes as growth proceeds, and at the final stages of life position is fixed. My piece is entitled “Spring” because Spring is a season of new life and growth, but also the title stems off of the spring-like shape of the twisted hangers.

Jinal Patel

Colors of India

Advisor: Professor Dorothea Lemeh

The artistic process starts with a snapshot, still-life placement or simply an idea. Each piece that I painted was carefully thought out in my process journal, and as a result, I was able to place some of my own influence in each one. My abstract work is one of my most favorite and personal pieces. The colors and the intricate patterns give a dynamic edge to the piece. The details and patterns are actually an inspiration from the Indian practice of henna. Henna is made from a plant, and the design is intricate, which is contrary to the simple representation that the shapes bring. The shapes also present a geometric side to the painting, and it’s almost as if the painting itself was mapped out using mathematics.

Lea Priamou

“Papillon”

Advisor: Professor Dorothea Lemeh

This visual art piece is acrylic medium on canvas. The almost nebulous blues and purples of the background contrast in an interesting and exiting way against the fiery orbs and blobs which seem to dance across the square plane. If rotated, the painting takes on different looks, ranging from the curvature of a planet to single-cell life forms. Initially, the piece is actually a visual abstraction (zoom in on) of a butterfly's wing-hence the title "papillon".

Malika Prisarohn, Nicole Henken

“Dahoon Keep” (Series)

Advisor: Professor Dorothea Lemeh

This five-minute film documents the conception, process, methods, and finished work of the Dahoon Keep (Series)—an ongoing collection of three works of art that were created to fulfill an assignment of beautifying a place or location that was perceived as unattractive or obtrusive. The installation sites are found in and around the Abacoa town center in Jupiter as well as the nearby McArthur campus. The work itself is a comment on the juxtaposition of spaces and objects—in this case the Dahoon berry, within the local environment. By

relocating berries from the tree to the voids we found in the area of Abacoa we visually expressed a mysterious beauty that subtly transformed the environment around it.

Paloma Reiter

Untitled

Advisor: Professor Dorothea Lemeh

Interpretation of the elements the artist's favorite elements on campus.



The Harriet L. Wilkes Honors College
of
Florida Atlantic University
John D. MacArthur Campus
5353 Parkside Drive
Jupiter, FL 33458
www.HonorsCollege.edu

The Harriet L. Wilkes Honors College of Florida Atlantic University is the first public honors institution to be built from the ground up in the United States. It recently received the highest rating given to honors programs across the nation. The Honors College provides students an outstanding liberal arts education and shares the campus with two of the world's premier research centers, Scripps Florida and the Max Planck Institute for Neuroscience. As a public institution, the Honors College offers an affordable, quality education in a residential and intimate setting, making it an outst The Harriet L. Wilkes Honors College is an academic, residential college of Florida Atlantic University, at the John D. MacArthur campus of FAU in Jupiter, Florida. The Wilkes Honors College opened in 1999 and offers a liberal arts education through the platform of a public institution, with a focus on interdisciplinary studies. It features a student body of 330, and 32 full-time tenured, or tenure-track faculty, all of whom have terminal degrees in their field. The current Dean is Ellen Goldey. For members of the Williams Honors College, the Honors Research Project is an integral part of the UA Honors experience and represents the culmination of their undergraduate studies at The University of Akron. Honors students have maintained an outstanding academic record throughout their time on campus and the interests they have developed and experiences that have shaped them are reflected in this independent project. Interdisciplinary, creative projects are encouraged, and could incorporate original research investigating a significant question, a unique artistic or creative work, or the de