9th Annual
Harriet L. Wilkes
Honors College Symposium
for Research and Creative Projects

featuring the
Robert Lee and Thomas M. Chastain
Honors Symposium
Guest Lecture Series

Friday, April 15, 2011
9:00 a.m. – 4:00 p.m.

Florida Atlantic University
John D. MacArthur Campus
Research and Creative Projects
Symposium Committee

Dr. Christopher Ely, Chair

Dr. Chitra Chandrasekhar

Dr. Julie Earles

Dr. Meredith Blue
Messages from the Deans…

Dr. Jeffrey L. Buller, Dean

I’m delighted to welcome you all to this year’s Wilkes Honors College Symposium for Research and Creative Projects. Developing each student’s ability to conduct original, innovative scholarship at a very high level is an important part of the Honors College’s mission. Each year, the Symposium gives us an opportunity to sample the fruits of our students’ efforts and to provide them with practical experience in sharing their research and creative activity with others. I think you’ll find each presentation and poster to be of extremely high quality and impressive in its scope. I know that I always learn something new every year. Feel free to ask questions about each participant’s project and to be inspired by what immersion in a 100% honors experience can produce.

Dr. Mark Tunick, Associate Dean

Research Day began in 2003, the year of the first Honors College graduating class of 46 strong. Mathematics professor Dr. Stephanie Fitchett and psychology professor Dr. Julie Earles took the lead in providing an opportunity for seniors as well as other HC students to present their research and creative work in a mini-conference setting. On April 11, 2003, 21 students gave oral presentations and fielded questions from the audience – the toughest ones coming from their fellow students – and 27 students contributed to 13 poster presentations. These numbers have skyrocketed as more students continue to take advantage of the tremendous opportunities for research and collaboration with faculty at the Honors College. In the first 7 years, there were over 500 presentations as well as over 20 visual art exhibits. Keynote speakers have reflected the same diversity of research interests that our students pursue, and have included Islamic philosopher Mustafa Abu-Sway, astronaut Tracy Caldwell, psychologist Theresa Reyes, historian and HC professor Chris Strain, economist Hans Czap, and entrepreneur Raoul Fernandez.
The 2011 Robert Lee and Thomas M. Chastain Honors Symposium Lecture

"The Education of a Writer"

Professor Ngũgĩ wa Thiong'o

Distinguished Professor of English and Comparative Literature
University of California, Irvine, CA

Born and raised in Kenya, Ngũgĩ is a novelist, essayist, playwright, journalist, editor, academic and social activist. While living in Kenya, Ngũgĩ survived the Mau Mau War of Independence (1952-1962), which was a central historical episode in the making of modern Kenya and was a major theme in his early works. In 1977, he published Petals of Blood, which portrayed a harsh and unsparing picture of life in neo-colonial Kenya.

Due to the controversial and critical nature of these works, he was arrested and imprisoned without charge at Kamiti Maciu Security Prison. Amnesty International named him a Prisoner of Conscience, and after an international campaign, he was released a year later. Ngũgĩ provided a detailed account of his experiences in Detained: A Writer’s Prison Diary.

Ngũgĩ has received eight honorary doctorates and numerous prizes in literature, including the Nonino International Prize. His name is often at the top of the list to win the Nobel Prize in Literature. Ngũgĩ has published more than 25 books, including the Njamba Nene series for children, and edits the Gĩkũyũ language journal, Mūtiiri.
PROGRAM

Friday, April 15, 2011

8:00 – 9:00     Participant Registration     AD Bldg.

9:00 – 10:15    Session 1                  AD Bldg.
                Contributed Papers

10:15 – 10:30   Break                      

10:30 – 11:30   Session 2                  AD Bldg.
                Contributed Papers

11:30 – 1:00    Lunch Break

1:00 – 2:00     Chastain Guest Lecturer    LLS Maltz Auditorium
                Professor Ngũgĩ wa Thiong’o

2:00 – 4:00     Session 3                  HC Bldg.
                Visual Arts Projects
                Poster Session

2:30 – 3:30     Book Signing*             HC Bldg.
                *Books will be available for sale immediately after the lecture.

Please join us for a reception in the Honors College Atrium from 2:00 to 4:00 p.m.
Friday, April 15, 2011

SESSION 1

9:00 – 9:15 a.m.

Ilan Bensoussan  
Room AD 102  
_A Mathematical Model of the Austrian Political Business Cycle_  
Advisor/Professor: Dr. Keith Jakee, Dr. Meredith Blue

I attempt to construct a formal model that reconciles non-formal risk-based Austrian business cycle theory with models of political business cycles. In this model, the incumbent political party induces the central bank to enact an expansionary monetary policy. This policy lowers the real interest rate, which leads to an increase in investments. As more individuals invest, assets inflate, leading to a bubble; voter utility increases because asset values are higher. An increase in voter utility leads to an increased likelihood that the incumbent party will be reelected. In an attempt to avoid a violent bust in assets, the central bank seeks to implement a contractionary monetary policy to raise the real interest rate in increments. If the financial system becomes illiquid before the policy is implemented, then a speculative bubble burst occurs. The cycle regenerates a year before the next election when an accommodative monetary policy is implemented once again.

Tara Boulos  
Room AD 103  
Advisor/Professor: Dr. Carmen Cañete-Quesada

Junot Díaz’s novel centers on the life of Oscar Wao, a black overweight, “ghetto nerd” who is obsessed by two passions: women and science fiction. Although Oscar identifies himself as a Dominican-American, he does not resemble the “ideal” Dominican man and does not share the stereotypical “Dominican qualities”, such as hyper-sexual or machismo behavior. His peculiarities, on the contrary, classify him not only as an outsider within North American society but also within the Dominican
community. By placing this marginal character in the center of his novel, Díaz reconsiders and reconstructs “Dominicanness” as it has been presented by previous Dominican authors. This thesis explores the way Díaz breaks away from conventionalism and offers a more complex and diverse image of Dominican-American identity today.

Cassidy Henry

What's in a Name? EU Foreign Policy through the FYRM
Advisor/Professor: Dr. Christopher Ely

The European Union (EU) is a unique political/economic body in the world. It has consistently grown over its existence through both expansion and a deepening of political integration, creating a more integrated union of European states. Yet the structure of the EU remains under debate as does the very existence of the EU. Such debates are affecting the foreign policy of the EU. Conflict about possible member states, such as the Former Yugoslav Republic of Macedonia (FYRM) is especially contentious. By examining the arduous process of gaining admission to the EU that the FYRM has gone through, this thesis explores essential problems in contemporary EU foreign policy, particularly the effectiveness of the current EU foreign policy.

Anthony Kain

Septins: One Ring to Bind Them
Advisor/Professor: Dr. Nicholas Quintyne

The cytoskeleton is composed of dynamic polymers of actin, tubulin, and intermediate filaments. These proteins are responsible for maintaining cell shape, intracellular organization and transport, cell division, and many other cellular processes. Among the cytoskeletal interacting proteins are septins, a conserved family of GTP binding proteins that polymerize into higher ordered filaments. Septins interact with and regulate the dynamics of both actin and microtubule cytoskeletons. Septins also regulate the processes of cytokinesis and exocytosis. In this study we use COS-7 cells as a model for studying the localization, interaction, and dynamics of SEPT2 and SEPT7. We demonstrate that septins form filaments that colocalize with actin filaments in the cell periphery. Further, we show that actin filaments, but not microtubules, are required for formation of septin filaments in vivo.
Michael Webster-Gardiner  
*Synthesis and Reactivity of Organometallic Complexes of Ir and Fe in Aqueous and Basic Media.*  
Advisor/Professor: Dr. Eugene Smith

The catalytic activation of C-H bonds and the subsequent functionalization of hydrocarbons into heteroatom containing products is an area of fundamental importance in chemistry. Three different iridium pincer complexes for C-H activation were synthesized, IrCl$_3$NNN, IrCl$_3$NNN methyl, IrCl$_3$NNNN (NNN= bis-((benzoimidazol))amine, NNNmethyl = bis-(benzoimidazol)methyl)amine, and NNNN = tris-((benzoimidazol))amine). These complexes were analyzed for C-H activation between benzoic acid and KOD/D$_2$O solutions. We found that the C-H activation did not proceed catalytically. Also iron containing derivatives containing similar ligand motifs were synthesized, FeNNNN, FeIPI, FeBPB, FeBPB-OH (IPI = 2,6-diimidizoylpyridine, BPB = 2,6-dibenzoimidizoylpyridine, BPB-OH = 4-hydroxy-2,6,dibenzoimidizoylpyridine) and studied for their reactivity towards O$_2$ and N$_2$ in aqueous basic media. The iron complexes were analyzed for the possibility of using them as O-atom or N-atom transfer reagents for hydrocarbon oxidation. Preliminary results suggest that upon reduction the iron complexes are capable of direct reaction with O$_2$ and N$_2$.

James Jimenez  
*Plea Bargaining, Coercion, and Fairness: An Examination of The Allowability of Plea Bargaining in the American Legal System*  
Advisor/Professor: Dr. Mark Tunick

The process of plea bargaining in the American legal system has long been criticized for being coercive. I use Robert Nozick’s criteria for coercion to show that plea bargaining is not inherently coercive. However, prosecutors can introduce coercion into the process, and the possibility of uneven introduction of coercion in offering pleas makes the system of plea bargaining unfair. However, that plea bargaining can be unfair and often coercive does not mean that it must be abolished. Although the current state of plea bargaining is not ideal and does result in unfairness for many, there does not seem to be any viable options to radically reform the process at this time without losing efficiency, though standardizing some plea offers while leaving
the discretion of whether or not to offer pleas to the prosecution could help remove some of the coerciveness and unfairness.

9:15 – 9:30 a.m.

Adrian Viller

Mexico: Potential Missed Opportunities and an Identity Crisis.
Advisor/Professor: Dr. Kanybek Nur-tegin

Mexico, an OCDE country home to the single richest man in the world, is also host of broad contrasts. The very poor and very rich, slums and avant-garde buildings, underdeveloped rural areas and over-populated urban sprawl coexist in close proximity. The poster child of neoliberal policies in the 80's and 90's, culminating in the signing of NAFTA in 1994, Mexico today lags far behind BRIC in terms of growth and faces stagnation in development. This presentation will examine Mexico's current economic situation in world context and generate future policy recommendations.

Megan Hesse

Fearful Symmetry: Using William Blake to Contextualize Alan Moore’s Watchmen
Advisor/Professor: Prof. Rachel Luria

Alan Moore’s graphic novel Watchmen redefined the superhero genre, elevating comics from entertainment to literature. Though published over twenty-five years ago, Watchmen tells a story of human corruption that still resonates today. While he has inspired many modern graphic novelists, he owes a literary debt to his forefathers; in this case, Romanticist poet William Blake. Blake’s themes of duality and the symmetrical nature of innocence and experience are revisited and reinterpreted in Moore’s work. By interpreting Watchmen through the lens of Blake’s poems and engravings, both authors' vision of humanity comes into focus. Blake sees human nature as a duality, a living contradiction that could use its two sides to become whole. Moore complicates this, suggesting that humanity is corrupt and if it is double-sided, it is more akin to a two-way mirror, where there is always a side we cannot see because we are blinded by our own flaws.
William Rumbold  

_History of Misunderstanding; The Colonization of New Zealand_  
Advisor/Professor: Dr. Christopher Ely

Through examination of first contact between the British Empire and the Maori natives of New Zealand, as well as the failed treaty attempt between the two, this thesis illustrates England’s role in the escalation of conflict between these two cultures. Although at first glance it appears that the war between the two parties was an escalation of intercultural tension, I maintain that British officials in New Zealand had the resources and the knowledge to ease that tension. Instead British officials used this knowledge to speed up the process of conquest. The British crown was trying to conquer the Maori through ambiguous treaties, and when these failed intentionally provoked a war in order to warrant a military presence in New Zealand so as to physically dominate the Maori.

Alexa Billow  

_KIF9 Knockdown in Mammalian Cells Leads to Multiple Mitotic Defects_  
Advisor/Professor: Dr. Nicholas Quintyne

The kinesin superfamily of microtubule motors is subdivided based upon structure and function. KIF9 is a member of the largely uncharacterized Kinesin-9 family. It was originally identified by sequence homology to other kinesins. Subsequent studies have indicated that KIF9 is required for flagellar movement in Chlamydomonas and Trypanosoma. We have examined KIF9 function in mammalian cells using siRNA-mediated knockdown. By knocking down KIF9 expression in these cells, we have seen several effects on normal cell cycle progression. We have observed a decreased mitotic index, suggesting cells either fail to enter mitosis or abort the process prior to completion. Of the cells in that population that enter mitosis, we see an increase in the number of cells in early mitosis and a decrease in the later stages. Interphase cells show decreased microtubule organization. We propose that KIF9 is important for normal progression through mitosis, possibly helping to coordinate the mitotic spindle.
Recently, evidence has been accumulating about post-transcriptional gene regulation via RNA molecules. A class of non-coding RNA transcripts called antisense RNA has emerged as a major factor in post-transcriptional gene regulation. Research on antisense transcripts may lead to therapeutic application. Drugs can be designed to resemble mechanisms of antisense RNA action or to counteract the antisense RNA. In my research I attempted to identify specific antisense RNA transcripts from total RNA isolated from human tissue culture. Using 5’-RACE polymerase chain reaction, I identified several PCR products and cloned them into plasmids. Sequencing of these products showed that they had no homology to the sequences we were targeting. Further experiments including Northern Blot are recommended to continue the research on antisense RNA transcripts.

People have always gossiped about one another, but the prevalence of the internet has allowed such gossip to spread on a much larger scale. In this presentation, we will discuss how gossip can be good, as well as bad. We will also demonstrate why privacy is important, and provide cases to exemplify this and show how courts consider this matter. We will conclude by discussing how much privacy we can really expect in an age where anyone can find information about another with a few strokes of a keyboard.
9:30 – 9:45 a.m.

Tamara Howard

**Statistical Model for College Enrollment: An Examination of a Selective Liberal Arts College**

Advisor/Professor: Dr. Meredith Blue, Dr. Keith Jakee

In this study, I use a logistic regression to model the probability of an admitted applicant either enrolling in the Harriet L. Wilkes Honors College of Florida Atlantic University or declining admission. This institution is a small, selective liberal arts college. The case study will span an eleven year period. To construct my model, I will examine variables such as level of academic performance, personal characteristics, geographic proximity to the institution, amount of financial aid offered and contact with the college. I expect that students with the highest levels of academic performance, furthest distance from the college, and least amount of financial aid offered will decline admissions.

Nikki Murphy

**Sexually Charged Metaphors and the Crusade for Chastity**

Advisor/Professor: Dr. Michael Harrawood

This presentation examines the play of light and dark imagery in John Milton's early work “A Masque Presented at Ludlow Castle”, written to celebrate the installation of John Egerton, who became the lord president of Wales in 1634. The Masque attempts to popularize and democratize what was at the time typically a royalist form of entertainment. In the masque itself, a Lady is lost in the woods at night and is accosted by a lustful, immoral god, Comus. Her chastity is stronger than Comus’ temptation, and Milton meditates on chastity and self-moderation with several scenes of light and dark images, revealing a tension amid politics and morals. Virtue, a metaphor for self-rule AND remaining chaste, is what drives the narrative on both a moral and political level. However, Milton’s attention to chastity-virtue is greater than political-virtue; ultimately making the Masque focused more on making a moral statement than a political one.
Ashley Irizarry  
*Fabricating History: The Making of the Molly Maguires*  
Advisor/Professor: Dr. Christopher Ely

This thesis focuses on the popular and historical image of the Molly Maguires, an Irish-American terrorist labor group in the 1870s. Since there is little direct information about the Molly Maguires, our knowledge of them comes from contemporaries, historians and fiction writers, many of whom were antagonistic to the Molly Maguires. The limitations of our understanding of the Molly Maguires call into question whether our picture of the Mollies can be considered historical. Although the limits of current evidence obstruct efforts to create an accurate historical picture of the Molly Maguires, the development of the Molly Maguire image is a history in and of itself, revealing as much about the social environment in which that image was created as about the Molly Maguires themselves. This thesis explores a topic in the gray area between fact and fiction, where the writing of history relies on collective memory as much as on empirical data.

Lindsay McCullough  
*Regulation of Dynactin-Mediated Microtubule Anchoring by the p24 Subunit*  
Advisor/Professor: Dr. Nicholas Quintyne

Dynactin is a 1.2 MDa multisubunit complex that is involved in a variety of cellular functions including vesicle motility, microtubule organization, and division. The function of most dynactin subunits are at least partially characterized, with the exception of p24. Very few things are known about p24: it has a molecular weight of ~20,800 Da, is mostly $\alpha$-helical, is only found in dynactin and binds directly to p150Glued. We are using overexpression, shRNA-mediated knockdown, and fluorescent microscopy, to determine a role for p24. When p24 is overexpressed, p150Glued is lost from the centrosome and Arp 1 remains, suggesting disruption of the complex. In addition, microtubule organization is disrupted. When p24 is knocked down, we retain p150Glued at the centrosome, along with Arp 1 and see less, but significant, disruption of microtubule organization. These data suggest that p24 may act as an anchor to stabilize p150Glued when it binds to microtubules.
**David Pick, Pasco Avery, Charles Powell, and David Hall**

*Persistence and Infectivity of Isaria Fumosorosea Blastospores Sprayed on Citrus Seedlings in the Field for Managing the Asian Citrus Psyllid, Diaphorina Citri*

Advisor/Professor: Dr. Paul Kirchman

This study was designed to test the persistence of Isaria fumosorosea (PFR 97) as a bioinsecticide on citrus seedlings under field conditions in Fort Pierce, Florida. Leaf wash and Asian citrus psyllid mortality assays were used to quantify the persistence, and Infectivity of PFR 97 at 0, 7, 14, 21, 28, and 35 days post-spray. Even at 21 days post-spray, a 53% psyllid mortality rate, an average of 5.9 CFUs per replicate (N=15), and a total of 88 CFUs were observed indicating that the fungus was still viable. Preliminary predictions are given for the interval on which PFR 97 should be sprayed in the groves for efficient Asian citrus psyllid control and the post-spray time frame in which rain would warrant a post-rain re-application of PFR 97.

**Wesley Mathieu**

*Privacy and You: Did the Supreme Court Get it Right?*

Advisor/Professor: Dr. Julie Earles, Dr. Mark Tunick

Privacy as a legal concept affects every single American citizen whether they know it or not. Justice Harlan's concurrence in Katz v. United States, 389 U.S. 347 defined an expectation of privacy as one that society must recognize as reasonable. The Court has used this doctrine throughout its jurisprudence to establish different privacy tests for different situations, yet at no point has it empirically determined whether its decisions accurately reflect society's view of what is 'reasonable.' To that end, this paper will examine the philosophical and historical origins of the right to privacy, as well as its development by the Supreme Court to its current status. I'll compare the Supreme court's interpretation of society's expectations with empirical data from psychological studies, and finally, I will conduct a normative analysis to determine if the Supreme Court has accurately interpreted society's expectations and correctly crafted the right to privacy to ideally protect the citizens and limit state invasions of privacy.
Forced to Vote: Evaluating the Effects of Compulsory Voting on Citizens’ Satisfaction with Government

Arend Lijphart claims that low voter turnout plagues democratic countries, including the United States, and that the only way to solve this “unresolved dilemma” is to implement compulsory voting, which makes voting a legal obligation. Proponents of compulsory voting argue that increased voter participation has many positive effects for a country. This paper will not only evaluate the effects of compulsory voting on certain aspects of citizens’ welfare, but also citizens’ overall satisfaction with their government. In order to measure each of these elements, I will look at income equality, the level of government corruption, and the extent of citizens’ civil liberties. I will also use the World Values Survey to compare the perceptions of citizens toward their government in countries with compulsory voting to those of citizens in countries with voluntary voting systems. I hypothesize that there will not be any significant differences between the two electoral systems.

Call Me Tess: Articulating and Unwriting Identity in Thomas Hardy's Tess of the d'Urbervilles

In Thomas Hardy’s Tess of the d’Urbervilles, male characters inscribe and project stereotyped images of femininity onto the novel’s eponymous heroine. I argue in this thesis that Tess defies these inscriptions and projections not only through her use of violence, but also through a radical form of submission. Tess, who is often described by critics as a victim of fate, becomes in my argument a formidable figure; even her death, which is frequently read as a capitulation to the forces against her, becomes in this interpretation a deliberate act of defiance. Tess obliterates her own body, the contested site of inscription and projection, in order to deny it to her persecutors.
Robert Bruton

*Crossing the Border: The States and Immigration Reform*

Advisor/Professor: Dr. Christopher Strain

Today’s local and state governments face a diverse array of challenges when meeting the needs of their communities. Issues surrounding immigration reform and control in these communities have become politically sensitive as states attempt to pass their own reform bills. As states such as Arizona pass their own forms of immigration legislation the federal government and others believe that immigration legislation is solely a federal power. However, given that the federal government has failed to uphold and enforce its own immigration legislation the states should be allowed to create their own solutions to solve their specific problems. States and local communities retain a significant portion of the costs immigrants cause and should endeavor to create legislation to solve those problems in a constitutionally acceptable manner.

Lewis Cabibi

*The Determination of KIF9's Possible Involvement in Vesicular Transport*

Advisor/Professor: Dr. Nicholas Quintyne

Vesicular transport is vital to the living cell. Motor proteins, such as the kinesin superfamily proteins (KIFs), travel along microtubules with attached vesicles to achieve vesicular transport (Hirokawa 2008). However, not all kinesins participate in vesicular transport, some are required for other cellular functions. A recent study showed that the KIF9 motor is involved in keeping the microtubule organization center (MTOC) correctly positioned and oriented in Dictyostelium (Tikhonenko et al., 2009), suggesting it may be involved in non-transport functions. By modulating protein expression levels of KIF9 in COS7 cells, this study aims to determine whether or not KIF9 contributes to vesicular motility. Using a fluorescent dye, we have been able to track lysosome movements in living cells. Our analysis has shown that altering KIF9 expression has no effect on vesicle motility. This suggests that KIF9 is not directly involved in cell motility, and serves another function within the cell.
Sarah Salem  
*Analysis of Mutant Manganese-Superoxide Dismutase on the Life Span of Saccharomyces Cerevisiae*

Advisor/Professor: Dr. Paul Kirchman

Previously isolated mutants of the superoxide dismutase 2 gene (SOD2), selected for increased activity in E. coli, were transformed into yeast cells in order to observe their effects on aging. Polymerase chain reaction and DNA sequencing were used to confirm that the yeast incorporated the mutant form of the gene. The strains with mutant forms of the SOD2 gene had decreased growth rates compared to the un-mutated strain. Life span analyses were then conducted in order to see if yeast with mutant versions of SOD2 had life spans that differed significantly from those with the un-mutated forms of the gene. The effects of the mutant form of SOD2 on life span of yeast will be discussed.

Kevan Carbon  
*Do Full-Body Scanners in Airports Violate Fourth Amendment Rights When Used as Primary Search Mechanisms?*

Advisor/Professor: Dr. Mark Tunick

Full-body scanners are now being used as primary search mechanisms in airports, and this is causing much controversy, with groups such as the Electronic Privacy Information Center (EPIC) alleging that the scanners are violating rights. I address whether full-body airport scanners violate the Fourth Amendment when used as a primary search mechanism. Drawing on legal commentary and court cases involving airport security and administrative searches, and exceptions to general warrant requirements, I argue that when full-body scanners are used as primary search mechanisms, no Fourth Amendment rights are violated, but only if it is established that the scanners are effective and safe.
Leslie Williams

Namibian Development: Problems in a Young Country
Advisor/Professor: Dr. Kanybek Nur-tegin

Namibia, one of the youngest independent countries in southern Africa, is the most unequal country in the world. Through looking at Namibia’s growth path and problems such as inflation, unemployment, the use of conservancies and natural resource deposits, and current economic policies that aim to solve those problems, the presentation will seek to inform viewers about Namibian economics and development and give a glimpse into what the future holds for the young country of Namibia.

Abigail Blake

Don’t Do It!: Reader Response in John Milton’s "Paradise Lost"
Advisor/Professor: Dr. Michael Harrawood

This presentation will engage in one of the three crisis episodes that I call Don’t Do It moments in John Milton’s "Paradise Lost", moments in which the poem suddenly turns into a suspense movie. As in a slasher film, or even a mystery film, the reader responds emotionally as the poem brings him or her to relive the seduction that leads to the fall of man. I will argue that Milton deliberately organizes the entire poem around these moments in Book IX in order to recreate the Fall in the reader’s mind, emphasizing its unfairness and inevitability: the readers suffering for Adam and Eve’s sin. I will suggest a connection between the text and the reader by means of empty signifiers. Unlike Adam and Eve, the reader understands the meaning of the word ‘death’ and the powerful consequences they will face once they separate and fall.
Andrew Bartholomew  

The Politics of Propaganda in Ceausescu's Romania  

Advisor/Professor: Dr. Christopher Ely

From 1967-1989 President Nicolae Ceausescu and the Securitate (the secret or political police) used the Romanian propaganda machine to repress the Romanian people through the use of classic propaganda techniques and a unique manipulation of Romania's own national and cultural history. Ceausescu did this in order to cement his hold on the Romanian people and to ensure that Communism remained the dominant ideology of the nation. This thesis argues that Ceausescu and the Securitate used Romania's Latin heritage, cultural and historical icons, and the nation's national identity and history to maintain their continued existence. Ceausescu used these native sources to give his regime the trappings of legitimacy and to cement his rule through the aid of the Securitate.

Michael Metzner, Dr. Heidi Walsh, Dr. Roy Smith  

Mechanisms of Neuroprotection Mediated by Ghrelin in Neuronal Cells  

Advisor/Professor: Dr. Nicholas Quintyne

Ghrelin is a 28-amino acid peptide secreted by the stomach. Over the past decade, studies have shown ghrelin to have broad effects on growth hormone release, appetite regulation, and glucose metabolism. These effects are explained largely by the high expression of the ghrelin receptor (GHS-R1a) in both the hypothalamus and pituitary. Recently, ghrelin has been shown to have possible neuroprotective effects in other brain regions expressing GHS-R1a, specifically stimulating anti-apoptotic and anti-inflammatory pathways. The endoplasmic reticulum (ER) is a cellular organelle responsible for processing proteins. When an abundance of misfolded proteins accumulate in the ER, cellular stress pathways ensue, and are linked to a number of neurodegenerative diseases. This project will examine the effects of ghrelin during ER-stress in a human neuronal cell line. Expression of genes and proteins involved in potential neuroprotective pathways will be examined to learn how ghrelin mediates its anti-apoptotic effects in neurons.
Isolation of the MSRB3 gene from T. scripta
Advisor/Professor: Dr. Paul Kirchman

Oxidative stress is hypothesized to be a primary cause of aging and aging-related diseases. Organisms have evolved to combat oxidative stress by eliminating reactive oxygen species. The red eared slider turtle Trachemys scripta elegans undergoes long periods without oxygen then can quickly readapt when oxygen is present. This would normally cause oxidative stress, but T. scripta appears to have superior methods for reducing the effects of reactive oxygen species. The protein methionine sulfoxide reductase B3 (MsrB3) alleviates oxidative stress by reconverting oxygen-damaged methionine-R-sulfoxide back to the amino acid methionine. We designed degenerate primers to amplify a conserved region of the MSRB gene to isolate a partial DNA sequence. We then used 5’ RACE PCR to isolate most of the coding region of the gene from T. scripta cDNA, and are using this as a template to isolate the promoter.

Don’t Shoot: Police Privacy and Accountability in the Digital Age
Advisor/Professor: Dr. Mark Tunick

On March 5, 2010, Anthony Graber was pulled over for speeding and reckless driving on his motorcycle. Graber had been recording his ride with a helmet cam, which he left rolling during the stop. A week later, Graber posted a video of this stop on YouTube, which depicted a Maryland State Trooper in an unmarked car, dressed in plainclothes, pulling out his gun and ordering Graber off the motorcycle before identifying himself as a police officer. The video garnered a lot of attention and led to Graber’s arrest approximately one month later for violating a Maryland anti-wiretapping statute. Twelve states have similar statutes, three of which (Massachusetts, Illinois, and Oregon) are notably strict. This paper evaluates the legality of these laws by looking to existing case law, as well as the First and Fourth Amendments of the U.S. Constitution. In light of First Amendment free speech protections, the anti-wiretapping statutes of the three states in question should be illegal; however, this paper will also explore the specific problems presented by video-sharing websites like YouTube to determine when and why police officers do have privacy rights that outweigh constitutional guarantees to free speech.
SESSION 2

10: 30 – 10: 45 a.m.

Erika Cadena

From Borders to Neighborhoods: Explaining the Shift toward State and Local Immigration Law Enforcement in the United States.

Advisor/Professor: Dr. Timothy Steigenga

Immigration law enforcement has historically been a federal responsibility. The 1996 enactment of section §287 (g) of the Illegal Immigrant Reform and Immigrant Responsibility Act represented a major change, allowing state and local officers to be trained to perform the legal functions of immigration officers through Memorandums of Understanding (MOAs) with the federal government. Despite this change, few states utilized the MOA process until after the terrorist attacks of September 11th, 2001. Following the attacks, there has been a steady increase in both the number of MOAs and other forms of local and state immigration enforcement (such as Arizona’s SB 1070). This thesis argues that the shift toward local immigration policy activism is a result of the post-9/11 political atmosphere, the repeated failure of comprehensive immigration reform, and the rise of new migrant destinations. An analysis of these factors points to the primarily symbolic nature of local immigration enforcement initiatives.

Kaitlyn Blum

Intersecting the Public and Private: Shakespeare and the Bawdy Courts

Advisor/Professor: Dr. Michael Harrawood

This presentation will examine the intersection between the literature of Williams Shakespeare’s late comedy All’s Well That Ends Well and the sexual-legal environment in which he wrote. I am interested in the thematic and anecdotal exchanges between early modern science and literature. My main focus this semester has been on Shakespeare’s use what were called the bawdy courts as he created the plot twists of All’s Well. The bawdy courts were a real legal system that sought to regulate the sexual behaviors of the English and especially the London
population. My argument will be that the bawdy courts intersect with *All’s Well*, since an early modern paternity test ensues after a bed trick in the plot.

**Valerie Cannon**

*If You Can’t Play Nice, Play Roller Derby*

Advisor/Professor: Dr. Jacqueline H. Fewkes

Women’s Flat Track Roller Derby is one of few contact sports available to women in the U.S. in which women play by the same rules as men. Contact sports are traditionally a male dominated arena in the United States. Rollergirls both challenge and negotiate socially constructed gender norms by participating in this contact sport while dressing and fundraising according to heteronormative concepts of sex appeal and femininity. While Rollergirls demonstrate their strength and endurance on the track, they often do so under a derby persona, emphasizing their femininity to counterbalance their participation in a masculine activity. In this manner, Rollergirls demonstrate how intertwined athletic capability and sexuality are, and the difficulty gaining recognition, in female athletics.

**Rosaly Byrd**

*Conservation in Context: Conflicting Social Values and Marine Turtle Conservation Efforts in Ostional, Costa Rica, and Palm Beach County*

Advisor/Professor: Dr. William O'Brien

The legal egg harvesting of olive ridley marine turtles in Ostional, Costa Rica, has warranted much attention in the United States. Despite the evident ecological sustainability of the project and positive economic and social benefits for local residents in Ostional, observers in the U.S. have expressed criticism of this community-based conservation program. Such critics often express a preference for a “hands off” approach to turtle eggs as key to species’ survival. This study assesses this geographic contrast in perception between two key factions in environmental thought—conservationism and preservationism—as they apply to such biodiversity conservation efforts. These points of view result in varying policies in different parts of the world, shaped by economic and cultural circumstance. In discussions of endangered marine turtles, developing areas, such as Ostional, emphasize “rights” as
they relate to socio-economic sustainability, while wealthier contexts like Palm Beach County, Florida, focus mainly on the rights of protected species.

Jairo Sanchez Room AD 202

Cloning of the Manganese Superoxide Dismutase Gene (SOD2) from T. scripta
Advisor/Professor: Dr. Paul Kirchman

Reactive oxygen species (ROS) are molecular oxygen-derived molecules that are exceedingly reactive, often generated as free radical bi-products of mitochondrial respiration, which cause oxidative stress that leads to aging. To avoid the generation of ROS, aerobic organisms have antioxidant defense mechanisms that use enzymes such as Superoxide Dismutase (SOD) to convert the superoxide radicals into hydrogen peroxide and oxygen. Manganese-containing SOD (Mn-SOD), a product of the SOD2 gene is found in all eukaryotic organisms in the mitochondrial matrix, including T.scripta (red-eared slider turtle). Extraordinarily, T.scripta can live without oxygen for long periods of time without experiencing adverse effects when oxygen is again available. The purpose of our experiment is to clone the T.scripta SOD2 gene, and test its activity. A partial fragment of the gene has been isolated by screening the cDNA library, and we are currently working on finding the remaining sequence.

Travis Moore Room AD 206

Implementing Brown v. Board: An Evaluation of the Success of Desegregation at Suncoast High School
Advisor/Professor: Dr. Mark Tunick

In 1954 a unanimous Supreme Court ruled that maintaining separate schools for white and black students was inherently unequal. Following the decision, school boards across the nation struggled to determine what desegregation meant for their schools. This research focuses on the history of desegregation at Suncoast High School, in Riviera Beach, FL, paying specific attention to the respective goals of the various stakeholders. The goals are discerned by drawing on official documents, newspaper articles and interviews. After weighing the goals of each stakeholder against the current state of desegregation at Suncoast I argue that only some goals have been met. I conclude that while the goals of the national stakeholders, school
board and local white parents have been met as of 2010, some goals of the local black community—most importantly, having a community high school for their children—have not been met.

10: 45 – 11: 00 a.m.

Kristina Klaas

Help or Hindrance: An Evaluation of the 287(g) Program and Local Immigration Enforcement in Florida

Advisor/Professor: Dr. Timothy Steigenga

The 287(g) program trains state local law enforcement agencies and authorizes them to enforce federal immigration law. Utilizing data from Collier, Bay, Miami-Dade, and Lake counties, this thesis analyzes the impact of the 287(g) program in the state of Florida to determine if the program effectively targets "criminal aliens," as outlined in the goals of the program. While the implementation of 287(g) in Florida has increased the number of deportations of unauthorized immigrants, the initiative has not effectively met its stated goals in terms of targeting criminal aliens. Furthermore, the 287(g) program has resulted in other consequences, such as the criminalization of immigrants, hindering local law enforcement agencies in promoting community safety, and transferring local immigration enforcement costs to the federal government.

Philip Olsen, Alexa Robinson

The Tea Party: Burgeoning or Beaten

Advisor/Professor: Dr. Michael Harrawood

In this paper we intend to evaluate the feasibility of the Tea Party burgeoning into a viable political entity capable of achieving its goals. The Tea Party is a political movement which first emerged in 2009 and has garnered a devoted following since its inception. It is characterized mainly by its focus on a single issue; it demands greater fiscal responsibility on the part of the United States government. In order to fully meet our stated objective, we will examine historical precedent; potential support, both public and political; possible obstacles presented; and individual members of the movement itself.
Renata Bozzetto

*Ethnosexual Frontiers: Where Art Meets Race within International Politics*

Advisor/Professor: Dr. Wairimū Njambi, Prof. Dorotha Lemeh

Since the economic crisis from 2007, an extensive debate matching unemployment and immigration has been central to conservative discourses. Although progressive organizations have been critical of the SB1070 law in Arizona for its pervasive racial profiling content, some individuals seem to ignore the strong history of legislation, cultural apparatus and social norms that were made to support white supremacy within the history of United States. As immigration comes to the American debate, various politics adopted by the United States towards South American countries have been ignored. My objective with this research is to take a closer look at the artistic representations that, through mass media communications, have allowed the formation and solidification of racial and ethnosexual frontiers. By taking an interdisciplinary academic approach, I hope to make evident how the conceptualization of the “immigrant body” is fundamental to the establishment of fears that perpetuate segregation within American culture.

Nicole Henken

*Atrophy or Progress? Evaluating the Evolution of Environmental Policy by Comparing Large Scale Oil Spills in the United States*

Advisor/Professor: Dr. William O'Brien

Many political theorists accept that focusing events effect the cycle of policy change without agreeing on the specifics of how events impact the construction of legislation. Pessimistic theories (consisting of Down’s “Issue Attention Cycle” and Freudenburg’s “Atrophy of Vigilance”) and optimistic theories (constituted by the “Punctuated Equilibrium Model” and Busenberg’s “Evolution of Vigilance Model”) offer opposing views of policy creation. As focusing events, the Exxon Valdez and Deepwater Horizon oil spills together serve as effective cases for assessing and comparing the validity of pessimistic and optimistic policy change models. The analysis of each set of theories adds to the understanding of the construction of environmental and oil spill policy in the United States. These two major incidents, in the Gulf of Mexico and in Prince William Sound, when linked provide a long-term,
multi-event continuum that more closely mirrors optimistic crisis-motivated policy change theories.

Jessica Batlle

*Lowering Oxidative Stress with Increased Methionine Content of Mitochondrial Aconitase*

Advisor/Professor: Dr. Paul Kirchman

Oxidative stress occurs when reactive oxygen species (ROS), such as O₂, HO₂, and H₂O₂, accumulate to detrimental levels in the cell, and effects of oxidative stress are associated with aging. Mitochondria are the main site of oxidative stress, most likely due to the high level of ROS produced during respiration. Mitochondrial aconitase is an enzyme involved in respiration; due to the presence of an iron-sulfur cluster in the active site, it is a target for ROS. A plasmid containing the aconitase gene to be inserted into Saccharomyces cerevisiae will be subjected to point mutations, replacing several leucine and isoleucine amino acid residues with methionine residues near the active site and on the surface of the enzyme. The amino acid methionine has a sulfur group, which also acts as a target for ROS and could prevent inactivation of the iron-sulfur cluster of aconitase.

Alicia LoPiccolo

*The Case of the Finals Tree: How Constitutional Issues Can Be Resolved Outside of the Courtroom*

Advisor/Professor: Dr. Mark Tunick

In December of 2005, members of the Harriet Wilkes Honors College voiced objections over the erection of a Finals Tree, a faculty and staff endorsed pine tree that held various snacks for students during finals weeks. In an email, the tree was accidentally called a ‘Christmas tree’, which it did resemble. One faculty who objected deemed the tree unconstitutional because he felt the university was endorsing a particular religion and was acting unethically. I examine the history of the Finals tree tradition, evaluate its constitutionality according to Supreme Court precedent, and examine whether its display violates the rights of those opposed to the tree according to democratic theory. I conclude that the erection of the tree is constitutional; however, according to democratic theory, the Honors College acted in
an ethical way by creating a compromise that replaced the pine tree with a palm tree, a tree with no religious connotations.

11:00 – 11:15 a.m.

Case Boeshaar

A Clash of Civilizations or a Clash of National Interests? The United States and its Key Role in the Middle East
Advisor/Professor: Dr. Timothy Steigenga

Samuel Huntington has argued that the Islamic and Western worlds are at odds due to irreconcilable differences in ideology, and as a result both will form broad civilizations that will inevitably lead to conflict. This thesis argues that Huntington’s theory of the “Clash of Civilizations” is incorrect because the United States is not at war with the Islamic ideology as a whole, but rather the conflicts involving the USA in the Middle East are better explained by realist perspectives of national and strategic interests. Powerful Arab and Muslim nations are potential strong political and economic allies for the United States. However, conflicts in the region are spurred by policies intended to promote core economic and security interests.. If the United States wishes to preserve its diplomatic standing and influence in the region then it is imperative that policymakers better understand the underlying reasons for conflict in the Middle East.

Robert Lang

The Minimum Rank Problem For Chordal Graphs
Advisor/Professor: Dr. Warren Wm. McGovern

Determining the minimum rank of a graph has been actively studied in combinatorial matrix theory over the past decade. Given a simple, undirected graph G on n vertices, the problem is to determine the minimum rank over all real, symmetric nxn matrices whose nonzero off-diagonal entries occur in the positions corresponding to the edges of G. We use graph decompositions such as cliques, cycles, complete bipartites, etc. to help determine the minimum rank. Our focus rests on decompositions using cliques and clique-stars. We note that cliques and clique-stars have minimum rank of 1 and 2 respectively.
Such a decomposition is useful for the set of chordal graphs. A chordal graph is one that does not have an induced k-cycle, k>3. We use cliques and clique-stars to determine the minimum rank of chordal graphs with either three cliques or one clique and one clique-star in a decomposition. We highlight an example that demonstrates the difficulty of calculating the minimum rank.

Ashley Coats
Room AD 104

Androcentric Expressions in Academic Writings
Advisor/Professor: Dr. Wairimū Njambi, Dr. Kevin Lanning

The pervasion of androcentric thinking in many Western societies is evident in their languages. A prime example of androcentric language has historically been English, including (and especially) formal writing. All but the most obvious forms of androcentric language remained unchallenged, and I hypothesize that academic writing still favors male interests. In this study, articles published in journals were examined for four distinct examples of androcentric expression: number of citations for female versus male authors within a particular journal; frequency of first name stated in citations of male versus female authors; first placement of female versus male data in correlation matrixes; and placement of males versus females as baseline in comparison statements. Results support this hypothesis. These examples of androcentrism have discrete and concrete implications regarding the inequalities found in applied gender roles, including the gendered difference in college professors receiving tenure.

Alexa Robinson
Room AD 119

Glen Canyon: A Lasting Impact
Advisor/Professor: Dr. Michael Harrawood

In this presentation I will show how the Glen Canyon Dam has had a significant negative impact on the culture and environment of the Colorado River. In the 1950s, after intense debate with the Sierra Club, Congress created legislation for dam construction in Glen Canyon. The beauty of Glen Canyon is now below Lake Powell, and the Sierra Club has recently renewed its efforts. In examining the negative impacts of the dam I will analyze the changes in the environment and river culture over time as well as the stated objectives of the original legislation.
Ultrasound is widely used in various fields of science and technology. In the medical field, ultrasonic devices are developed for non-invasive diagnosis and therapeutic purposes. In the construction of a good ultrasonic device, matching layers are essential. The basic construction of an ultrasonic transducer as well as the importance of creating matching layers will be discussed. Several problems that arise in developing a matching layer will be further explored. In the development of ultrasonic transducers there is no standard recipe for how to create a matching layer. There are a variety of materials that can be used, finding the appropriate material is a demanding process. This research involves designing a new type of matching layer that incorporates the use of lithographic material while satisfying the desired properties needed for an ultrasonic transducer.

My study investigates the ego development levels of students attending the Wilkes Honors College. Ego development is the conceptual framework an individual uses to interpret and react to everyday life. High levels of ego development are marked by an increase in tolerance of individual differences, meaningful relationships with others, and a view of the world as complex. It is hypothesized that the liberal arts structure of the Honors College may serve to enhance students’ ego development by exposing them to a variety of disciplines and viewpoints, allowing students to see the world’s complexity. In particular, we believe that there will be a strong positive correlation between the number of interdisciplinary courses taken and a student’s ego level. These classes bring together varying disciplines and perspectives and reflect on the connections between these perspectives. The results of this study may validate the benefits of receiving a liberal arts education.
11:15 – 11:30 a.m.

Andy López
Room AD 104

*Racializing the Queer: Racialized Bodies and the Construction of Gay and Lesbian Identities*

Advisor/Professor: Dr. Wairimũ Njambi

The contemporary Gay and Lesbian movement emphasizes “identity” in an effort to unify all people being marginalized based on their sexual orientation and/or gender identity. However, such an “identity” falls short of inclusion of all people of color, and becomes a tool for the oppression of those who do not fall within the contexts already defined. This paper will highlight parallels between the construction of racialized sexuality and the construction of “gay” and “lesbian” identities. Moreover, I will examine the ways in which Race Studies and Gay & Lesbian Studies are entangled in the context of American culture, particularly with regards to racialized bodies and the ways in which they have been marked as “sexually deviant.” Utilizing my own experiences as a person of color, whose body does not match common conceptions of male and female, I argue that any identity formation denies the multiplicities present within a given body.

Kaleigh McKnight
Room AD 119

*Living Socially and Environmentally Sustainable Practices: A Comparative Study of Owners and Workers on Small Farms in the Southern United States*

Advisor/Professor: Dr. Jacqueline H. Fewkes

This thesis is an evaluation of how small farmers attempt to build community and the complications which stem from their efforts. Community is a problematic concept due to farmer’s misconception about what elements of society form community, for example assuming spatial borderers as a defining aspect of community. These misperceptions have challenged small farmers during their community building efforts. My research will further our understanding of how the community interacts with small farms, allowing small farmers a more effective method for engaging their consumer base. As a part of this project, I have conducted original ethnographic work involving owners, workers, and the two groups’ experiences with farm life, labor, and community. Understanding these groups provides a better understanding
of how community forms around small farms through mutual circumstances and beliefs.

Jessica Newton

The Antecedents of Attitudes Toward Homosexuality: A Comparison of the Effects of Disgust, Openness, Religion and Contact on Anti-Gay Attitudes

Advisor/Professor: Dr. Kevin Lanning

In this study, I examined the structure of predictors of attitudes toward homosexuality in a sample of nearly 800 respondents. Predictors included measures of personality (Openness to Experience), emotion (Disgust), beliefs (Religiosity), other attitudes (Social Dominance Orientation and Right-Wing Authoritarianism), as well as prior exposure to homosexuals (Contact). These were examined in a series of structural models in the prediction of Homonegativity (anti-gay attitudes). I anticipated that Contact would serve as a mediator of relationships between the remaining predictors and anti-gay attitudes. If Contact does serve as a mediator it would intervene between the three antecedent variables (Openness, Disgust and Religiosity) and attitudes toward homosexuality. This would help answer the question of whether people who are high in Openness are low in anti-gay attitudes (a) simply because they are open or (b) because their Openness drives them to interact with homosexuals. This research aims to answer such questions.
### SESSION 3

**Visual Arts Projects and Posters**

**HC 111, 114, 115, 116**

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<td><strong>A Visual Representation of the Differences of Perspective</strong></td>
<td><strong>“Kite Beach” – A Perspective</strong></td>
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Evan Altman, Dr. Robert Rounbehler, John Cleveland  
*Myc-induced repression of Tristetraprolin alters the expression of ARE-containing genes in prostate cancer*  
Advisor/Professor: Dr. Robert Rounbehler

Prostate cancer has the second highest morality rate of all cancers in men. The Myc oncoprotein is misregulated in 70% of all cancers, including 70% of prostate cancers, and affects several cancer mechanisms. Myc is able to directly repress the expression of Tristetraprolin (TTP). TTP regulates mRNA stability by binding to select mRNAs. Furthermore, TTP is able to suppress Myc-driven B cell lymphoma in mice. In these studies, cell culture models were used to access the role of Myc-induced repression of TTP in prostate cancer. Prostate cancer cells lines were identified with inverse expression of Myc and TTP. Additionally, ARE-containing genes with roles in various cancer mechanisms were differentially expressed in these models. These findings suggest that Myc’s ability to downregulate TTP is important in prostate cancer and provide new avenues for treating Myc-driven prostate cancer.

Bryan Davidson  
*Determination of Dissolved Solids Using Synthetic Urine via Laser Refractometry*  
Advisor/Professor: Dr. Eugene Smith

A laser refractometer was used to measure the refractive index of synthetic urine samples ranging in specific gravity of 1.028g/mL to 1.010g/mL. When analyzing a urine sample, it’s very important that the sample is not destroyed. Laser refractometry is a nondestructive analytical method that can determine the concentration of a sample based on its refractive index. The instrument used in this study utilizes an inexpensive laser that passes through a cuvet filled with a sample, and its deflection is measured on a linear photoarray. A hydrometer was used to measure and confirm the specific gravity. After three trials, it was found that urine samples exhibiting a higher specific gravity had the lowest peak value (40) while the samples with the lowest specific gravity had the highest peak value (114). The range of values found during this experiment can be applied to future tests as a standard to be compared against.
Hannah DuBose
*Nerites and Littorinids of the Indian River Lagoon*
Advisor/Professor: Dr. Jon Moore

The Indian River Lagoon Species Inventory of the Smithsonian Marine Station at Fort Pierce is an internet reference for both the general public and scientists; it contains a nearly complete list of species found in the Indian River Lagoon, and, for some species, it has compiled natural history information about them. However, there are many species in the database, particularly for mollusks, where no natural history information is provided or available. I have chosen to gather widely dispersed information on members of two particular families of gastropod, the Neritidae and the Littorinidae. I have researched several species of each family about which there is no information aside from a name in the species inventory, and written natural history sheets on each according to the format of the inventory. These entries will be submitted to the IRL Species Inventory for publication on the web.

Manesh Gopaldas
*The Role of IL-17 in T-Cell Development*
Advisor/Professor: Dr. Paul Kirchman

T-lymphocytes develop from bone marrow derived hematopoietic stem cells (HSCs) and mature in the thymus, where they participate in reciprocal signaling with thymic stromal cells. The specific thymic developmental stages are well characterized, but only a handful of the intrathymic signals that influence the development of T-lymphocytes have been identified. Mircoarray experiments revealed interleukin-17A (IL-17A) and its receptor (IL-17RA) as a possible stromal-lymphoid signal, and an IL-17RA/- knockout was used to determine whether the IL-17RA gene has a role in T-lymphocyte maturation. In this study, we made competitive bone marrow chimeras and analyzed the percentage of donor wildtype and mutant HSCs present in the bone marrow, and compared it to the percentage of a particular blood cell type that developed from these donor HSCs. We found that IL-17RA influences the maturation of T-lymphocytes, but does not affect the development of other immune cells such as B- lymphocytes, macrophages, and granulocytes.
Wesley Mathieu  
*Perceptions of Privacy*  
Advisor/Professor: Dr. Julie Earles  

Privacy is defined as “the selective control of access to the self or to one's group” (Pedersen 1999). Privacy governs our behavior and interactions in day to day life and serves multiple functions in society. Privacy is a luxury that is increasingly difficult to maintain as technology and an increasingly intertwined global community makes personal information harder and harder to control. It is unclear how the decrease of personal privacy will affect people in the long run, but the political and social implications to possible psychological problems warrant study. Although privacy is such an influential and multi-faceted force, there is very little experimental data about it. The current study seeks to change that and open new avenues of research into privacy and its effects on behavior, a field that will become increasingly important in the coming years as privacy comes under greater and greater threat from various forces. I examine how potential threats to privacy affected participants value of privacy along two dimensions.

Hannah Norcini, Dr. Julie Earles, Dr. Alan Kersten, Daniel Dickson  
*Memory for Performed Actions*  
Advisor/Professor: Dr. Julie Earles  

This study examined the relationship between age and the binding of self- and other-performed actions with their actors. We hypothesized that self-performance will lead to a strong memory for an action in younger and older adults, but because of this, will also cause older adults to be more likely than younger adults to falsely recognize a familiar actor performing an action that they had in fact performed themselves. Participants—39 undergraduate students and 52 community-dwelling older adults — encoded a sequence of actions, and then were later tested on their memory for the actions and who performed each one of them. Analyses indicated that older adults had a greater difficulty in overcoming strong feelings of familiarity and therefore, were less likely to distinguish between self-performed other items and self-performed conjunction other items.
Erik Palm

Religious and Political Transformations in Scandinavia: An Anthropological Examination of Norway, Sweden, and Denmark From the Ninth through Thirteenth Centuries

Advisor/Professor: Dr. Rachel Corr

During the ninth through thirteenth centuries, Scandinavia underwent a period of significant religious, political and cultural change that transformed an isolated region of Norse polytheism and small kingdoms ruled by elected warrior-kings into the Catholic autocracies of Norway, Sweden, and Denmark. In response to the arrival of Christianity and in recognition of the political connections to be gained through it, the lords of Scandinavia slowly opened their domains to foreign influence. As a result of their acceptance and promotion of this new religion, the kings faced a significant change in power relations within their societies, which replaced the election of the king by democratic assemblies with the Church’s coronation of the king’s first-born male. Through an anthropological and historical examination of this transformation, I will identify how these religious and political changes were intricately connected.

Kevin Pels, Olivia Lin Smith, Ancil J. Abney, Dr. Veljko Dragojlovic

Recent Developments in Vapor Phase-Vanishing PTFE Reactions

Advisor/Professor: Dr. Veljko Dragojlovic

The Phase-Vanishing PTFE method reported by Dragojlovic, Van Zee, and Pels allows control of the addition of a reagent where it would otherwise be too vigorous by separating two reactants with a layer of semipermeable polytetrafluoroethylene (PTFE, Teflon®). The focus of this work was to synthesize an allenyl ester at ambient conditions from inexpensive starting materials, using previously developed methodology for PTFE phase screen reactions. We investigated the effectiveness of benzyltriphenylphosphonium salts (BTPPX, X=Cl, Br, I, or BF4) at undergoing Wittig reactions with benzoaldehyde to form stilbenes, determining their reactivities and, in the process, forming synthetically valuable cis-stilbene. These syntheses served as “test reactions” to optimize conditions for the allene reaction. We successfully adapted the known Wittig reaction for forming allenyl esters to a PV-PTFE reaction that is possible on a multi-gram scale. However, we were not able to produce allenyl esters using the modeled Wittig reaction with BTPPX.
David Pick, Pasco Avery, Wayne Hunter, Charles Powell, David Hall, and Steven Arthurs

Management of the Brown Citrus Aphid, Toxoptera Citricidus, using Entomopathogen Isaria Fumosorosea and Aphid Parasitoid, Lysiphlebus Testaceipes
Advisor/Professor: Dr. Paul Kirchman

Widespread infestations of Toxoptera citricidus were common throughout the Florida citrus industry, from 1995-1998. Today native natural enemies, such as Lysiphlebus testaceipes, are effectively managing this pest. Effects of Isaria fumosorosea on this trophic system of aphid, parasitoid, and aphid parasitism were evaluated. Our results are in agreement with similar studies, and recent literature presents some intriguing aspects of entomopathogens as tools for insect pest management.

Akiva Rabinowitz

An Animal Model of Memory-Enhancing Drugs and Catastrophic Interference
Advisor/Professor: Dr. Julie Earles

The neural networks that underlie memory and learning are some of the most complex systems that scientists seek to describe. Recent research has demonstrated that drugs which increase synaptic plasticity possess the capacity to enhance memory. The question that the present study sought to address was whether it is possible that cognition-enhancing drugs might enhance some memories to the detriment of others. Mice of the C57BL/6J inbred strain were trained on the Morris water maze task. They were then transferred over to a second, similar, water maze and trained using either the cognition-enhancing drug apamin or saline injected intraperitoneally. A strong correlation was observed in the apamin mice that the better they learned the second water maze task, the poorer they recalled the solution to the initial water maze. Our findings support the concept that performance-enhancing drugs might be a facilitative factor in the memory phenomenon of proactive interference.
Benjamin Rouse  
*Presumptive and Confirmatory Tests of Illicit Drug Analogs*  
Advisor/Professor: Dr. Eugene Smith

In this study, we are using analogs of various illicit drugs to develop a standardized procedure to quickly and accurately identify unknown compounds. Presumptive colorimetric testing comprises the first part of this procedure. Confirmatory gas chromatography-mass spectrometry (GC-MS) is then used to verify results of the presumptive testing. The analogs we are testing are pseudoephedrine, ephedrine, safrole, sodium glycolate, 2-chloroacetophenone, methapyrilene hydrochloride, indole, chlorpromazine hydrochloride, and valerian extract. Quinine and acetaminophen are being used as controls. The colorimetric tests are the Marquis, Mecke’s, nitric acid, and cobalt thiocyanate tests. All compounds except glycolate and pseudoephedrine gave positive Marquis and Mecke’s tests results. Safrole, valerian, acetaminophen, indole, chlorpromazine, and methapyrilene were positive with the nitric acid reagent. For the cobalt thiocyanate test, only quinine, chlorpromazine, and methapyrilene reacted with the reagent. All compounds, except for glycolate, quinine and ephedrine, could be identified with GC-MS analysis.

Shaina Rowell, Dr. Julie Earles, Dr. Alan Kersten, Cydney Tornopsky  
*Unconscious Plagiarism in Young and Older Adults*  
Advisor/Professor: Dr. Julie Earles

When shown actors performing different actions, older adults have difficulty remembering who performed which actions. In the current study, it is expected that the deficit causing this will also cause older adults to engage in greater unconscious plagiarism. There were two parts to the study. In the first part, participants saw 30 objects. For half of the objects, the participants watched someone else perform an action and for the other half, they were asked to perform a specific action. A week later, participants were shown 30 old objects and 15 new objects and asked to generate a new action that could be performed with each object. Young and older adults both exhibited unconscious plagiarism and working memory capacity was negatively correlated with plagiarism rate.
Olivia Smith

*Synthesis of Conformationally Rigid Analogues of Paraconic Acids*

Advisor/Professor: Dr. Veljko Dragojloivic

Paraconic acids are compounds that are naturally produced by microorganisms such as bacteria and fungi. Paraconic acids are compounds that are naturally produced by microorganisms such as bacteria and fungi. They share a common structural element, known as a γ-butyrolactone ring, and have been found to possess antimicrobial and antitumor properties. As the organisms that produce them only do so in small quantities, an environmentally friendly, or “green” variant of a phase vanishing reaction utilizing PTFE as a phase screen was employed to synthesize these potentially therapeutic agents in appreciable amounts so that their beneficial properties could be further investigated. The conformationally rigid synthetic variants of the paraconic acids of interest were also prepared in the hope that they may exhibit enhanced pharmacological properties.

Karenia Soto

*Studies towards Synthesis of Paraconic Acids*

Advisor/Professor: Dr. Veljko Dragojloivic

Paraconic acids are naturally synthesized by bacteria and fungi. These compounds are known for having antitumor and antibiotic properties. Using a phase-vanishing (PV) halolactonization with PTFE (Teflon) as a phase screen, we were able to synthesize precursors to these compounds. The PV-PTFE halolactonization of 4-pentenoic acid with iodine monochloride gave higher yields, as opposed to halolactonization with bromine which gave lower and less reproducible yields. Halolactonization of 4-pentenoic acid using water as a solvent also gave high yields. Future experiments will explore the synthesis of further precursors using a photolytic carbonylation of iodolactone and a phenylation-ruthenium tetroxide oxidation sequence.
Jordy Yarnell

*The Effects of Emotional Content on Recall of Individuals Involved in Violent and Disgusting Events*

Advisor/Professor: Dr. Julie Earles, Dr. Alan Kersten

The goal of this research was to form a better understanding of the effects that the degree of emotional response to a disgusting or violent event has on recall for individuals participating within the events. Our hypothesis is that this research will show that memory for the victims of disgusting or violent events will be significantly higher than the recall ability of individuals involved in neutral events. Participants completed a life events questionnaire and viewed either neutral or emotionally loaded versions of the same events. Participants were randomly assigned to one of five conditions. Following a one week delay, participants were shown mug shots of the actors in each event as well as one distracter actor not shown in any event. The images were paired with descriptions of actions previously seen, and participants were asked which actor participated in the stated event. The participants' responses were then evaluated for accuracy.

Leonid Zlotcavitch

*The Correlation between Specific Carcinogens and Progression of Cancer*

Advisor/Professor: Dr. Nicholas Quintyne

The development of cancer and its progression can be linked to external elements such as carcinogens, natural hormones and chemotherapeutic drugs. The goal of this project was to investigate the possible correlation between exposure to specific chemical and an increase of mitotic defects. These defects manifest themselves as lagging chromosomes, multipolar spindles, and anaphase bridges. Using the uterine cancer cell line MES-SA as a model, we established a baseline for the mitotic defects in the absence and presence of various chemicals using α-tubulin and DAPI-immune stained fixed cells. The cells were treated with varying concentrations of Vinyl Chloride, β-estradiol, Fluvestrant, and were examined using Immunofluorescent microscopy. At this time we found that an exposure to Vinyl Chloride and β-estradiol have increased the number of mitotic defects in this cell line.
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