10th 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 13, 2012
9:00 a.m.—4:00 p.m.
Florida Atlantic University
John D. MacArthur Campus
Research and Creative Project
Symposium Committee

Dr. Christopher Ely, Chair
Dr. Meredith Blue
Dr. Chitra Chandrasekhar
Dr. Michelle Ivey
Dr. Wairimũ Njambi
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 8 years, there were over 550 presentations as well as over 40 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 novelist Ngũgĩ wa Thiong’o.
Judge Taylor serves on the Fourth District Court of Appeal of Florida, where she has held this appointment since 1998. Before joining the appellate court, she presided as a county and circuit judge in Broward County. She has served on various judicial and bar committees, and in 1999, she was inducted into the Broward County Women’s Hall of Fame.
PROGRAM

Friday, April 13, 2012

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  AD
The Honorable Carole Y. Taylor  Auditorium

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

Please join us for a reception in the Honors College Atrium from 2:00 to 4:00 p.m.
Friday, April 13, 2012

SESSION 1

9:00 – 9:15 a.m.

Janeen Smith

Room AD 102

Shakespeare’s Painted Women: Masculine Anxiety and Feminine Cosmetic Practices of the Renaissance

Advisor/Professor: Dr. Michael Harrawood

This essay examines sixteenth and seventeenth century feminine cosmetic practices as they are depicted in the works of William Shakespeare. I will argue that that through many of his pieces, especially in the Sonnets and in Hamlet, Shakespeare betrays an underlying anxiety about women and sex that is representative of an early modern masculine skepticism toward female self-presentation. For the purpose of this paper, I will be concerned with the Sonnets and with Hamlet’s excoriation of Ophelia, and will read these in terms of Renaissance cosmetic recipes, liturgical material, allusions to cosmetics in other literary works of the period, and contemporary studies of the relationship between cosmetics, men, and women. The various components of this paper reveal that social attitudes toward women’s cosmetics both begin and end with men; men dictate a standard of beauty that can only be upheld through the use of cosmetics, and then men condemn female cosmetic usage as a symbolic representation of deceit. Ultimately, as Shakespeare reveals this masculine anxiety toward women’s cosmetic usage through his writing, it becomes apparent that his obvious anti-feminist attitude is a product of a collective masculine identity.
9:15 – 9:30 a.m.

Rachel Turn
Room AD 102
The Divine Comedy: Dante’s Allegory of Polyphony and Divine Love
Advisor/Professor: Dr. Michael Harrawood

The presentation examines Dante’s method of constructing his Divine Comedy as an allegory of polyphony, or the stacking of tones to create levels of harmony. As the new form of musical composition arose in the thirteenth and fourteenth centuries, Dante desired to assimilate the many levels of interpretation into his own poetry. In this presentation, I will argue that Dante composes the canticles of Hell, Purgatory, and Paradise as a derivation of the revolution in music, and in the process challenges religious officials who deem polyphony unworthy of God. Through his writing, Dante overcomes the claims of the sensuality and vulgarity of the tritones and shapes polyphony as an allegory for a perfect longing for God.

Ariel Le
Room AD 119
You Keep Me Hangin’ on: Dynactin’s p24 is Essential for Microtubule Anchoring
Advisor/Professor: Dr. Nicholas Quintyne

Dynactin is a multisubunit protein complex that functions as a processivity cofactor to cytoplasmic dynein, assisting in vesicle transport and cell division. Independent of dynein, dynactin also serves to anchor microtubules to the centrosome. The functions of the majority of dynactin’s subunits have been described to a certain degree; however, the p24 subunit remains largely uncharacterized. Among the few things that are known about p24 are that it has a predicted molecular weight of about 20,822 Da, forms an α-helix, and binds directly to the p150Glued subunit. In order to explore its function further, we have performed shRNA-mediated knockdown, and fluorescent microscopy. We observe that microtubule disorganization is amplified due to the loss of p24. Our findings support the model that p24 serves as reinforcement to stabilize p150Glued at the centrosome.
Kelsey Haney  Room AD 202

Under What Circumstances Should Student Speech be Restricted?
Advisor/Professor: Dr. Mark Tunick

Under what circumstances should student speech be restricted in public high schools and universities? I weigh the value of free speech against the need for authority and discipline in the educational setting. I consider whether the permissibility of restrictions on speech should depend on whether the speech is public or private, is made on campus versus off campus, is political vs. lewd and vulgar, promotes unlawful behavior, and the extent to which it creates a disruption on campus. The objective is to define categories of acceptable student speech and develop principles courts might use to draw lines between legitimate and illegitimate restrictions of the First Amendment right of students.

Jonathan Moyes  Room AD 206

The Use of Novel HDACi’s for Treatment of Memory Impairments in a Mouse Model of Alzheimer’s Disease
Advisor/Professor: Dr. Paul Kirchman (FAU), Dr. Gavin Rumbaugh (TSRI Florida)

Alzheimer’s disease (AD) is an increasingly common neurological disorder that mainly affects memory formation and retention. It is characterized by unique intercellular neurofibrillary tangles and extracellular beta-amyloid plaques. Histone deacetylase inhibitors (HDACi’s) are competitive antagonists against histone deacetylases, causing histone acetyltransferases to acetylate the genome unregulated. This thesis investigates the use of new histone deacetylase inhibitors on recovering memory in a mouse model of Alzheimer’s disease. By use of a fear conditioning paradigm, we have shown that these HDACi’s increase memory in AD mice, but show either no effect or a positive effect in wild-type mice. Future experiments will investigate the spine density of hippocampal brain slices after fear conditioning trials.
9:30 – 9:45 a.m.

**Zachary Humphrey**

**Room AD 102**

*The Elizabethan Fear of Female Empowerment and the "Unsexing" of Lady Macbeth*

Advisor/Professor: Dr. Michael Harrawood

In terms of better understanding the works of William Shakespeare, it is paramount to consider the political and social energies of Elizabethan England. Elizabeth I, the Virgin Queen, was a unique cultural female icon who manipulated and surpassed cultural preconceptions of women to attain power. This presentation investigates the ways in which the resulting societal fear of female empowerment parallels the “unsexing” of Lady Macbeth. By examining how Lady Macbeth relieves the moniker of “the fairer sex” in order to gain power and influence within “Macbeth,” the correlation between Shakespeare’s thematic undertones and the cultural energies of the Elizabethan Era is cemented.

**Melinda Florscher**

**Room AD 103**

*“Pay and Pave”: Gopher Tortoise Management, Endangered Species Protection, and Incidental Take Permits in Florida Before and After 2007*

Advisor/Professor: Dr. William O’Brien

This study assesses the philosophical underpinnings of endangered species protections focused on gopher tortoises in Florida. From 1993-2007, gopher tortoises (*Gopherus polyphemus*) were listed in Florida as a species of special concern. Land developers wanting to build on their habitats could apply for an incidental take permit, paying a fee that allowed tortoises to be ‘entombed’ in their burrows to die a slow death. In 2007, when gopher tortoise status was up-listed to ‘threatened,’ a new policy ended the incidental take permit program. This study compares policy guidelines of the 1993 and 2007 gopher tortoise management plans and explores cases that deal with incidental take controversies. I will apply perspectives from environmental philosophy to this analysis to understand how policies attempt to balance economic goals with a mandate to protect species in peril.
People’s attitudes have the possibility of being altered after exposure to certain stimuli. Our study used several different political stimuli to determine whether people’s voting habits and political attitudes could be altered. We conducted an online survey over a period of one month. In this survey, participants were passively exposed to pictures of Barack Obama, Mitt Romney, the American Flag, the Confederate Flag, or a combination of person and flag in what was presented as a test of aesthetic preferences. In our results, we examined the question of whether exposure to the American Flag activated political conservatism or political engagement. For example if exposure to the flag activates engagement, then presenting the flag with Obama should move attitudes more to the left pole of the political spectrum than presenting pictures of Obama alone.

Tumor cells are characterized by an increase in genomic instability, brought about by both chromosomal rearrangement and chromosomal instability. Both of these broad changes can be induced by exposure to carcinogens. During mitosis, cells can exhibit lagging chromosomes, multipolar spindles or anaphase bridges, all of which contribute to genomic rearrangement. We have studied the link between exposure to carcinogen and prevalence of mitotic defect in both chromosomally stable and unstable cell lines as well as examine the restorative effects of antioxidants in preventing mitotic defects. We have exposed MES-SA uterine cancer cells to vinyl chloride followed by exposure to an antioxidant: ascorbic acid, beta-carotene, lycopene or delphinidin chloride. Treated cells were then scored for the prevalence of mitotic defects within the population and compared to controls. We have also investigated whether pre-treatment with the antioxidants will weaken the effects of carcinogen exposure in these cell lines.
Lauren Gomez  
Room AD 202  
Punished for Another Person's Crime: The Felony-Murder Rule  
Advisor/Professor: Dr. Mark Tunick  

The felony-murder rule declares that if a death occurs during the commission of a felony, all of those persons involved in the felony will be responsible and held culpable for the death. The rule makes every person equally culpable for the death, regardless of his or her mental state and degree of involvement during the crime. Drawing on theories of punishment and scholarship on culpability, I will argue that the felony-murder rule is outdated and needs to be modified. Each person involved in the crime should not be held accountable for the actions of another, but instead should only be held responsible and culpable for their own intended actions.

Darrin Zahornacky  
Room AD 206  
C. elegans Spinster Ortholog, C13C4.5, and its Involvement in Dauer Development and Autophagy  
Advisor/Professor: Dr. Paul Kirchman  

The dauer larva is an alternate larval stage which allows the nematode C. elegans to survive environmental stress during development. Dauer formation requires autophagy, a cellular process responsible for degrading and recycling cytoplasmic components. I investigated the role of a Spinster ortholog, C13C4.5, by examining the effects of C13C4.5 loss-of-function and by generating a transgenic strain which expressed a C13C4.5::GFP fusion protein. Under normal conditions C13C4.5::GFP is expressed diffusely in the intestine, but under autophagy promoting conditions the expression pattern becomes more punctate. This is consistent with localization of C13C4.5 to autophagolysosomes during autophagy, as has been shown for spinster in D. melanogaster. Loss of C13C4.5 function in a dauer constitutive mutant resulted in a reduction in the proportion of animals entering into the dauer stage. Together these data suggest that C13C4.5 is involved in dauer formation and the autophagy pathway.
9:45 – 10:00 a.m.

Elizabeth Jellie

*Our Need to Marvel*

Advisor/Professor: Dr. Michael Harrawood

The purpose of the essay is to present a better understanding of Shakespeare’s *A Midsummer Night’s Dream* and *The Tempest*, as well as to understand Elizabethan society and Elizabethan views on dreams and the mystical. As such, it is my goal to demonstrate how Shakespeare portrays Elizabethan beliefs within his works. The books used were Arthos’ *Shakespeare’s Use of Dream and Vision*, French’s *Shakespeare’s Division of Experience*, Wilson’s *Shakespeare and Astrology*, and Kinney’s *Shakespeare and Cognition*. Elizabethan articles were also used, including but not limited to: Thomas Hill’s “The most pleasautn arte of the interpretation of dreames.”

At the conclusion of the paper a better understanding of the plays in question was obtained. It also became clear that Elizabethans understood life based on how they interpreted the mystical world; even the most certain faiths called upon visitations and dreams when questioned. This was vividly portrayed in Shakespeare’s plays. He used dreams as a way to delve into a character’s inner thoughts and feelings, a method that is reflective of Elizabethan society.

Sarah Rouse

*Wolf Perception and Policy in the United States: An Analysis of Two Red Wolf Reintroduction Programs*

Advisor/Professor: Dr. William O’Brien

Throughout the course of North American history, wolves have been persecuted with a vengeance. Negative wolf perceptions have in the past created and continue to create controversial policies and views towards wolves. While most of these attitudes are geared towards gray wolves, as gray wolves are the most common and prominent, unfavorable perceptions have also extended to the less well-known red wolf. This study compares two red wolf reintroduction programs, one in the Tennessee-Kentucky area and the other in North Carolina, as well as the Yellowstone Gray Wolf
Reintroduction program. After analyzing these three programs, it can be concluded that perceptions of wolves, regardless of the type of wolf or location, remain largely negative, and that wolves continue to face persecution.

Kimberly Macdonald  
Room AD 104

*Measuring a Social Network: Asymmetries in Dyads and Distances Between Individuals*

Advisor/Professor: Dr. Kevin Lanning

Examinations of social networks often have sociological and, more recently, technological frameworks rather than psychological. One aspect of relationships within networks, asymmetry, has received relatively little attention. In my study, I examine some predictors of symmetrical vs. asymmetrical dyadic relationships within a small liberal arts college. Additionally, I investigate certain molar aspects of the network structure, including the ‘Kevin Bacon number’ (i.e., social distance between individuals in the network), where I compare homogeneous groups (e.g., similar concentration) to random subsets.

Miguel Rivera Rios  
Room AD 119

*Adopting the Orphan: Determining the Motor Protein, KIF9's Role During the Cell Cycle*

Advisor/Professor: Dr. Nicholas Quintyne

The kinesin superfamily of microtubule motor proteins is subdivided into families based upon structure and function. KIF9 is the founding member of a largely uncharacterized group of kinesins. It was originally identified by sequence homology to other kinesins and shown to interact with the Ras-like GTPase Gem (Piddini et al., 2001). Later work has indicated that KIF9 family members are vital for flagellar movement in Trypanasoma brucei (Demonchy et al., 2009), and proper MTOC positioning in Dictyostelium discoideum (Tikhonenko et al., 2009). I have examined KIF9 function in mammalian cells via shRNA-mediated knockdown and overexpression in synchronized and unsynchronized cell populations. My analysis has utilized
cell cycle markers to examine cell cycle progression. Among other observations, a highly significant increase in the percentage of cells in early S phase in KIF9-deficient cells has been seen. Because of this we propose that KIF9 is required for normal cell cycle progression.

**Meridith Wailes**  
*Room AD 202*  
"Guilty" Until Proven Innocent: Interrogation Tactics and False Confessions  
Advisor/Professor: Dr. Mark Tunick

In 1956 Darrel Parker was convicted of murdering his wife, with no evidence of his guilt except his own confession. Like Parker, some individuals confess to crimes which they did not commit. These confessions are generally made without a lawyer present when police use deception or coercion. While deception is constitutional, and a permitted police tactic, coercion is not. This paper distinguishes between the two and provides a philosophical framework for determining when deception becomes coercive. While non-coercive deception can lead to false confessions, I do not argue that deception should be banned, as it is a useful tool for police in catching criminals. Instead, I argue that police may deceive suspects, but prosecutors and judges should provide a check by using a three-pronged test to ensure that individuals are not convicted of crimes they did not commit.

**William Kissner**  
*Room AD 206*  
Chlorosulfite as a Leaving Group in Organic Synthesis  
Advisor/Professor: Dr. Veljko Dragojlovic

In organic chemistry halosulfites (–SOX, X = Cl, Br) are usually used to synthesize the corresponding alyklhalides. Despite the need for new leaving groups, their utility as a leaving group in nucleophilic substitution reactions involving other nucleophiles has not attracted much attention. We examined their suitability as a leaving group when treated with various metal cyanides and halides. Addition of magnesium salts resulted in preparation of the corresponding haloalkane in higher yield and purity; however, the accompanying anion did not participate in the substitution reaction. We have had some success in accomplishing substitution reaction by using salts of indium and zirconium.
10:00 – 10:15 a.m.

Andrea Bailey  
*The Colors of Consent*  
Room AD 102  
Advisor/Professor: Dr. Michael Harrawood

This presentation will examine William Shakespeare’s use of color imagery in his very famous and sexually charged poem, “The Rape of Lucrece.” While critics traditionally understood the presence of the colors red and white in the poem to represent beauty and virtue respectively, I will argue, using contemporary sources, that Shakespeare is also using color to comment on early modern notions of consent and dominance. Furthermore, the poem, which is about the banishing of the Tarquins and the founding of the Roman Republic, also meditates upon the socio-politics of Elizabethan London.

Rachel Blythe  
*Employing Cultural Landscapes in Community Preservation: The Case of Druid Hills, Atlanta*  
Room AD 103  
Advisor/Professor: Dr. William O’Brien

Druid Hills is a historic suburb of Atlanta, Georgia, that was initially designed by landscape architect Frederick Law Olmsted in 1893. As one of Atlanta’s first suburbs, Druid Hills has faced the consequences of sprawl, particularly in the 1980s when the Georgia Department of Transportation proposed construction of the Presidential Parkway, an expressway that would have cut through the middle of the neighborhood. In opposition to the expressway, members of the surrounding communities organized Citizens Against Unnecessary Thoroughfares in Older Neighborhoods (CAUTION). The strategic rhetoric of CAUTION’s campaign emphasized Druid Hills’ significance as “Olmsted’s Vision of Atlanta,” yet their use of this iconic figure did not capture the complete cultural landscape of Druid Hills. Although Olmsted designed the initial layout of the suburb, the suburb’s form departed from his design during its development. I argue that preserving the community requires a comprehensive portrait of its varied history.
Amrita Gopaldas  
Room AD 104  
*Social Networks and Personality in a Liberal Arts College*  
Advisor/Professor: Dr. Kevin Lanning

In my study, I examined relationships between social networks and personality at a small liberal arts college. Participants were asked to list members of their social networks, the activities in which they participated, and to complete the Sentence Completion Test (SCT), and the California Psychological Inventory (CPI). I hypothesized that participants who were high in extraversion (CPI sociability and externality scales) would have a greater network size and report a larger number of activities. I also examined the extent to which participants formed relationships with individuals with similar levels of ego development, and similar personality profiles, that is, the degree of assortativity in relationships. Finally, I examined whether this assortativity increased over time, that is, whether students increasingly gravitate towards others with similar personalities during the college years.

Zeke Thomas  
Room AD 119  
*Deamplification of Supernumerary Centrosomes by Centrosomal Clustering*  
Advisor/Professor: Dr. Nicholas Quintyne

Supernumerary centrosomes can arise in a cell through a variety of methods. The presence of supernumerary centrosomes has been observed in nearly all types of cancer and promotes chromosomal instability, with rates of incident increasing as the cancer progresses. An oral squamous cell carcinoma line was treated with hydroxyurea to induce supernumerary centrosomes in the cells. Nuclear mitotic apparatus protein was then knocked down using shRNA to promote centrosomal clustering and bipolar mitotic division in cells with supernumerary centrosomes. Immunofluorescence was used to observe the cells. The cells exhibiting supernumerary centrosomes undergoing bipolar mitotic division were studied to look for a possible pattern in centrosomal clustering where the majority of centrosomes are at one pole with a single centrosome at the other pole. The presence of such a mechanism would allow one daughter cell to return to a normal centrosome cycle, reducing chromosomal instability.
Alex Lange Room AD 202

*Finding the Rainbow Connection: From Toleration to Human Dignity and Acceptance in American Life and Law*

Advisor/Professor: Dr. Mark Tunick

The surge in granting equal rights to gays and lesbians in the United States is remarkable. Yet with this surge comes a conflict: the civil rights of gays and lesbians against the rights of religious individuals, predominantly Christians, refusing to tolerate a behavior they think immoral. My thesis focuses on two hypothetical situations: a county clerk refusing to issue a marriage license to an engaged lesbian couple and an inn owner refusing a night’s stay to a gay couple. In both cases, the clerk and inn owner refuse service for religious reasons. Normatively, I argue that we must move beyond a framework of toleration to a system of equal respect and understanding of our fellow human beings. Legally, I argue that the rights of religious expression and exercise should not trump the civil rights of gays and lesbians in the public sphere.

Steven Nunes Room AD 206

*Creation of an Aconitase Overexpression Strain for Lifespan Analysis in Saccharomyces cerevisiae*

Advisor/Professor: Dr. Paul Kirchman

A plasmid that will allow stable integration of genes into the yeast genome under the control of the repressible TetO promoter was constructed. The yeast ACO1 gene was cloned under the control of the TetO operator and the tTA transactivator. This construct was inserted into yeast cells in order to observe the effects of aconitase overexpression on aging. Transformed cells appear incapable of aconitase expression as determined by glutamic acid auxptrophy, a phenotype of aconitase mutants. We are currently sequencing the plasmid to determine the reason for this result. If it can be made to function as intended, this yeast strain can be used in the future to determine whether aconitase plays an important role in cellular aging.
SESSION 2

10:30 – 10:45 a.m.

Brooke Clifford

Room AD 102

"Hover Through the Fog and Filthy Air:" Weather Witching in Macbeth

Advisor/Professor: Dr. Michael Harrawood

This paper examines early modern climatology in order to analyze a correlation between weather, witchcraft, and their combined effects on Shakespeare’s Macbeth. Contemporary climactic patterns including hailstorms, tempests, and other unusual phenomena drastically affected not only England but much of Europe. Religious and scientific texts of the period examined links between weather phenomena and witchcraft, suggesting that the weather afflictions were caused by witchcraft. Shakespeare incorporates this suggestion into Macbeth, as well, but takes the connection even further; the witches in the play not only use their weather magic to afflict Scotland but also to control the events of the play.

Alyssa Wood

Room AD 103

Dinner Conversation: Eating Sustainably Without Dietary Elitism

Advisor/Professor: Dr. William O’Brien

This study explores the perceived elitism within both the environmentalist community and the general public in regard to “environmental diets” such as: vegetarianism, veganism, locavore-ism, and ethical omnivory. I explore these diets and potential expressions of elitism within the framework developed by Morrison and Dunlap (1986) in their discussion of environmental elitism. Examples come from published sources as well as personal anecdotes. Through this study, I suggest that this perceived elitism is actually not elitism per se, but a very thin line of tension between describing the ideal food systems aside the current state of food inequity and industrial agriculture. Simply, I am trying to grapple with how to be educated in the fields of food studies and systems of oppression without perpetuating elitism alongside the system which desperately needs reform.
Jessica Lasaga

**The Effect of Medical Labels on Perceptions of Illnesses and Sufferers**

Advisor/Professor: Dr. Kevin Lanning

My study examined the hypothesis that the label used to describe a medical illness affects attributions made regarding the illness’ etiology (biomedical or psychosocial) and severity. The study examined three real illnesses and one fictitious one; (1) Chronic Fatigue Syndrome, also known as CFS and Florence Nightingale disease; (2) Amyotrophic Lateral Sclerosis, also known as ALS and Lou Gehrig’s disease; (3) Huntington’s Disease, also known as HD and Woody Guthrie’s disease, and (4) a fictitious illness named Progressive Inflammatory Neuropathic Anosmia, also known as PINA and Cleopatra’s Disease. Participants were randomly assigned to a survey presenting either the Abbreviations, the Full Names, or the Eponyms. They read eight case studies, two for each illness. Analyses examined the ways in which these labels were related to participants’ ratings of the illness’ etiology and severity.

Rebecca Schneider

**Contributions of Dynactin’s p150\textsuperscript{Glued} Subunit’s Binding Domains to Microtubule Anchoring at the Centrosome**

Advisor/Professor: Dr. Nicholas Quintyne

Microtubules and their associated motors are vital for many important roles within the cell including intracellular trafficking, mitosis, and organization and function of and organelles. The motor protein dynein requires a cofactor named dynactin to function in these tasks. Dynactin is critical for effective microtubule organization, with the p150\textsuperscript{Glued} subunit facilitating the interaction between centrosome and microtubules. p150\textsuperscript{Glued} contains two regions of microtubule-binding affinity, the CAP-Gly region and the Basic region. Each of these binding domains have different binding potentials and affinities for microtubules: the CAP-Gly region binds tightly to microtubules whereas the Basic region binds loosely to microtubules. This suggests different roles for each region. Using overexpression and knockdown, I have manipulated the expression state of the two regions within the cell to evaluate the ability to effectively organize microtubules and anchor them properly at the centrosome.
Christina Kirchner

*What are Words Worth? Thomas Malthus and Political Economy in William Wordsworth’s Poetry and Prose*

Advisor/Professor: Dr. Keith Jakee, Dr. John Joseph Hess

The works of Romantic poet William Wordsworth are generally regarded as idealistic nature poems. However, Wordsworth was writing in a turbulent era, between the French Revolution and the Industrial Revolution. Contrary to conventional labels, Wordsworth’s prose and poetry of the late eighteenth and early nineteenth centuries strongly critique social and economic affairs. In 1798, political and economic theorist Thomas Robert Malthus published his infamous Essay on the Principle of Population, in which he devotes considerable thought to the subjects of poverty and England’s Old Poor Law system. This thesis explores the connections between Wordsworth and Malthus, establishing Wordsworth as a pseudo-political economist, who was concerned with the contemporary treatment of poverty and the morals of the legislators of the Poor Laws. Wordsworth was a parable-poet, who sought to provide moral guidance regarding poor relief through affective poetry.

Richard M. Smith

*Understanding the Role of Transgenic Catalase in T-Cell Development in Murine-based Studies*

Advisor/Professor: Dr. Paul Kirchman, Dr. Ann Griffith

The thymus provides a unique microenvironment that facilitates T lymphocytes differentiation and maturation. However, the thymus atrophies after puberty which leads to an overall decline in immune capacity. Previous microarray data revealed high expression of metabolism gene pathways and low gene expression of certain peroxide scavengers enzymes such as catalase in thymic stromal compartments. From this data, we postulate that thymic stromal cells are highly susceptible to oxidative damage. We utilized a transgenic mice model overexpressing human catalase targeted to the mitochondria (mCat) to test our hypothesis that greater oxidative protection should lower the degree of thymus atrophy. Our experiment focused on a direct comparison of organ weights (thymus, kidney, lymph nodes, spleen
and heart), cellularity and histology between transgenic and wildtype mice. We found that mCat mice had selective increases in thymus size.

**10:45 – 11:00 a.m.**

**Nikki Murphy**  
**Room AD 102**  
*Shakespeare and Melville: Manipulation through Verbal Performance*  
Advisor/Professor: Dr. Michael Harrawood

Several scholars of Herman Melville traditionally look to William Shakespeare’s tragedies, particularly Hamlet and King Lear, as one way to understand the character development of Melville’s lead character, Captain Ahab, in the great American novel, *Moby-Dick*. While this research has often successfully addressed the tragic elements of the novel, what it has failed to consider in terms of using Shakespeare as an application to Melville is the use of rhetoric—the manipulation of others through verbal performance. This presentation will suggest that a possible model for Ahab’s rhetorical skills is Petruchio from the comedic play, *The Taming of the Shrew*. Ahab and Petruchio share critical verbal tactics, particularly through rhetoric based on pathos—verbal manipulation through emotional control. Overall, this presentation will provide a new way to understand the Shakespeare-Melville parallel, not through tragedy itself, but through verbal manipulation and performance.

**Emma Nunan**  
**Room AD 103**  
*Olympic Legacy: A Comparison of Barcelona 1992 and Athens 2004*  
Advisor/Professor: Dr. William O’Brien

Hosting an Olympic Games has a major impact on the city. I compare Barcelona 1992 and Athens 2004 to assess their separate approaches to “legacy,” the lasting impacts of the Games. I assess these in three categories: economic, urban and environmental impacts, and global and social identity. In Olympic circles, few cities live up to the long-term planning standard set by Barcelona, especially in urban regeneration. However, most scholars agree that Athens did not plan for the post-Games period as
effectively as they could have. Barcelona had better organization and cooperation, while the Athens organizers and government disagreed on various issues. Though Athens wanted to leave a positive legacy, the city was not as focused on it. Athens shined, however, in the concept of “héritage,” which encompasses bringing the past into the present as a type of “legacy.” Because of its history, Athens was able to bring historical meaning to its Games.

Sacha Franklin-Jeune

*More Than Just a Cup of Tea*

Advisor/Professor: Dr. Rachel Corr

Tea is a beverage consumed by individuals from a multitude of different cultures. It is often taken up with open arms and has become a prominent component of culture, diet and daily social interactions. The value of tea is based as much on its physical properties as on the social meanings individuals have given it. Although people from cultures that enjoy tea interact with the beverage in different ways, I argue that tea has its own culture. From interviews with four informants, I found three dominant components of the tea culture that have swayed them to join: (1) tea can be a medium for social gatherings (2) tea is beneficial to the mind and body (3) people take the time to fully enjoy the experience. This thesis seeks to understand the value tea has for Floridian tea enthusiasts, the roots of the tea culture, and what it is about tea that has caused many to become “addicted”.

Jordan Hoke

*Characterization of the Motor Protein, KIF9, in Mammalian Cell Mitotic Progression*

Advisor/Professor: Dr. Nicholas Quintyne

The kinesin family of microtubule motors is divided into subfamilies based on structure and function. KIF9, founder of the Kinesin-9 family, has been found to interact with the GTPase Gem. Subsequent studies have shown that KIF9 is vital for flagellar movement and podosome regulation. Previous
work has proposed KIF9 is required for microtubule organization as well as proper mitotic entry, progression and completion. In this study, I examined the function of KIF9 in mitotic progression using shRNA-mediated knockdown, and overexpression. In knockdown cells, I saw a significant delay in mitotic progression as well as an increase in multipolarity and multinuclearity, suggesting a failure of cytokinesis. Overexpression of KIF9 produced similar effects on mitotic progression, as well as a marked increase in chromosome distance during anaphase. Taken with previous results, my research indicates that KIF9 is required for normal mitotic progression and completion, possibly via regulation of the contractile ring.

Fred Jeune
Room AD 202

Cost-Benefit Analysis of MATS on the Energy Generation Sector in the U.S.
Advisor/Professor: Dr. Keith Jakee

This paper analyses the EPA’s Mercury and Air Toxic Standards (MATS) using a cost-benefit framework to evaluate the quantified and non-quantified social benefits of the rule versus the compliance costs to the Electrical Generation industry. The compliance cost of the rule is measured in terms of capital expenditures, changes in unemployment, fluctuations in the price level of electricity, coal and natural gas. I also estimate changes in revenues, profits and earnings per share of some of the firms. The benefits are measure in terms of medical expenses saved, jobs created, a cleaner energy generating fleet in the U.S. and a cleaner environment. I find that the benefits to society clearly outweigh the compliance cost to the industry and the additional increase in electricity prices. MATS will not cause the energy generating industry to stumble as some may want to suggest. The industry will still continue to move forward in its path to efficiently provide clean and affordable energy.
Wei Mien Vuong

**Anurans of Abacoa**

Advisor/Professor: Dr. Jon Moore

The construction of Abacoa included an attempt to conserve the wildlife in a Greenway, a set of habitats separated from the residential and commercial areas. All of the wetlands within Abacoa represent artificially constructed ponds, canals, and streams first created from 1998-2004. The present study focuses on the anuran (i.e. frog and toad) populations and looks at the number of different species that have naturally colonized six different sites around Abacoa. Each of these sites varies in qualities that may affect the probability of breeding. The quality of water is known to be less ideal as the water flows away from the headwaters and mixes with water from other sources. This study aims to determine which anuran species are found at each of these sites after nearly a decade of colonization and how both anuran diversity and abundance correlates with water and habitat quality.

**11:00 – 11:15 a.m.**

Douglas Hollingsworth

**Establishing Hyrule: Analyzing the Construction of the World and Levels in Shigeru Miyamoto’s Ocarina of Time**

Advisor/Professor: Dr. Michael Harrawood

Shigeru Miyamoto’s *The Legend of Zelda: Ocarina of Time* pushed the boundaries of video game design in 1998 by introducing players to one of the first virtual worlds fully-rendered in three-dimensions. The shift from rendering game worlds in two-dimensions to rendering them in three-dimensions required the development of new techniques for constructing virtual worlds. This thesis focuses on the construction of the virtual realm in *Ocarina of Time*, particularly the ways by which players are presented with cosmology of the virtual world and the divine ordering of the races that dwell there. In addition, this thesis explores how the process of building the virtual world of Hyrule is mimicked in the design of the game’s individual levels, in terms of the spaces that players explore, the rules they are bound by, and the goals that they must reach while progressing through the central plot.
Sean Clark

*From Weekend Retreat to Commuter's Paradise: The Intrusion of Suburbanization into Dacha Territory in Post-Soviet Russia*

Advisor/Professor: Dr. Christopher Ely

From the time of Peter the Great the dacha has fulfilled various roles in the environs of Russia’s cities: in the 18th century they were the palatial mansions of the aristocratic elite outside of St. Petersburg and Moscow; in the 19th century the dacha became a summer rental property for urbanites to escape the cramped and dirty cities; in the Soviet dominated 20th century the dacha was organized into garden plot communities for subsistence farming. However, the privatization of land following the collapse of the Soviet Union signaled a shift in the dacha’s existence. Lamp-lined streets and perfectly pruned lawns began to fill the territory beyond the belt of gray, generic apartment structures where the dacha was once king. In light of the dacha’s decline, this thesis explores the origins and development of suburbanization in post-Soviet Russia and discusses how the dacha shared characteristics with, and differed from, similar structures in the West.

Adrian Viller

*Chávez and the Media: a Framework for Analyzing the 2012 Presidential Election Media Coverage in Venezuela*

Advisor/Professor: Dr. Timothy Steigenga

The media has a significant influence on any political process. In Venezuela, particularly, the media plays an important role in defining the electorate’s political opinion and attitude towards the political process. This thesis will analyze how the media’s preference for conflict and individual personalities exacerbated overall societal tensions and polarization in Venezuela since 1999. Examining the evolution of media-government relations in Venezuela since 1999, I will suggest a framework for a future content analysis of news coverage of the 2012 presidential election in order to quantify and qualify the evolution of bias and balance in Venezuela's mass media.
Nibal Eid  
Room AD 119

**FSTL-1 secreted by Mesenchymal Stem Cells Responsible for Therapeutics**  
**effects of MSC-Conditioned Media on Human Aortic Endothelial Cells**  
Advisor/Professor: Dr. Nicholas Quintyne

Human Mesenchymal Stem Cells (MSCs) have been studied for application in multiple cellular therapies due to their ability to secrete therapeutically beneficial factors. MSC conditioned media (MSC-CM) have been shown to inhibit hypoxia induced apoptosis and increase viability in Human Aortic Endothelial Cells (HAECs). Activation of PI3-AKT pathway in HAECs by MSC-CM is necessary for protective effects. However, the primary secreted factor in MSC-CM responsible for activation of PI3-AKT pathway is yet to be identified. New studies have shown that extracellular glycoprotein Follistatin-like 1 (FSTL1) activates PI3-AKT pathway by interacting with surface receptor Disco-interacting Protein (DIP2A). Incidentally, MSCs constitutively secrete high quantities of FSTL1. Therefore we hypothesize that FSTL1 secreted by MSCs is responsible for therapeutic effects of MSC-CM on HAECs. We tested the hypothesis by gene manipulation and antibody mediated neutralization of FSTL1 in growth and survival assays. Neutralization of FSTL1 significantly decreased the MSC-CM mediated survival of HAECs.

Joseph Brittian  
Room AD 202

**Right-Libertarians, the Fair Tax, and Big Government**  
Advisor/Professor: Dr. Keith Jakee

I begin by identifying right-libertarians as individuals who believe, foremost, that legislators should reduce the size of the national government. Surprisingly, a number of right-libertarians support a Congressional tax reform proposal, the Fair Tax, which would maintain current levels of tax revenues. In other words, because the bill is revenue neutral, it would not directly address concerns over increasing Congressional spending or growth of government. Are they sacrificing their principles for expediency? Or, are they merely confused about the nature of the tax proposal? My thesis examines this puzzle, and I argue right-libertarians mainly support the bill because they (1) believe Congress would abolish the IRS as soon as it went
into effect, increasing citizens’ privacy in the process; and (2) view it as a gradual reform that would lead to further legislation intended to reduce the size of government.

John Odom  
Room AD 206

5-Hydroxymethylation and the Consolidation of a Methamphetamine Associated Contextual Memory
Advisor/Professor: Dr. Eugene Smith

DNA methylation, the addition of a methyl group to the 5’ position of DNA cytosines (5mC), is generally associated with transcriptional repression during early embryo formation; however, in the adult brain, it is dynamically regulated and plays an important role in the formation and maintenance of memory. Very recently, it has been hypothesized that DNA hydroxymethylation, the addition of a hydroxyl group to methylated cytosines (5hmC), serves as an intermediate in the DNA demethylation pathway. Given its recent discovery, the role of DNA hydroxymethylation in memory has not yet been explored. In this study, we developed an immunofluorescent triple labeling protocol in order to begin examining the involvement of 5mC and 5hmC in neurons activated by consolidation of a contextual memory associated with methamphetamine in the brain’s reward center, the nucleus accumbens.

11:15 – 11:30 a.m.

Bianca Trifoi  
Room AD 102

The Celtic Influences on Tolkien’s Middle-Earth
Advisor/Professor: Dr. Michael Harrawood

Though J.R.R. Tolkien himself denied any affinity for the Celtic peoples and cultures, he was well-versed in their lore, and their existence in his sprawling fantasy world of Middle-Earth goes without doubt. Considering Tolkien's reasoning behind the creation of Middle-Earth - creating a concrete mythology woven from the scattered tales of his beloved homeland, England - acknowledging and understanding the presence of Celtic elements
in his world is pivotal to fully appreciating the detail woven into it. In my presentation, I will analyze the particularly Celtic aspects of Middle-Earth, using my own observations and those of scholars such as Douglass Parker, Terry Gunnell, Marjorie Burns, and Dimitra Fimi.

Megan Allore
Room AD 103
Grrrls Will Be Grrrls: Riot Grrrl as an Intentional and Imagined Community
Advisor/Professor: Dr. Christopher Strain

Screeching their famous battle cry, “Revolution Girl Style NOW!,” riot grrrls in the 1990s issued a loud, profane, and unapologetic response, not only to the male-dominated punk scene in the Pacific Northwest but also to societal pressures on girls and women. Riot grrrls intended to make a space for themselves, to create zines and form bands on their own terms. As the messages and media of riot grrrl spread across the United States and abroad, the small, localized community transformed into what Benedict Anderson describes as an imagined community. Unlike second-wave feminism of the 1970s, riot grrrl lacked centralized leadership, instead focusing intensely on relationships and meaning in their personal lives. Although this aspect of the movement caused tension when the mass media tried to point to certain members of riot grrrl as spokespeople, the accessible nature of riot grrrl allowed the community to grow and evolve into a new kind of feminism.

Rachel Tunick
Room AD 104
DeShaney v. Winnebago County and State Accountability in Private Violence
Advisor/Professor: Dr. Julie Earles

The Supreme Court’s Ruling in DeShaney v. Winnebago County Department of Social Services (1989) held that “A State's failure to protect an individual against private violence simply does not constitute a violation of the Due Process Clause.” (489 U.S. 189 at 197). A state child protection agency’s failure to prevent near-fatal abuse of a four year old child under its supervision was not considered a violation of the child’s fourteenth
amendment rights. This thesis critically examines the reasoning behind the majority decision in Deshaney; and using feminist legal theory, discusses ways to effectively address the relationship between state policy and liability, the arbitrary dichotomy between the public and private spheres, and the unique positionality of vulnerable citizens.

Michael Metzner
Room AD 119

*Perceptions of Beauty*
Advisor/Professor: Prof. Dorotha Lemeh

Is beauty really in the eye of the beholder? Historically, philosophers, poets, artists, and scientists have striven to define and express one of the most complex words in the English language: beauty. In modern society we tend to casually ascribe the word beauty to many various objects, paintings, sounds, and ideas. Its meaning can adhere to a stone, to the oscillating waves of an ocean, to the nonorganic as to the organic. *Perceptions of Beauty* is a project that follows my journey as an artist and how my perception of beauty has changed over the past four years. Using examples from select artists, philosophers, and scientific studies, I will contend that beauty is not “in the eye of the beholder,” but is a complex and formulated characteristic that inspires not only an emotional response, but evokes mechanisms that defy our understanding of oneself.

Amy Denning
Room AD 202

*How Much Did the Gothic Churches Cost? An Estimate of Ecclesiastical Building Costs in the Paris Basin between 1100-1250*
Advisor/Professor: Dr. Keith Jakee

Several scholars have studied the explicit (tangible) costs of the ecclesiastical buildings constructed in the Middle Ages. However, no scholar has examined the implicit (opportunity) cost of unskilled labor required for their construction, or tried to estimate the total cost of their building as a percentage of regional GDP. This thesis examines the implicit costs of building the Gothic Churches of the Paris Basin built between 1100-1250, and attempts to estimate the percentage of the regional economy that was
devoted to build them. I estimate that over this 150-year period, on average, 21.5 percent of the regional economy was devoted to the construction of these Gothic churches, 1.5 percent of which is directly related to the implicit cost of labor.

C.J. Kwan

**The Effect of Mutated Aconitase on Yeast Longevity**

Advisor/Professor: Dr. Paul Kirchman

My project focuses on the mitochondrial enzyme aconitase. Aconitase is an important enzyme in the Citric Acid Cycle, is needed for maintenance of mitochondrial DNA, is a regulator of iron in the cell, and is very sensitive to oxidative stress. We have isolated the yeast ACO1 gene, which codes for aconitase, and randomly mutated it to create a mutant library. This provided us with a population of cells each expressing a different version of ACO1. We will select for oxidative stress resistant aconitase in *S. cerevisiae* by subjecting strains to successive rounds of heat shock and competitive growth against other mutants. The “winner” of this competition will then be analyzed for which version of aconitase it is expressing. If the aconitase enzyme is a specific target of oxidative stress and a crucial enzyme whose malfunction results in cell death, then a more resistant version may lead to increased longevity.
SESSION 3

Visual Arts Projects and Posters
HC Building

Andrea Bailey
*Harmonious Opposition*
Advisor/Professor: Prof. Dorotha Lemeh

This poster will include a collection of works which feature opposing textures, clashing colors, and various geometric shapes which oppose each other yet also work together harmoniously.

Nibal Eid
*Blindness*
Advisor/Professor: Prof. Dorotha Lemeh

Blindness — the conscious decision of being blind to our surroundings, or our own personal circumstances or our own behavior especially towards others, has multiple implications. These implications of our behavior in everyday life, while others emerge out of a set of complicated situations that we never could have imagined. In my video “Blindness” I am not only looking at the physical sense of the word. Being unable to see defines blindness, but is a very general term that can be utilized for many different perspectives. Just because we may see an object, act, or movement at first glance may not give merit to the full development of those acts, objects, or movements. My piece is attempting to expose the very basic struggles of humanity. To provoke the viewer and allow them to explore what the other half of the story is about.
Jennifer Fortnash

*Engaging in Identity*

Advisor/Professor: Prof. Dorotha Lemeh

A sample of my digital photography from Fall 2011 - Spring 2012: a discussion on perspective and the act of assigning value to particular moments selected from the collective scenes that comprise a specific time and space.

Kelsey Haney

*Self-Acceptance*

Advisor/Professor: Prof. Dorotha Lemeh

This project required me to consider the following words to create a visual narrative: acceptance, forgiveness, duty, compassion, loss, and desire. The word I chose to explore was acceptance, specifically acceptance of one’s self, since that is something that I have difficulty with on a regular basis. I have trouble accepting myself, my mistakes, my weaknesses. I decided to use myself as the model for this piece, as I believed that it would create more depth in the project for me personally. I wanted to convey the message of both evaluation and acceptance in a way that would be clear in my visual narrative. I thought that using a mirror would be effective, as it would show that I am able to look straight at myself in the face, confront what I see and feel, and accept.

Emily Harris

*Childhood*

Advisor/Professor: Prof. Dorotha Lemeh

We all have unique memories of our own childhoods. Although we do not have identical memories, we can all relate to the feelings of rambunctiousness and playfulness of being a child. This project embodies these childhood memories.
Luz Stella Hernandez-Torres

*Baptism*
Advisor/Professor: Prof. Dorotha Lemeh

The poster is composed of three pictures in which I show the different transitions we go through in life, and the different beginnings in our life times.

Cory King

*Pages of Change*
Advisor/Professor: Prof. Dorotha Lemeh

A two piece, visual art piece that critiques the development of a girl's reading habits, as an example of most people. The pieces are contrasting in age and layout and design and present how an individual's reading materials evolve from children's picture books to news articles and textbooks. The piece(s) also make a response on how creativity diminishes with age and the need to organize with that age.

Emilia Tautiva

*The Ring She Wore*
Advisor/Professor: Prof. Dorotha Lemeh

This series of 3 photographs reflects the life of a particular married woman through her wedding ring.

Bianca Trifoi

*Beauty on Campus: A Semester of Photographs*
Advisor/Professor: Prof. Dorotha Lemeh

Being an established photographer and photo enthusiast for nearly six years, I have had many experiences with photographing endless subjects and viewing the true beauty of the world behind the lens of a camera. My semester in Digital Art Photography has not only helped me to refine the
technical skills required of a photographer, but it also has allowed me to broaden my horizons and attempt to photograph beyond my usual portraiture and human-focused concepts. Though two of my three presented photos involve human subjects, I chose those for their display of geometric shapes and lines, important aspects of photography which we have discussed in class. My third photo exhibits an example of a successful photo with a non-human subject I have taken this semester.

Guillermo Vasquez

*Untitled*

Advisor/Professor: Prof. Dorotha Lemeh

The poster will contain three photographs, which I will discuss at length. In particular, I will talk about how I came to take each shot, as well as the elements that make the shots interesting.

Summer Westmoreland

*Members Only*

Advisor/Professor: Prof. Dorotha Lemeh

Social acceptance is a defining factor in the actions of many people. In the current society, extreme measures are often taken in order to “fit in.” Fitting in today fills a certain number of criteria much different from the society of even ten years ago. The series of artworks, “Members Only,” focuses on these current criteria and highlights some of the more frightening aspects of fitting in.
Austin Estes  
*Remorse and Forgiveness Behavior in Interpersonal and Internal Conflict*  
Advisor/Professor: Dr. Laura Vernon

Previous literature indicates that remorse is influential in motivating forgiveness within interpersonal conflicts. Additionally, it has been shown that high-shame individuals with low self-forgiveness are more likely to suffer from alcohol abuse than those who are able to forgive themselves. In our study, we asked undergraduate college students and halfway house members to recount a personal conflict narrative in order to measure indicators of remorse and forgiveness. Additionally, we measured dispositional forgiveness of others (and self) and frequency of substance use. We hypothesized that 1) transgressor remorse would be present in the forgiveness narrative, 2) halfway house members would report higher remorse and lower self-forgiveness than undergraduate students, and 3) low self-forgiveness would predict substance abuse. Results to follow.

Jasmine Gonzalez  
*Behavioral Enrichment of Captive Black Bears (Ursus americanus)*  
Advisor/Professor: Dr. Julie Earles

A crucial aspect of captive animal care is enrichment, ranging from simple additions of flora to complicated foraging puzzles. Enrichments are vital in creating environments for animals that are similar to their wild habitats and eliciting natural behaviors. Enrichment is also used to inhibit unnatural or harmful behaviors, like pacing. Commonly, enrichment techniques are not scientifically tested, and the universality of enrichments is rarely scrutinized. This study explores the universality of a “Snak’n’ Trim,” a hollow ball 10 inches in diameter with a 1 inch opening for food items to be inserted into the ball. Four bears (2 male, 2 female) were observed for ten weeks, five in the summer and five in the winter. Daily observations were made during baseline and enrichment trials. Behavior frequency was calculated, and results indicate a significant (p<.01) difference between baseline and enrichment trials, providing evidence for the efficacy of the snak’n’trim.
Sany Hoxha, Sarah E. Rollins, Suzanne A. Al-Said, Dr. William W. Ja

*Establishing a Caloric Restriction Paradigm in Drosophila*

Advisor/Professor: Dr. Paul Kirchman

Caloric restriction (CR), the reduction of nutrient intake short of malnutrition, extends the lifespan of various organisms and can improve measures of human health. Whether mechanisms of lifespan extension are conserved between humans and model organisms is unknown. In mammals, implementing CR is easily achieved by providing a restricted group with a fraction of the food consumed by an “ad libitum” fed group, which has unlimited food access. Due to the difficulty in directly controlling Drosophila food intake, caloric restriction, performed similarly to the mammalian paradigm, has never been tested in flies. Here we demonstrate a system that allows measurement of food intake throughout life. This system will be used to measure fly lifespan under caloric restriction analogous to current mammalian studies. This work will help tease apart the differences between the various caloric and dietary restriction paradigms in Drosophila, strengthening our understanding of how fly models relate to mammalian systems.

Christopher Kaul, William Kissner, Megan McGuire, David Pick, Dr. Veljko Dragojlovic

*Abamectin: Ant Toxin or Antifeedant?*

Advisor/Professor: Dr. Veljko Dragojlovic

Abamectin is a mixture of two avermectins (~80% avermectin B1 and ~20% avermectin B1b) produced by the soil bacterium Streptomyces avermitilis. It is the active component of commercial RAID Ant Bait III; however, it has a somewhat dubious reputation as an effective ant bait. The purpose of this project is to demonstrate whether abamectin is a toxin or antifeedant to ants by presenting ants with samples of peanut butter containing abamectin, borax, or boric acid. It was found that ants recognized samples containing abamectin as a relative antifeedant at least initially. Instead, the ants preferred to feed on the samples containing either borax, boric acid, or no additives.
Candace Moreland  
*Sexual Experiences, Emotion, Self-Disclosure, and Social Reactions*  
Advisor/Professor: Dr. Laura Vernon

The aim of this study is to examine the psychological effects of experiencing sexual coercion in relation to emotion, self disclosure, and social reactions. Goals of this study include documenting the prevalence and incidence of sexual coercion in an undergraduate population and examining the relationship between levels of shame, guilt, and anger in regard to sexual coercion committed by known and unknown perpetrators. It is hypothesized that perpetrator familiarity will be positively correlated with shame, guilt, and anger, as will number of sexual coercion experiences. It is also hypothesized that victims of sexual coercion/rape by a familiar perpetrator will be less likely to disclose this information to others, including reporting the incident to police, being less likely to be advised by others to report the incident to police, and being more likely to experience negative reactions (victim-blame, social distance) from others relative to those with unknown perpetrators.

Rafael Paez  
*Iron and Cellular Aging*  
Advisor/Professor: Dr. Paul Kirchman

Aging is a process characterized by accumulated oxidative damage to DNA, protein, and lipid, which leads to the gradual degeneration of cellular activity. Mitochondria play a central role in aging because they produce both cellular energy and oxidative stress. As a result of accumulated oxidative damage, mitochondria functioning decays, which leads to a cellular energy deficit and compromises cellular function. Iron is an essential nutrient required by mitochondria to function optimally. It has been proved that iron supplementation increases the lifespan of several yeast strains, including superoxide dismutase mutants. We are interested in finding where the iron is going and what it might be doing that is beneficial to the cell. We have used *Saccharomyces cerevisiae* as our molecular model of aging. Our preliminary results indicate that the extra iron is being transported into the mitochondria.
Rita Pruzansky  
*Verb Acquisition and Generalization Strategies of Preschool Children*  
Advisor/Professor: Dr. Julie Earles, Dr. Alan Kersten

This experiment tested 3 to 5-year-old children’s (n = 18) abilities to learn a novel verb in the context of one or two novel objects. We showed the children claymation videos of novel creatures performing two novel actions. The children were then tested on whether they could correctly identify the action that a creature was performing in the form of a ‘yes’ or ‘no’ response. Children in the blocked condition, who learned the verbs in the context of one creature, responded correctly more often (p = .01) than children in the grouped condition, who learned the verbs in the context of two creatures. Results were similar when tested again one week later. These findings suggest that when teaching young children verbs, it may be more effective to first teach in the context of one object so that the children have a more confident understanding of the verb’s meaning.

Tina Tsikis  
*Is Age Really Just a Number? Neuropsychological Predictors of Eyewitness Memory Errors*  
Advisor/Professor: Dr. Julie Earles

Two separate groups of young and middle-aged adults watched videos of events being performed by a number of different college-aged females. Both the young group of adults and the middle-aged group of adults were later tested on their memory for both the individual features of these events (i.e., actors and actions), and for conjunctions of features (i.e., which actor performed which action) in order to determine how likely they were to remember which actors performed what actions. Our results are expected to show that binding errors increase with age, because specific areas of the brain that are associated with unconscious transference and binding errors, such as the hippocampus and prefrontal cortex, show decreases in function with increased age.
# Student Presenters

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