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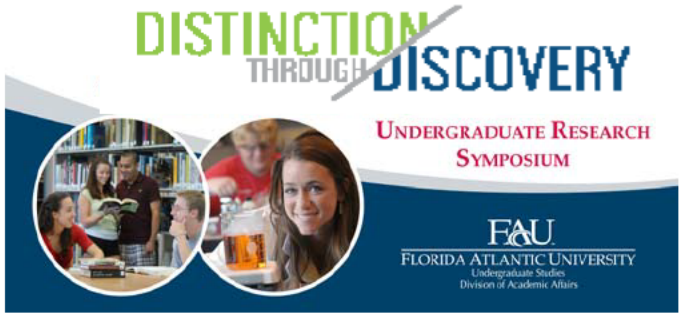

Friday, April 6, 2012

Undergraduate Research Symposium

Live Oak Pavilion
Student Union
Boca Raton Campus

Agenda

Coffee & Pastries	9:30 - 10:00
Oral Presentations	10:00 - 11:00
Pavilion A & B	11:00 - 12:00
Lunch	12:00 - 1:00

Welcoming Remarks
Dr. Edward Pratt, Dean of Undergraduate Studies
Dr. Donna Chamely-Wiik, QEP Director

Faculty Panel: “Integrating Undergraduate Research in the Curriculum"
Pavilion A 1:00 - 2:00

Poster Presentations 1:00 - 3:00
Pavilion C & D

data support the hypothesis that axonal transportation of the serotonergic nervous system was likely impaired during MDMA use and abuse.

37 Scott Alef, Andrew Cerrato, Mark Cotino, Clarissa Davis, Jahmal Fahie, Edwin Muller, Geovanni Salgado Enciso, “Public Opinion Evaluation for the Village of Wellington’s Equestrian Master Planning Process”

The purpose of this research paper was to compile and evaluate public perceptions, opinions, concerns, and desires with regard to the Equestrian Preserve Area (Preserve) and to find consensus between the various equestrian and non-equestrian groups on the future direction of the Preserve. This evaluation will be compiled as the Public Input Component for the development of the Village of Wellington’s Equestrian Master Plan. Data for this report was gathered through surveys collected at various venues throughout Wellington. Surveys were developed through observation of public and administrative comments during recorded council and commission meetings. Surveys were conducted face-to-face by FAU students as well as Village of Wellington staff and was recorded in an electronic format through Apple iPad application software. The data collection period took place during a highly controversial and political land development issue that would potentially affect the nature and future of the Preserve. As such, many of the survey respondents in the equestrian community were polarized in their opinions. This required delicate wording and administration of the surveys in order to remain a neutral party. At the time of this report, that issue was still unresolved. One of the concerns and efforts of this research was to find a measure of consensus between the various groups while evaluating the polarized opinions of the various groups, both within and outside of the equestrian community and between those conflicted over development within the Preserve.

cause 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.

35 Isabel Sloan Griffin, "Cells and Cocktails: Antioxidants Rescue Carcinogen Induced Mitotic Defects in both Chromosomally Stable and Unstable Cells"

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.

36 Herbert D. Adams, "Effect of MDMA Abuse on Axonal Transportation of Serotonergic Nervous System in the Rat Brain"

In the present study I investigated the integrity of axonal transportation of serotonergic nervous system using a rat model of (±)3,4-methylenedioxymethamphetamine (MDMA) abuse. Fluorogold (retrograde tracer) and PHA-L (anterograde tracer) were microinjected into the prefrontal cortex and dorsal raphe nucleus, respectively, of serotonin-containing neurons in rats pretreated with MDMA. The dorsal raphe and prefrontal cortex was examined 7 day later using immunohistochemistry techniques. It was found that fluorogold tracer was reduced in the raphe regions of MDMA-treated animals compared to the control group. Similarly, PHA-L was reduced in the cortical region. The results of

Oral Presentations
Pavilion A

10:00 - 11:00

Student	Topic	Supervising Faculty
Olympia Kiriakou	Carole Lombard as Silent Spectacle	Dr. Gerald Sim
Angelica Brodeur	Tea Masters as Master Builders: The Predecessors of the Architectural Profession in Japan	Dr. Vladimir Kulic
Rita Pruzansky	Running Head: Verb Acquisition and Generalization Strategies of Preschool Children	Dr. Julie Earles, Dr. Alan Kersten
Rachel Blythe	Employing Cultural Landscapes in Community Preservation: The Case of Druid Hills, Atlanta	Dr. William O'Brien

11:00 - 12:00

Student	Topic	Supervising Faculty
William J. Kissner	Chlorosulfite as a Leaving Group in Organic Synthesis	Dr. Veljko Dragojlovic
Melissa "CJ" Kwan	The Effect of Mutated Aconitase on Yeast Longevity	Dr. Paul Kirchman
Victor Arcaya	Municipal Solid Waste (Landfills)	Dr. Daniela Popova
Donald O. Spragg	Inexpensive Underwater Data Communication	Dr. Edgar An

Oral Presentations
Pavilion B

10:00 - 11:00

Student	Topic	Supervising Faculty
Amrita Gopaldas	Social Networks and Personality in a Liberal Arts College	Dr. Kevin Lanning
Kimberly Macdonald	Measuring a Social Network: Asymmetries in Dyads and Distances between Individuals	Dr. Kevin Lanning
Alex Lange	Finding the Rainbow Connection: From Toleration to Human Dignity and Acceptance in American Life and Law	Dr. Mark Tunick
Lauren Gomez	Punished for Another Person's Crime: "The Felon Murder Rule"	Dr. Mark Tunick
Hunter Morgan	Perceptual Acuity and Social Attitudes Survey (PASAS)	Dr. Kevin Lanning

11:00 - 12:00

Student	Topic	Supervising Faculty
Jad Khazem	Dual Enrollment: The Way Forward	Dr. Mirya Holman
Emma Nunan	Olympic Legacy: A Comparison of Barcelona 1992 and Athens 2004	Dr. William O'Brien
Meridith Wailes	"Guilty" Until Proven Innocent: Interrogation Tactics and False Confessions	Dr. Mark Tunick
Jessica Lasaga	The Effect of Medical Labels on Perceptions of Illnesses and Sufferers	Dr. Kevin Lanning

can be achieved with this functional group, one of them being nucleophilic additions. Currently, nucleophilic additions to alkynes are achieved by the use of transition metals such as palladium and gold which activate the alkyne in order to allow such reactions to occur, because unactivated alkynes are not susceptible to that type of addition. We have discovered that a special reagent, tetrabutylammonium fluoride, is capable of promoting nucleophilic additions to alkynes intramolecularly. We are investigating the circumstances in which these reactions are occurring and the mechanism involved, since this could have a very important implication in the field of alkyne activation. Other advantages of our method include smaller environmental impact, affordability, excellent yields and mild reaction conditions.

33 Cedric Davis, "Clean Energy Project Analysis: Photovoltaic Water Pumping"

The use of photovoltaic energy as a clean renewable energy source has been implemented for many years now. In instances where there is no nearby electricity source this form of energy proves to be especially beneficial. In the proposed project photovoltaic energy will be used to power a pump which is being used to supply water to an irrigation system. The proposed study is based off paying $200 dollars annually for power to run an irrigation pump using photovoltaic energy as opposed to grid electricity. This study will show that when added to a preexisting irrigation system, photovoltaic energy will meet the need for energy required by the pump and will give a financial return for the investment.

34 Tina Tsikis, "Is Age Really Just a Number? Neuropsychological Predictors of Eyewitness Memory Errors"

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, be-

plays a dynein-independent role in anchoring microtubules to the centrosome. Previous studies have shown that the shoulder/sidearm region of dynactin, consisting of $p150^{Glued}$, dynamitin, and p24 are integral to this anchoring process. The $p150^{Glued}$ subunit of dynactin contains two microtubule binding domains. The CAP-Gly domain binds the microtubules tightly whereas the basic domain has a much weaker affinity. The function of p24 remains largely uncharacterized. Using overexpression and knockdown, we have examined the contribution of two of the three shoulder/sidearm subunits to microtubule anchoring in more detail. We observe both microtubule organization and regrowth patterns to vary when comparing knockdown and overexpression. Our data suggest a model where the different MT binding domains of $p150^{Glued}$ contribute unequally to MT anchoring and p24 serves as reinforcement for maintaining shoulder/sidearm rigidity at the centrosome.

31 Garritt Gala, Nick Farino, "Solving Repeated Square-Roots"

Our project involves the ability to solve the sequential square root of a number, n. We will example the ability to solve these sequential answers using Taylors Series through the use of summation finding the limit as n approaches infinity. We will show that using Taylor's series provides a good approximation to the exact answer using both calculus and non-calculus methods. We will provide real-life examples of sequential summation done by the calculator, and then sequential summation done by hand using Taylors Series. Furthermore, we will provide graphs and statistical data showing how close we came to the exact answer doing simple summation of series.

32 Edith Nagy, Pradip Maity, "Non-Metal Catalyzed Cyclization of α-Alkynyl Hydrazines to Form Azaproline Derivatives: a Mechanism Study"

Alkynes are a unique functional group in organic chemistry since they are formed through the sharing of three covalent bonds by two adjacent carbon atoms. There are numerous reactions that

ABSTRACTS OF ORAL PRESENTATIONS
Pavilion A

Pavilion A
10:00 - 11:00

Olympia Kiriakou, "Carole Lombard as Silent Spectacle"

This paper examines Carole Lombard's performances in three silent slapstick comedies. In each of the films, Lombard attempts to maintain her own personal autonomy by performing gags and practical jokes against authority figures. The purpose of her rebellion is to draw attention to the rigidity of these authority figures, and to show that Lombard's heroines are not complacent, passive women. Although Lombard attempts to challenge authority, the films' aesthetic and technical elements contradict the purpose of her rebellion. By aesthetics, I am referring to the elements of spectacle in the films. Two of the films I have analyzed contain two-strip Technicolor sequences. These scenes are digressions from the narrative, and serve no other purpose than to entertain the audience. Finally, by technical I mean the fact that the films are silent. Unlike her screwball films where she can express herself in words and actions, in her silent comedies her voice is literally absent. For all that she may "act out" physically against authority, she is still suppressed due to her inability to talk. While Carole Lombard's physical comedy symbolizes a rebellion against authority, the films' visual spectacle and Lombard's inability to speak not only undercut the motive behind her comedy, but also objectify her for both the male and female spectator.

Angelica Brodeur, "Tea Masters as Master Builders: The Predecessors of the Architectural Profession in Japan"

Japan's architectural profession was not formally developed until the 19th century. Until then, buildings were built by either carpenters or select individuals known as 'master builders'. One particular type of master builder was the tea master, a curious transition from a profession focusing on the creation of tea to a profession that became the precursor to the architect in Japan. Tea masters became master builders due to necessity, as a defined space was needed to symbolize the celebration of tea. Thus, tea masters became the individuals most qualified for this challenge. The case study of Sen no Rikyu, Japan's most famous tea master, highlights some of the most significant contributions of tea masters to architecture. This study evaluates the definition of architectural design: is it simply the concrete properties found in the constructional techniques of a building or the conceptual impressions based on the usage of a space?

28 David Pick, Christopher Kaul, William Kissner, Megan McGuire, "Abamectin: Ant Toxin or Antifeedant?"

Abamectin is a mixture of two avermectins (~80% avermectin B1 and ~20% avermectin B1b) produced by the soil bacterium *Streptomyes 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 abmectin 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.

29 Luiza Fontoura, "Using ATR-IR Spectroscopy to Study Conformation of Cell-Penetrating Peptides"

Cell penetrating peptides (CPPs) are able to efficiently cross the plasma membrane of cells and carry with them macromolecular cargo. This makes them important tools in targeted drug delivery, and the investigation and knowledge of the mechanism of their drug delivery is important for future drug design. We are using attenuated total reflectance infrared (ATR-IR) spectroscopy to study the secondary conformation of the peptide analogues of penetratin in both deuterated aqueous solution and TFE (triflouroethanol), a well -known cellular mimic system. The penetratin analogues include strategic heavy isotope labeling to help us characterize the secondary peptides conformations. We have identified that we can use the shifts in the amide I bands present in the IR spectra of the peptides to help determine the secondary structure of the peptides in the different systems. We expect to find that the peptide will adopt either a β-sheet or alpha-helixconformation or stay random coil. We will use this method to further study the conformation of these CPPs with cells in the near future.

30 Ariel Le, Rebecca Schneider, "Microtubule Anchoring is Facilitated by the Shoulder/Sidearm Subunits of the Dynactin Complex"

Dynactin is a multifunctional protein complex identified as a required cofactor for cytoplasmic dynein. Dynactin also

26 Michael C. Neal, Christopher Nunes, Raul Vidal, "Variable Pitch Propeller Design Tool Development"

This research was initiated by three members of the Human Powered Submarine club established at FAU. With intentions to efficiently generate a record breaking propeller design for the club's new submarine, we have established a graphical and numerical system that is both effective and educational. This tool produces values for a set of propeller parameters that can be generated by using a custom designed MATLAB® graphical user interface that can be compared to CFD modeling, physical measurements, and user variation. This tool is flexible enough to incorporate multiple hull shapes and propeller configurations, while producing quantitative results for accurate comparisons of modifications in order to give any user, new or experienced, a concept of how different factors affect the propeller's overall performance without longhand calculations. The current results of this project include a tool that identifies limiting factors of underwater vessels and a graphical interface that allows users to design propellers. Our MATLAB® GUI tool and SolidWorks® CFD analysis will be verified and calibrated using small scale modeling of prop and hull. This will ease data interpretation and enhance tool usability. So far we have discovered that such things as the nominal wake can have a 7% difference in projected speeds when considered in the calculations.

27 Peter Taraskevich, "Study on Pharmacokinetics and Periodic Drug Dosing"

Pharmacokinetics is the action of drugs in the body over a period of time, including the processes of absorption, distribution, localization in tissues, biotransformation, and excretion. The most important factor in periodic drug dosing is reaching a safe and effective steady-state, of the drug, in the patient's blood stream. To determine this steady-state the doctor must know the half-life of the drug being administered. If doctor's did not know or understand what the half-life of the drug was, they would be constantly overdosing and possibly killing patients. If the half-life of the drug is known, then the steady-steady state of the drug can be described with a Geometric series. These results will be examined in project.

Rita Pruzansky, "Running Head: Verb Acquisition and Generalization Strategies of Preschool Children"

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. They 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. 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 meaning.

Rachel Blythe, "Employing Cultural Landscapes in Community Preservation: The Case of Druid Hills, Atlanta"

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.

Pavilion A
11:00 - 12:00

William J. Kissner, "Chlorosulfite as a Leaving Group in Organic Synthesis"

In organic chemistry halosulfites (–SOX, X = Cl, Br) are usually used to synthesize the corresponding alkylhalides. 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.

Melissa "CJ" Kwan, ""The Effect of Mutated Aconitase on Yeast Longevity"

This project focuses on the mitochondrial enzyme aconitase. Aconitase is an important enzyme in the Citric Acid Cycle, is needed for maintenance of mitochondrial DNA, 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.

Victor Arcaya, "Municipal Solid Waste (Landfills)"

According to the Environmental Protection Agency (EPA), "In 2010 Americans generated about 250 million tons of trash and recycled and composted over 85 million tons of these material. On average, we recycled and composted 1.51 pounds of our individual waste generation of 4.43 pounds per person per day." Therefore, it is important to think about new methods of recycling and to com-

24 Samantha Sardes, "The Effects of Inundation and Drought on Nodulation and Nitrogen Fixation in the Invasive Plant, Catclaw Mimosa"

The objective of this study is to examine the effects of inundation and drought on growth and nitrogen fixation in Catclaw Mimosa (*Mimosa pigra*). A native of South America, *M. pigra* is among the most serious invaders of wetlands, grazing ranges, and cultivated areas around the world, and it has been identified as a Category I Invasive in South Florida. In both its native and non-native range *M. pigra* forms a symbiotic relationship with nitrogen -fixing microorganisms in the genus *Burkholderia* that may give *M. pigra* a competitive advantage in seasonally inundated wetlands where nitrogen is a limiting nutrient. In the first phase of this project I will examine the number, size, and location of root nodules in *M. pigra* and a closely related Florida native, *Mimosa quadrivalvis*, collected from sites along the Loxahatchee River where both species are found. In the second phase of the project I will examine root nodulation and plant growth during simulated cycles of flood and drought over a 16 week period. At 4-week intervals, 10 plants will be harvested from each treatment regime. Allocational and morphological determinants of plant growth will be measured and root nodules will be assayed for nitrogen fixation by the acetylene reduction method.

25 Gerhard Heij, "Measuring Temporal Variability in Biogenic Gas Content in Peat Soils Using Moisture Probes"

Peatlands are an important component of the global carbon cycle, accounting for 5 to 10% of methane flux to the atmosphere [*Charman et al.*, 1994] and accumulating large volumes of biogenic gases (such as methane and carbon dioxide) within the soil matrix. However, spatial and temporal distribution of these gases in peat soils remains unclear. One particular challenge relates to the limitations of measuring insitu gas volumes at sensitive temporal scales in order to capture rapidity of gas releases. The moisture probes show promise for detecting changes in gas content at fine temporal resolution. It is also anticipated that probes will also be able to show gas-releasing events (i.e., ebullition) in the form of decreased gas content. A better understanding of biogenic gas releases from peat soils is critical to better understand atmospheric carbon budgets and their potential role in climate change.

22 Raissa McIntosh, "Do Mitochondrial K_{ATP} Channels Play a Role In Anoxia Tolerance?"

During an ischemic stroke, the human brain is deprived of oxygen. Within the first minute, millions of brains cells can die. Pond slider turtles of the species *Trachemys scripta* utilize several mechanisms to tolerate extended anoxia. These mechanisms are divided into three phases, the first being initial metabolic downregulation. During initial metabolic downregulation, neuronal function is decreased to levels sustainable by anaerobic respiration. Activation of the cGMP-dependent protein kinase (PKG) pathway reduces neuronal function and increases cell survival. This pathway is theorized to activate K_{ATP} channels. Previous work has shown that the opening of K_{ATP} channels contributes significantly to metabolic downregulation in *T. scripta*. However, which K_{ATP} channels involved are unknown. We hypothesize that specific mitochondrial K_{ATP} channels mediate anoxia tolerance in *T. scripta* neurons. Cell viability assays will be used to assess the effects of blocking these channels. This study may provide important insight into mechanisms of anoxia tolerance relevant for human health.

23 Megan Boehm, "Creative Anachronism: Paintings on History and Authenticity"

An interest in art history and historical reenactment prompted the pursuit of a body of work whose themes centered on history, authenticity and anachronism. Research began as a series of photographs taken on-location at various Renaissance Festivals, which were then collaged and combined into compositions reflecting my ideas of performance of the past. New ideas and symbols emerged from the research, including an interest in the depiction of characters rendered at different levels of realism within one image, and the use of color and light to denote different times and spaces. Methods of image manipulation discovered through this research project have gone on to inform more recent pieces, including work to be hung in the upcoming BFA show, *History of the Future*.

post all the garbage that we produce. In addition, the population has been increasing rapidly in the last few years, due to increased immigration of people from all over the world. The EPA encourages practices that reduce the amount of waste needing to be disposed of, such as source reduction (waste prevention), recycling (recovery), and composting (organic waste). Everything that is collected every day goes to a special pre-engineered place, known as a "Landfill," that complies with certain rules and is designed to protect the environment.

Donald O. Spragg, "Inexpensive Underwater Data Communication"

Providing access is paramount to developing technology and a large component of accessibility is cost. By laying groundwork for inexpensive underwater data communication, many more people will be able to use and participate in the refinement of this important advancement. This project attempted to transmit data encoded into an acoustic wave which could then be decoded into that data at a remote location connected only by water. Quantizing the frequency transmitted into discernibly different values based on anticipated inaccuracies allowed this to be done without any filtering or advanced signal processing. Low frequencies were used due to the inherent limitations in the equipment and to minimize self generated interference from reflected signals. The environment of this test transmission was also selected to minimize any interference. This data transmission was successfully achieved, while still keeping the cost of the components involved to less than $60.

ABSTRACTS OF ORAL PRESENTATIONS
Pavilion B

we can begin to characterize them by their targets. Characterizing a-conotoxins is of great importance as they can be used as pharmaceutical probes for disease pathways.

20 Richard Lantz, "DFT Calculations of Amide I Vibrational Frequencies for a Model Peptide"

Knowledge of the secondary structure of proteins and peptides is important because it is a key determinant of their biological function. Raman spectroscopy is a very promising diagnostic technique because it provides a vibrational spectrum that is sensitive to the structure of peptides. The amide I vibrational band in particular has been used over the years as a diagnostic of peptide secondary structure, but the interpretations of this band have been overly simplistic. Therefore, the goal of this study was to perform a detailed theoretical study of the correlation between peptide secondary structures and amide I vibrational frequencies. Density Functional Theory(DFT) was used to calculate the amide I frequencies for a model peptide consisting of six glycine residues. The results of this study suggest that the commonly used interpretations of the amide I band position in Raman spectra in terms of secondary structure may not always be accurate. A more detailed modeling of the full band profile may be necessary in order to gain meaningful information on the secondary structure of peptides using Raman spectroscopy.

21 Tyler McNabb, "Determining Peat Thickness in Subtropical Peatlands Using Ground Penetrating Radar"

Peat soils play a critical role in the global carbon budget and are important sources of biogenic greenhouse gases such as methane and carbon dioxide. The contribution of subtropical peatlands to the overall global carbon budget, however, is unclear. One main uncertainty relates to the current estimates of peat soil volume. Traditional studies to quantify peat thickness, such as coring, can be time consuming. Ground Penetrating Radar (GPR) has been previously used in northern peatlands to estimate peat thickness. There appears to be GPR based study, however, to estimate peat thickness in the Everglades. In this study we use GPR to rapidly determine peat thickness and estimate overall peat volume in a subtropical peatland in the northern part of the historical Everglades.

However, 23% of the preserve was covered by invasive vines. Our data suggests that the habitat is superficially healthy. The significant coverage by invasive vines illustrates potentially rapid degradation if there is no human intervention.

18 Pedro Sanchez-Herrera, "Characterization of Group B Sox Gene Expression in Wild Type Adult *Drosophila* Brain"

Sox genes are highly conserved DNA-binding transcription factors that have critical roles in nervous system formation, and maintenance of pluripotency. We are particularly interested in characterizing the roles of four group B Sox HMG domain transcription regulators—*Dichaete, Sox21a, Sox21b,* and *SoxNeuro (SoxN)* — in development and physiology of specific neurons and glia in the adult fly brain. While previous studies have been done with *Dichaete*, the potential sites of expression of the other three Sox genes are currently unknown. The analysis of a gel electrophoresis done with the cDNA product of a PCR/RT procedure shows the presence of the genes of interest in the head of adult drosophila. Additionally, the analysis of the SoxN-Gal6/UAS-GFP has shown the presence of GFP in cells at the optic lobe and central brain. Further analysis will provide valuable insight into overlapping functions of related Sox genes in the differentiation of neurons and glia in Drosophila and human brains.

19 Alena Rodriguez, "Identification and Characterization of A-conotoxins *Conus purpurascens*"

Cone snails use venom containing conopeptides to immobilize their prey and defend against predators. Conopeptides act directly upon specific neuronal and neuromuscular receptors. Perhaps the most conserved family of conopeptides is the a-conotoxins that antagonize nicotinic acetylcholine receptors (nAChRs), which are associated with several diseases. It is suggested that there are unidentified a-conotoxins in the venom repertoire of *Conus purpurascens.* In this study, the venom of *C. purpurascens* was extracted and then separated into individual components that were analyzed by molecular weight. The recently discovered a-conotoxin, a-PIC, and other conopeptides of novel molecular weights were collected. Thenovel conopeptides will be tested *in vivo* for bioactivity in the *Drosophila melanogaster* giant fibre system (GFS). By testing novel conopeptides in this system,

Pavilion B
10:00 - 11:00

Amrita Gopaldas, "Social Networks and Personality in a Liberal Arts College"

This study examines relationships between social networks and personality at a small liberal arts college. Participants were asked to list members of their social networks and 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.

Kimberly MacDonald, "Measuring a Social Network: Asymmetries in Dyads and Distances between Individuals"

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.

Alex Lange, "Finding the Rainbow Connection: From Toleration to Human Dignity and Acceptance in American Life and Law"

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.

Lauren Gomez, "Punished for Another Person's Crime: The Felony Murder Rule"

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 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.

Hunter Morgan, "Perceptual Acuity and Social Attitudes Survey (PASAS)"

People's attitudes have the possibility of being altered after exposure to certain stimuli. Our study used several different political stimuli to determine if 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 stem cells. This study will make a contribution towards unraveling the roles of Sox genes in stem cell biology and help to develop fruit fly intestinal stem cells as a genetic model for mammalian stem cells.

16 Olven Campos, "The Neuroprotective Mechanism of MsrA during Oxidative Stress in Trachemys Scripta"

Neurodegenerative diseases are associated with increased levels of reactive oxygen species (ROS), which are produced in copious amounts during reoxygenation after a hypoxic event. Unlike mammals, freshwater turtles, such as *Trachemys scripta*, have minimal neuronal damage following anoxia and reoxygenation, which may be due to the Methionine Sulfoxide Reductase system (Msr), restoring function to oxidized proteins. In this project, the role of MsrA in neuronal oxidative stress will be examined, utilizing small interfering RNA (siRNA) technology to knock down its function in cell cultures, using *T. Scripta* as a model. The levels of pro-apoptotic Bax and anti-apoptotic Bcl-2 will be measured to determine which apoptotic pathway have been activated. We hypothesize that gene silencing of MsrA will increase oxidative damage, leading to an increase of Bax to Bcl-2 ratios in treated cells, indicating increased cell death. This study will provide insight of MsrA function and may lead to clinical applications for controlling neuronal damage.

17 Marina Lauck, "An Analysis of the Vegetation within the FAU Preserve as a Basis for Management of Scrub Habitat for Gopherus Polyphemus"

In Florida, urbanization has caused a major decline in the available habitat for its native species. Fragmentation has led to habitat degradation due to unchecked succession. Of particular concern are the native Florida scrublands. We assessed habitat suitability and resource selection by the keystone species gopher tortoise within a Southeastern Florida scrub habitat. We compared our data to recently collected gopher tortoise burrow location data in an attempt to detect patterns of resource selection. These tortoises are selecting for areas with minimal shrub and canopy cover and greater herbaceous cover. Vegetation cover throughout the entire preserve was in agreement with literature values of less than 50% total cover for suitable scrub habitat.

potheses regarding factors affecting development of oysters on prop roots and reef clumps on the ground around the mangroves was created. The hypotheses were tested using structural equation modeling (SEM) that allows for assessment of direct and indirect effects. The data on these factors was gathered through an observation study of the oysters and computer data bases. The factors were tested to confirm the ability of the model to predict the oyster abundance and size. This is the first study to investigate the oyster habitat of red mangroves, an ecologically critical habitat.

14 Dustin Drake, "Human Powered Reverse Osmosis for Providing Portable Water for Developing Countries"

Results from research, design, and testing a human powered reverse osmosis device to determine the feasibility of producing potable water for developing countries are presented. A conceptual design together with engineering analysis using a bicycle with an integrated reverse osmosis filter system is provided. A prototype was built and tested to verify the prediction of the engineering analysis. Based on the test result, the design was improved, resulting to a simpler, safer and overall better solution. The design proved to be effective. It is concluded that it will require very little time and human effort to make the daily recommended amount of drinking water per person per day and so it is evident that human powered reverse osmosis is not only possible but is in fact an effective and efficient means for providing purified drinking water to those in need at a relatively low cost.

15 Houda Boucekkine, "Analysis of Drosophila Sox Gene Expression in the Intestinal Stem Cell Lineage"

We wish to determine if the functions of mammalian Group B Sox transcription factors in stem cell development are conserved in *Drosophila*. We propose to characterize the expression of *Drosophila Dichaete* and three closely related Group B Sox genes—*Sox21a*, *Sox21b*, and *SoxNeuro*—in the adult intestinal stem cell lineage. RT-PCR assays indicated that all Group B Sox genes are expressed within intestinal regions known to contain stem cells, and fluorescent reporter gene constructs revealed expression of *SoxNeuro* and *Dichaete* in these regions. Immunostaining and/or in situ hybridization of intestinal tissue will be used to confirm expression of all Group B Sox genes followed by a double labeling approach to characterize expression specifically within intestinal

the flag activates engagement, then presenting the flag with Obama should move attitudes more to the left pole of the political spectrum then presenting pictures of Obama alone.

Pavilion B
11:00 - 12:00

Jad Khazem: "Dual Enrollment: The Way Forward"

While contemporary education policies are coming under serious criticism in recent years, the policy of dual enrollment continues to impress. Dual enrollment permits students to take postsecondary courses while still in high school and thus potentially earn simultaneous high school and college accreditation. This paper examines dual enrollment policy at Florida Atlantic University (FAU) and in the state of Florida in an effort to develop a better understanding of the procedures, issues, success, and prospective of this accelerated learning mechanism. In addition, the positive financial impact of dual enrollment is exposed in this paper. Interviews are conducted to provide an overview of the general perceptions of dual enrollment as it applies to FAU and to schools in the state as a whole. The paper seeks to respond to the qualitative and quantitative issues that emerge in regards to dual enrollment by offering a set of relevant policy views and recommendations. The paper concludes with a summary of the material discussed and recommendations for future research.

Emma Nunan, "Olympic Legacy: A Comparison of Barcelona 1992 and Athens 2004"

The Olympic Games has a major impact on the hosting city. I compare Barcelona 1992 and Athens 2004 to assess their 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. Most scholars agree, however, 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, it 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.

based on the Biorock technique. We are particularly interested in its potential for carbon sequestration. Assuming a 0.5 m/s current and a 10% of the flow energy turn into electricity, through chemical reaction formula, we could estimate the amount of the CO_2 removal. When we scale up the coral reef park to 1000km by 1000km, then 2.3 x 10^{12} kg(C)/year removal may be achieved, corresponding to about 28% of CO_2 flux to the atmosphere from fossil fuel burning worldwide in 2009. Correspondingly, a significant amount of $CaCO_3$ formation will result. Preliminary laboratory experiment is ongoing to confirm this projection and the overall project feasibility.

12 Alexandra Lolavar, "The Effect of Rainfall on Loggerhead Turtle Nests During Incubation"

Marine turtles have Type IA temperature dependent sex determination, which is characterized by lower nest temperatures producing more males and higher nest temperatures producing more females. Nest temperature variation can be affected by environmental factors including rainfall, shade, and sand type. We studied the relationships among nest temperatures, rainfall, and hatchling sex ratios at a beach in Boca Raton Florida across the loggerhead (*Caretta caretta*) nest incubation season. Temperature data loggers were used to record central clutch temperatures every 10 minutes throughout incubation in 2010 and 2011. Rainfall data for the Boca Raton beach were collected concurrently with incubation and were synchronized with the temperature profiles. A subset of hatchlings was sexed laparoscopically to provide measures of the sex ratio for the beach. The study suggests that heavy rainfall events can lower nest temperatures during incubation. The embryonic responses to rainfall may vary, so predicting sex ratios under field conditions remains challenging.

13 Jessene Aquino-Thomas, "Confirming Ecological Factors Affecting Mangrove Prop Roots as Habitat for Oysters through Structural Equation Modeling"

The Indian River Lagoon, one of the major habitats for the eastern oyster, *Crassostrea virginica*, contains the prop roots of red mangroves. Ecological benefits of oysters include their value as habitat for fish and small invertebrates, improving water clarity by filtering particles from the water column, and serving as a food source for predators and humans. A priori multivariate hy-

survival of adult-born neurons, and if they can be used to replace neurons in damaged brain areas. In a mouse model of Huntington's disease, survival of new neurons is reduced. Crossing these with mice over-expressing the trophic factor BDNF may be able to increase neuron survival. Before testing for survival effects, we measured SVZ cell proliferation to see if the transgenes affected cell division. Four groups of mice (wild type-1, BDNF over-expressers, wild type-2, and HD mice) were analyzed. Mice were treated with the mitotic cell marker bromodeoxyuridine, euthanized 4 hours later, and labeled SVZ cells were counted. The results indicate no effect on stem cell proliferation.

10 David McAlpine, "The Synergistic Effects of Concurrent Stress on the Inflammatory Response in Healthy Individuals"

Increased mortality rates from cardiovascular disease are reported in populations such as firefighters, who experience physical and psychological stress simultaneously. Pentraxin-3 is a biomarker of vascular inflammation in predicting cardiovascular events. The purpose of this study was to examine Pentraxin-3 levels when subjects were exposed to a dual challenge (physical/ psychological stress). The study also looked at the effects of cardiorespiratory fitness on Pentraxin-3 and catecholamine levels to the dual-stress condition. Fourteen male subjects were classified into either fit or unfit groups. The subjects then completed two conditions, the exercise-alone condition (EAC) and the dual-stress condition (DSC). Pentraxin-3 levels increased significantly across time in both EAC and DSC, but no difference was observed between fit and unfit groups. Additionally, increased catecholamine levels were greater in DSC. The results suggest that although the dual stress elicited greater sympathetic adrenomedullary activity, cardiorespiratory fitness does not affect Pentraxin-3 levels in dual stress conditions.

11 Paulane C. Quiray, Umar Raja, David Athey, Tabatha Savage, Hiroko Suzuki, and Matthew Egeland, "Carbon Dioxide Capture by Engineering a Self-Sustained Coral Reef Park with Renewable Energy"

Using the ocean bottom current as an on-site renewable energy source, we investigate the deployment of an array of biocreature friendly Mamikon spinner to generate low voltage direct current to grow solid limestone mineral on conductive substrates

Meridith Wailes, "'Guilty' Until Proven Innocent: Interrogation Tactics and False Confessions"

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 that 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.

Jessica Lasaga, "The Effect of Medical Labels on Perceptions of Illnesses and Sufferers"

This study examines 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 we 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.

Faculty Panel
1:00 - 2:00
Pavilion A

"Integrating Undergraduate Research in the Curriculum"

Dr. Daniel Meeroff, Associate Professor, Civil, Environmental and Geomatics Engineering, College of Engineering and Computer Science

Dr. Nancy Jones, Associate Professor, Psychology, Charles E. Schmidt College of Science

Dr. Jacobus Vos, Director and Associate Professor, Urban and Regional Planning, College for Design and Social Inquiry

Dr. Mirya Holman, Assistant Professor, Political Science, Dorothy F. Schmidt College of Arts and Letters

Dr. Marissa Greif, Assistant Professor, Psychology, Charles E. Schmidt College of Science

Dr. Christine Williams, Professor, Nursing, Christine E. Lynn College of Nursing

Dr. Evelyn Frazier, Instructor, Biological Sciences, Charles E. Schmidt College of Science

Alena Rodriguez, Undergraduate Student, Charles E. Schmidt College of Science

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.

8 Christopher Randazzo, "The Effects of Leptin on Glucocorticoid Sensitivity of Peripheral Blood Mononuclear Cells in Non-obese and Obese Subjects"

Current statistics estimate that approximately 70% of the American population is classified as overweight and obese. Obesity-related inflammatory diseases are associated with elevated leptin levels (an adipocyte-derived hormone). The purpose of this study was to examine the effect of leptin on glucocorticoid sensitivity (GS) of peripheral blood mononuclear cells (PBMCs) in non-obese and obese subjects. Twenty nine subjects were classified into groups of either non-obese (N=15) or obese (N=14). PBMCs were isolated and incubated in leptin levels (250ng/ml and 18.75ng/ml) with dexamethasone (DEX): (1) saline (DEX 0 M); (2) DEX-6 M (3) DEX-7M (4) DEX-8M. Our study found that DEX inhibited interleukin-6 (IL-6) cytokine production in both levels of leptin in both groups. Although higher levels of leptin elicited greater IL-6 levels, GS was not affected by leptin administration. These findings suggest that DEX has a suppressive effect on leptin-induced cytokine production, whereas glucocorticoid sensitivity on PBMCs is independent of leptin concentrations.

9 Dalbir Bahga, "Adult Neural Stem Cell Proliferation is not Altered in Trans-genic Mice Overexpressing BDNF or Mutant htt in Forebrain"

Stem cells in the adult forebrain subventricular zone (SVZ) generate new neurons that migrate to the olfactory bulb. About half of the new neurons survive and become functional. SVZ stem cells are being studied to discover if there are ways to enhance the

5 Daniel Harper and Megan Looby, "A Hazard Mitigation Plan for Florida Atlantic University Satellite Campuses"

This research project involves the development of mitigation plans for the satellite campuses of Florida Atlantic University (Dania Beach, Fort Lauderdale, Davie, Jupiter, Harbor Branch, and Treasure Coast) and was assigned by the Federal Emergency Management Agency (FEMA). The first step in the project is to develop separate appendices for each of the FAU satellite campuses. With this data it is possible to develop cost-benefit analyses for the buildings on the different campuses. After the appendices are complete a final report can be developed for each of the satellite campuses. The final report will include hazard identification and analysis; vulnerability and risk assessment; and a hazard mitigation and implementation strategy for each of the campuses.

6 Chloe Barrera, "Feeding Patterns Effect Brain Development in Infancy"

The composition of breast milk has been shown to support neurodevelopmental trajectories (Jing, Gilchrist, Badger, & Pivik, 2010). Studies have shown that infants who are breastfed display greater frontal EEG asymmetry patterns over infants who are formula-fed (Jones, McFall, & Diego, 2004), a pattern that is associated with enhanced neurodevelopmental functioning. The present study examined the effect of different feeding patterns on the infant's brain development through measurement of EEG asymmetry and coherence. Coherence, a measure of the connectivity between different regions of the brain, had yet to have been looked at in relation to infant feeding patterns. A total of 113 healthy infants and their mothers participated. Repeated-measures MANOVAS displayed significant effects for infant feeding status on infant brain development, specifically left frontal to parietal and frontal to occipital EEG coherence scores showed better functional connectivity between brain regions for breastfed infants compared to formula-fed infants.

7 Miguel Rivera, "Adopting the Orphan: Determining the Motor Protein's (KIF9) Role During the Cell Cycle"

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

Poster Presentations
1:00 - 3:00
Pavilion C & D

No	Student	Topic	Supervising Faculty
1	Melanie Pineda	Longitudinal Stability of Jealousy in Infancy	Dr. Nancy Aaron Jones
2	Jasmine Gonzalez	Environmental Enrichment of Captive Black Bears (*Ursus Americanus*)	Dr. Julie Earles, R. Stephanie Allard, Dr. James Wetterer
3	Nathaniel Mizrahi, Nicole Stav	Homeland Insecurity: How the U.S. Government Traded Guns and Drugs for America's Future	Dr. Jasney Cogua Lopez
4	Adam Chen	Assessing Reef Population Connectivity through the Integral Projection Model	Dr. Erik Noonburg
5	Daniel Harper, Megan Looby	A Hazard Mitigation Plan for Florida Atlantic University Satellite Campuses	Dr. Evangelos Kaisar
6	Chloe Barrera	Feeding Patterns Effect Brain Development in Infancy	Dr. Nancy Aaron Jones
7	Miguel Rivera	Adopting the Orphan: Determining the Motor Protein, KIF9's, Role during the Cell Cycle	Dr. Nicholas Quintyne
8	Christopher Randazzo	The Effects of Leptin on Glucocorticoid Sensitivity of Peripheral Blood Mononuclear Cells in Non-obese and Obese Subjects	Dr. Chung-Jung Huang, Dr. Yoshimi Shibata
9	Dalbir Bahga	Adult Neural Stem Cell Proliferation is not Altered in Trans-genic Mice Overexpressing BDNF or Mutant htt in Forebrain	Dr. Kathleen Guthrie
10	David McAlpine	The Synergistic Effects of Concurrent Stress on the Inflammatory Response in Healthy Individuals	Dr. Chun-Jung Huang

No	Student	Topic	Supervising Faculty
11	Paulane C. Quiray, Umar Raja, David Athey, Tabatha Savage, Hiroko Suzuki, Matthew Egeland	Carbon Dioxide Capture by Engineering a Self-Sustained Coral Reef Park with Renewable Energy	Dr. Tsung-chow Su
12	Alexandra Lolavar	The Effect of Rainfall on Loggerhead Turtle Nests during Incubation	Dr. Jeanette Wyneken
13	Jessene Aquino-Thomas	Confirming Ecological Factors Affecting Mangrove Prop Roots as Habitat for Oysters through Structural Equation Modeling	Dr. C. Ed Proffitt
14	Dustin Drake	Human Powered Reverse Osmosis for Providing Portable Water for Developing Countries	Dr. Tsung-chow Su
15	Houda Boucekkine	Analysis of *Drosophila* Sox Gene Expression in the Intestinal Stem Cell Lineage	Dr. John R. Nambu
16	Olven Campos	The Neuroprotective Mechanism of MsrA during Oxidative Stress in Trachemys Scripta	Dr. Sarah Milton
17	Marina Lauck	An Analysis of the Vegetation within the FAU Preserve as a Basis for Management of Scrub Habitat for Gopherus Polyphemus	Dr. Dianne Owen, Dr. Evelyn Frazier
18	Pedro Sanchez-Herrera	Characterization of Group B Sox Gene Expression in Wild Type Adult Drosophila Brain	Dr. John R. Nambu
19	Alena Rodriguez	Identification and Characterization of a-conotoxins in *Conus purpurascens*	Dr. Frank Marí

3 Nathaniel Mizrahi and Nicole Stav, "Homeland Insecurity: How the U.S. Government Traded Guns and Drugs for America's Future"

Since the inception of its modern foreign policy, the United States government has sanctioned the undertaking of many geopolitical operations with the long-term goals being either stabilization or destabilization of a nation or region. During the 1980's, the Reagan administration and the Central Intelligence Agency spearheaded a covert action where our government, using Israel as an intermediary, illegally sold weapons to Iran (which was the subject of an arms embargo) and funneled the profits to anti-communist guerilla fighters in Central America. As a direct result, Central American drug cartels began transporting and distributing mass quantities of cocaine in the U.S. This action and the invention of crack directly spawned the crack cocaine epidemic. Our research details the government's actions and how they have affected millions of lives worldwide.

4 Adam Chen, "Assessing Reef Population Connectivity through the Integral Projection Model"

Marine reserves in combination with an understanding of target species life history have been frequently utilized by fisheries management as a sanctuary for breeding stock. Differences in larval experience (i.e., nutrient rich or poor water) have been shown to shape phenotypic performance (quality) that carries over into adulthood. However, it is unknown how variations in proportion of larvae with local (high quality) or distal (low quality) origins influence intraspecific competition. The Integral Projection Model has demonstrated its value with respect to populations structured on continuous variables such as size and will be implemented for a reserve of the temperate reef fish, *Forsterygion lampillum*. Various forms of size and quality dependent competition will be simulated to determine the influence of larval source populations on the dynamics of a *F. lampillum* reserve. Results suggest that heterogeneity in larval quality induces unintuitive population dynamics, which has the potential to impact fisheries management.

1 Melannie Pineda, "Longitudinal Stability of Jealousy in Infancy"

Recent studies on jealousy in infancy have shown that infants typically respond with increased negativity and approach behaviors during a jealousy-evocation paradigm and that these behaviors remain stable over time (Blau 2010; Hart 2010). Temperamental differences may explain why infants, who are presumed to lack the sufficient amount of understanding of interpersonal required to experience jealousy, have different responses to jealousy evocation (Hart, 2010). The current study seeks to examine the longitudinal stability of jealousy in a sample of 10 infants. Maternal ratings of temperament and behavioral responses to jealousy evocation will be collected when infants are approximately 9 months and 12 months old. It is expected that jealousy responses, specifically approach and withdrawal tendencies, will maintain longitudinal stability and will be influenced by temperament.

2 Jasmine Gonzalez, "Environmental Enrichment of Captive Black Bears (*Ursus Americanus*)"

A crucial aspect of captive animal care is enrichment. Techniques for enrichment range from simple additions of flora to complicated foraging puzzles. Enrichments are vital in creating an environment for animals that is similar to their wild habitat and sufficiently stimulating to elicit natural behaviors. Enrichment is also used to inhibit unnatural or potentially harmful behaviors, such as pacing. Commonly, enrichment techniques are not scientifically tested. Because of this, the universality of enrichments is rarely scrutinized. This study explores the universality of a "Snak'n' Trim." A snak'n'trim is a hollow ball 10 inches in diameter, made of hard plastic, 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 weeks in the summer and five in the winter. Daily observations were made during baseline and enrichment trials. Behavior frequency was calculated and preliminary results indicate a significant ($p<.01$) difference between baseline and enrichment trials, providing evidence for the efficacy of the snak'n'trim for behavioral enrichment.

No	Student	Topic	Supervising Faculty
20	Richard Lantz	DFT Calculations of Amide I Vibrational Frequencies for a Model Peptide	Dr. Andrew Terentis
21	Tyler McNabb	Determining Peat Thickness in Subtropical Peatlands Using Ground Penetrating Radar	Dr. Xavier Comas
22	Raissa McIntosh	Do Mitochondrial KATP Channels Play a Role in Anoxia Tolerance?	Dr. Sarah Milton
23	Megan Boehm	Creative Anachronism: Paintings on History and Authenticity	Dr. Amy Broderick
24	Samantha Sardes	The Effects of Inundation and Drought on Nodulation and Nitrogen Fixation in the Invasive Plant, Catclaw Mimosa	Dr. Dianne Owen
25	Gerhard Heij	Measuring Temporal Variability in Biogenic Gas Content in Peat Soils using Moisture Probes	Dr. Xavier Comas
26	Michael C. Neal, Christopher Nunes, Raul Vidal	Variable Pitch Propeller Design Tool Development	Dr. Edgar An
27	Peter Taraskevich	Study on Pharmacokinetics and Periodic Drug Dosing	Dr. Daniela Popova
28	David Pick, Christopher Kaul, William Kissner, Megan McGuire	Abamectin: Ant Toxin or Antifeedant?	Dr. Veljko Dragojlovic
29	Luiza Fontoura	Using ATR-IR Spectroscopy to Study the Conformation of Cell-Penetrating Peptides	Dr. Evonne Rezler

No	Student	Topic	Supervising Faculty
30	Ariel Le, Rebecca Schneider	Microtubule Anchoring is Facilitated by the Shoulder/ Sidearm Subunits of the Dynactin Complex	Dr. Nicholas Quintyne
31	Garritt Gala, Nick Farino	Solving Repeated Square-Roots	Dr. Daniela Popova
32	Edith Nagy, Pradip Maity	Non-Metal Catalyzed Cyclization of α-Alkynyl Hydrazines to Form Azaproline Derivatives: A Mechanism Study	Dr. Salvatore D. Lepore
33	Cedric Davis	Clean Energy Project Analysis: Photovoltaic Water Pumping	Dr. Chaouki Ghenai
34	Tina Tsikis	Is Age Really Just a Number? Neuropsychological Predictors of Eyewitness Memory Errors	Dr. Julie Earles
35	Isabel Sloan Griffin	Cells and Cocktails: Antioxidants Rescue Carcinogen Induced Mitotic Defects in both Chromosomally Stable and Unstable Cells	Dr. Nicholas Quintyne
36	Herbert D. Adams	Effect of MDMA Abuse on Axonal Transportation of Serotonergic Nervous System in the Rat Brain	Dr. Rui Tao
37	Scott Alef, Andrew Cerrato, Mark Cotino, Clarissa Davis, Jahmal Fahie, Edwin Muller, Geovanni Salgado Enciso	Public Opinion Evaluation for the Village of Wellington's Equestrian Master Planning Process	Dr. Jacobus Vos

ABSTRACTS OF POSTER PRESENTATIONS