2011 Undergraduate Research Symposium

March 25th
9:00am – 5:00pm
J. Wayne Reitz Union

Sponsored by

University of Florida
CENTER for UNDERGRADUATE RESEARCH
Welcome

Welcome to the 12th Annual University of Florida Undergraduate Research Symposium. This symposium is organized to showcase undergraduate research efforts from across campus and is hosted by the Center for Undergraduate Research. This year over 215 posters will be presented as well as 22 oral presentations. Students representing 15 colleges across disciplines will highlight the research they have worked on this past year. In addition, we are highlighting three creative works in dance and music that are the products of this exceptional group of undergraduates.

Undergraduate research is one of the five areas of opportunity, along with internships, service, leadership and international experience, that students are encouraged to participate in during their undergraduate career. This symposium is the culmination of work conducted by students through a variety of programs available on campus.

*Research is formalized curiosity. It is poking and prying with a purpose.*

Undergraduate Research Symposium
March 25, 2011
Reitz Union
Agenda

9:00am – 11:00am  Poster Session 1  Grand Ballroom

11:00am – 12:00pm  Welcome, Dr. Bernard Mair  Grand Ballroom
Associate Provost, Undergraduate Affairs

Best Paper Awards, Dr. Creed Greer,
Editor, JUR

Creative Works:
  Judgment:  An original opera, by Evan Kassof
  Younger than Now, Dance by Kristen McLaren
  Choreographing Emotion, Dance by Stephanie Babcock

1:00pm – 3:00pm  Oral Presentations  Rms 285,286,287

3:00pm – 5:00pm  Poster Session 2  Grand Ballroom

5:00pm  Adjourn
University Scholars Program
Best Paper Award Winners

Scholar: Joseph Kirkham
Mentor: Edith Kaan
Title: *Comparison of Musicians and Non-Musicians on a Lexical Tone Perception Task*
Abstract: The nature of the mind/brain with regard to domain specificity has long been debated. Recent linguistic research has shown that individuals with a musical background have an advantage over those without a musical background in lexical tone processing, which suggests overlap between cognitive/neural processes in the mind/brain. The current study’s purpose was to further investigate the effect of qualitatively different musical backgrounds on lexical tone perception. The results showed no difference between vocalists and instrumentalists.

Scholar: Chase Corbin
Mentor: Dave Denslow
Title: *The Negative Effect of Public Institutions Lending Policy on the Florida Condominium Market*
Abstract: Projects explains how theoretical concepts of Time to Build and An option Value of Waiting could have contributed to the abnormally high levels of vacancy in Florida Condominiums. This paper identifies flaws in lending policies used by the FHA, Fannie Mae, and Freddie Mac, and makes suggestions for Policy Revisions. Revisions of lending policy leading to reduced condominium vacancy would have numerous positive effects on an areas well being.
Dance Performance: Naming

University Scholar – Stephani Babcock
Mentor – Neta Pulvermacher

Naming was choreographed by Stephani Babcock, a senior psychology major and dance minor. The research was inspired by stimuli from UF’s Center for the Study of Emotion and Attention, which induce emotions in study participants through images, sounds, and text. The piece features collaboration with UF photography student Lydia Challenger.

The research began with a goal to induce discreet basic emotions in the audience through dance, developing into a need to first genuinely encounter the subject personally. The choreographer’s empathetic experiences as a crisis phone counselor replaced academic research as inspiration developed. The piece bridges the scientific and artistic perspectives of identifying what we see, and questions the value of objective understanding in the absence of personal understanding. Our dual abilities to observe or participate are contrasted among the performers’ roles including the photographer’s measurement and recording of the artistic process. The title Naming indicates identification and labeling, whether it be making distinctions between basic emotions, or identifying our methods of understanding them. Naming investigates the necessity of the personal encounter to the sharing of emotions, questioning where observation and scientific measurement fail and personal participation must begin in order to genuinely understand and name the nature of a subject.
Judgment – an Opera in 2 Acts

University Scholar – Evan Kassof

Mentor – Paul Richards

Judgment is an opera in two acts that is currently half completed, with a full-scale performance of Act I due in the beginning of April. Act I was composed with the assistance of Erica Kenick, who wrote a majority of the libretto, and Dr. Paul Richards and Dr. James Sain, who each mentored and gave insight throughout the compositional process. The research goal of this project has been to understand many of the different styles and techniques of the operatic tradition, and synthesize them into a coherent and interesting opera based on an original drama. Throughout Act I, styles from Wagner, Strauss, Puccini, and Verdi, as well as more contemporary composers such as Britten, Vaughan Williams, and John Adams, have been utilized. These styles have influenced orchestration, text setting, counterpoint, harmony, and larger formal questions. For instance, the occurrence of regular dissonance in the harmony is used as a Leitmotif to create a musical ‘setting’ for the character’s momentary reality. When Peter is remembering first meeting John, the music changes from the somber and dissonant character associated with the funeral to the much livelier and consonant sounds of a happier, youthful time.

The first act is divided into two scenes. Scene 1 begins with Jane, the daughter of John, crying because her father has just died. Her mother, Mary, comes to comfort her and begins to reminisce about when she and John met. Then Father Wharton, a priest and friend of the family, comes to share his condolences and a warning. He warns that both Mary and Jane will be consigned to Hell like John because they are all atheists. Scene 2 begins at sunrise with a funeral procession of John’s casket towards his grave. Mary invites John’s friends to speak to his memory. Peter, his friend and business partner, recalls when they first met and how John was such a reliable and faithful friend. Then Thomas, a local charity leader and preacher, recalls how John was always willing to help with the charity and was always so friendly and optimistic. Finally Luke, who is a composer, speaks about how John helped him become a composer and then introduces a piece he wrote for John’s upcoming fifty-sixth birthday. The piece is played and the scene (and act) end.

Act II begins with John awaking at the gates of heaven where he is met by St. Peter, who informs him that he will be judged for entrance into heaven. John’s virtues then come and represent him, personified as angels, and a ‘trial’ ensues. A debate over morality vs. faith occurs simultaneously with a debate between John and St. Peter over the necessity to believe in God at all. Ultimately, John is sentenced to Hell, despite his overwhelming goodness, and his slow decent into eternal torture is articulated between a duet between him and his wife (who can’t hear him) longing for each other.
Dance Performance: Younger than Now

University Scholar – Kristen McLaren

Mentor – Professor Ric Rose

Younger than Now, choreographed by Kristen McLaren in the fall of 2010, is an abstracted narrative that follows the course of the choreographer's childhood and adolescence in two sections (Overlap and I will). Overlap, a solo driven by a childhood narrative hidden within recorded text, reveals a multitude of possible storylines through the overlap of words and ideas, while the specificity of the choreography hints at a truly monophonic tale. I will, a tale of young love, explores a personal struggle to find and maintain independence within a seemingly co-dependent relationship. This choreographic autobiography recognizes the dichotomy of self and alters the function of the performer's relationship to time and the notion of the past.

The objective of this work was to question the precise moment that the present becomes the past. Is this different from the moment that we perceive as the past? And, in an autobiographical work, what realm of self and time does a performer exist in? Using a linear perception of time, we can divide the past into increments of varying degrees (seconds, minutes, hours, days, years, decades, centuries, and millennia, etc.) and the past becomes comprehensible. But what is the true substance of the past? What is it really made of?

Inspired by the mentorship of artistic director and choreographer, JoAnna Mendl Shaw (whose professional work defines the existence of real-time versus memory-time), Younger than Now discovers the past within the recollection of specific memories and extremely minute details from the past. Time itself is infinite – it will press forwards without ever missing a beat. But our memories, the moments in time that stand out for one reason or another, define us and allow us to be cognizant of our personal histories.
Architecture

The Feeling of Sound in Architecture ~ Sara Varela

Hearing, the most prominent of our senses, encourages emotional additives towards the visual image, and in many ways personifies an otherwise intangible situation, or thought. As architects a lot of elements are left up to technicians to ensure that the programmatic and visual tactics behind the design are incorporated with the ulterior purposes of the spaces. The purpose of this paper is to explore the impact of a well designed space on a performance.

Evaluating the Environmental, Technical, and Social Impacts of a Living Green Roof ~ Mary Frisbee

The research tests the performance of an already constructed green roof and assesses if it is a successful project. San Bortolo Hospital is a contemporary example of a public building located in a dense urban environment that utilizes a green roof. The performance of the roof is evaluated by its environmental, technical, and social vitality.

Biological Sciences

Stable Isotopes Indicate Warming-Induced Changes in the Nutrient Dynamics of Arctic Plants ~ Rachel Rubin

Arctic ecosystems are characterized by a short growing season and low nutrient availability, making them highly responsive to climate warming. We experimentally warmed the tundra, and measured the effects on foliar carbon (C), foliar nitrogen (N), and isotopic composition. Our results indicate climate-induced shifts in the nutrient dynamics in four out of six species. Such changes could feed back to the global carbon balance, photosynthesis and plant community composition.

The AT2R Activator Compound 21 is Neuroprotective in a Rat Model of Ischemic Stroke ~ Jason Joseph

An increasing number of studies indicate that the angiotensin type 2 receptor (AT2R) in the brain exerts beneficial actions in ischemic stroke. We tested the effects of a specific AT2R activator, Compound 21 (Cp21), on the neurological deficits produced in a rat model of ischemic stroke. Cp21 pre-treatment significantly reduced behavioral deficits and infarct size measured 72h after stroke induction. This is the first demonstration of a non-peptide AT2R activator exerting neuroprotection following stroke.
Calcium Probes ~ Ashley Van Putten

Biosensors are used to detect chemical changes in living cells and understand the link between chemical signaling and disease. Dr. Tsien and colleagues have developed a calcium detecting biosensor made of three proteins. As calcium is added, these proteins come closer together, allowing the exchange of energy; thereby increasing the fluorescent signal. By immobilizing and isolating the proteins we were able to closely evaluate the ionic effects on fluorophores, to better understand their use in biosensors.

Cerebroprotective Effects of Viral Over-Expression of Brain Angiotensin II Type II Receptor ~ Fiona Desland

Increasing evidence has shown that the renin-angiotensin system plays an imperative part in ischemic stroke. Stimulation of angiotensin II type II receptors (AT2R) in the brain has been shown to have a protective effect during ischemic stroke. This study focuses on the over-expression of AT2Rs in the brain, via injection of a modified adeno-associated virus. Results thus far have shown a trend supporting a decrease in deficit due to stroke, mediated through AT2R activation.

Characterization of the ATP-site Mutation T157A in E. coli Gamma Complex Clamp Loader ~ Phuong Nguyen

In E. coli, the γ complex clamp loader loads the beta sliding clamp onto DNA. The beta clamp tethers the DNA polymerase to DNA and increases the processivity of DNA synthesis. The γ complex is a member of the AAA+ family of ATPases. A conserved threonine residue in the ATP active site of the γ subunits was mutated to determine what role Thr-157 plays in ATP hydrolysis and DNA binding activities of the γ complex.

Characterization of LVIS0853, a MarR Transcriptional Regulator in Lactobacillus Brevis ~ Leticia Fridman

The objective of this study is the identification of small molecules that modulate protein activity in Lactobacillus brevis transcription factor LVIS853. Results indicate that LVIS853 interacts with molecules containing sulfur. A structural analysis of LB48 revealed residues involved in the protein-ligand interaction. Expression of LVIS853 and its genomic context in L. brevis cultured with varying sulfate concentrations was investigated by real-time PCR. Moreover, β-galactosidase assays were utilized to determine LVIS853 promoter activity under varying conditions.

Determining Population Structure of Parasites with Microsatellite Data ~ Katie Scholl

Pedicinus badi is a sucking louse that parasitizes red colobus monkeys. My project uses genetic data to determine the population structure of this parasite. I extracted DNA from lice and used molecular methods to analyze specific parts of their genomes. The genetic data can tell us
whether there is enough migration of lice between hosts that all represent a single population, or if there is little movement and each host represents a different population.

**Evaluation of Clovers as Potential Winter Cover Crops in North Florida ~ Kaylene Sattanno**

In this study, four lines of clover were assessed for their potential as a cover crop. A cover crop is typically planted between cycles of the main cash crop to enhance soil health, prevent soil erosion, reduce fertilizer or herbicide costs, or protect water quality. Typical winter cover crops utilized in North Florida are rye or ryegrass, but clover, a legume, offers the potential to contribute nitrogen to subsequent crops.

**Predator-Prey Dynamics ~ Kira Taylor-Hoar**

Although interest in predator-prey dynamics has fascinated scientists for over one hundred years, factors influencing behavioral responses to predation risk remained relatively unknown. We tested the effects of native versus exotic predator cues in rural and urban environments on the behavior of tufted titmice, a common prey species that breeds in forest habitats in northern Florida. We found that titmice altered their behaviors in response to different predators and effects varied in urban environments.

**Determining the Proportions of the Four Types of Pyramidal Neurons Contributing to the Corticostriatal Projections Related to Neglect ~ Tobias Schmid**

Spatial hemineglect is a human neuropsychological disorder following a stroke that causes the patient to lose the ability to report or respond to visual, auditory, or somatosensory stimuli presented on the side opposite the brain lesion. I surgically injected combinations of green and red fluorescent tracers to determine the proportions of pyramidal neurons projecting from cortical to striatal regions of the brain involved in the neural circuitry for processing spatial attention.

**Role of Endonuclease-1 (EXO1) in DNA Mismatch Repair (MMR)-Provoked DNA Damage Response (DDR) Activation ~ John Saydi**

Important for DNA mutation avoidance, MMR system inactivation results in an increased risk for cancer. DNA SN1-alkylating chemotherapeutics methylate the DNA base guanine, resulting in guanine/thymine mispairings during DNA replication. The MMR system recognizes these mispairs, subsequently activating DDR. EXO1 is crucial in eukaryotic MMR, but its function in DDR signaling remains unknown. By over-expressing nuclease-deficient mutants of EXO1 in EXO1-depleted cells, I tested whether endonuclease activity is required for normal responses to SN1 alkylators.
Does Human Land Development affect Mating Strategies in the Northern Mockingbird (Mimus polyglottos)? ~ Daphna Shaw

The Northern Mockingbird employs an advantageous mating strategy involving social monogamy with additional extra-pair copulations. During extra-pair copulations, also known as extra-pair paternity (EPP), a male sires offspring with females other than his known female partner. Nest density has been hypothesized to promote EPP. Geographic areas of more intense human development should result in higher rates of EPP, since mockingbirds are forced to nest in small patches of bushes to maximize their natural habitats.

Fate-Mapping Intervertebral Disc Development Using the Lipophilic Fluorescent Labels DiI and DiA ~ Bradley Bruggeman

Deterioration of the intervertebral disc is a primary cause of pain in the elderly; understanding the mechanisms underlying disc development is critical for devising treatments for age-related disc degeneration. We are using a fluorescent labeling technique to determine whether the cranial or caudal half-sclerotome gives rise to the disc, injecting one dye cranially and the other caudally within the same somite. Examination of labeled discs during later development will indicate which half-sclerotome is responsible.

Ontogenetic Shifts of Bone Material Properties Within the Cercopithecoid Mandible ~ Michael Granatosky

Material property variation of bone is an important determinant of whole bone biomechanical behavior, and age-related variation in bone quality may have important effects on bone strength. We investigated mandibular bone stiffness in an ontogenetic sample of Macaca fascicularis (N=10). Stiffness was determined from microindentation of coronal sections taken distal to M1. Microindentation data reveal that adult macaques have significantly stiffer bone than their juvenile counterparts, with adult males having stiffer bone overall than females.

Metabolic Products of Lactobacillus johnsonii N6.2 Modulate Indoleamine 2,3-dioxygenase Activity ~ Anastasia Potts

Lactobacillus johnsonii N6.2 is a probiotic bacterium that has been shown to mitigate the development of type 1 diabetes and lower indoleamine 2,3-dioxygenase (IDO) expression. IDO is an enzyme involved in regulating the immune response, specifically T-cell proliferation and apoptosis. We found that L. johnsonii produces a modulator of IDO’s activity. This may contribute to the probiotic effects of this species through IDO’s role in reducing exaggerated immune responses that can lead to autoimmune disorders.
Developing Rudimentary Genetics for Chlamydiae Trachomatis Through UV Mutagenesis ~ Yolanda Ho

Chlamydiae have a life cycle in an inclusion. A deeper understanding of genomics and mutagenesis is necessary to treat Chlamydia if it mutates in the future. Chlamydia is genetically intractable with no real genetic foundation, so focus lies in rudimentary genetics via UV mutagenesis. Rifampcin will characterize mutation, phenotypically. The purpose is to find the UV dosage needed to increase the rate of mutagenesis, creating a pool of mutants used to screen for pathogenetic phenotypes.

Plant Mitochondrial Introns as Genetic Markers ~ Melinda Grosser

We examined plant mitochondrial introns for their potential as universal DNA markers that would be useful in determining maternal lineages in a variety of plant taxa. The markers were very successful in revealing polymorphism among Citrus species. They also amplified on a wide variety of plant species (including both monocots and dicots) and showed large variation between genera, but they were not as successful in showing variability within genera or species.

Isolation and Characterization of Recalcitrant Materials from Aspergillus Using FTIR ~ Viviana Penuela

In this study we determine whether or not fungi themselves produce recalcitrant organics that adds to the bank of soil sequestered carbon. FTIR and elemental analysis were used to characterize the recalcitrant material present in the fungi Aspergillus after stepwise solvent extractions and acid hydrolysis. The material left over did not resemble polysaccarides, proteins, or lipids. It also had a higher ratio of carbon to nitrogen compared to that of the parent material.

A New Light-Regulated Gene Expression System in Drosophila ~ Barbara Perez

Engineering of light-mediated control over protein function holds great potential in biomedical research. I describe the incorporation of PhytochromeB (PhyB) to current expression systems in Drosophila. Light sensitive PhyB provides reversible gene regulation. However, reconstruction of functional PhyB requires a chromophore (РΦВ) absent in animals. To solve this problem, I cloned two billin reductases (HO1, Hy2) in a Drosophila expression vector to synthesize РΦВ. Light mediated gene regulation offers numerous advantages over existing expression systems in Drosophila.

Sorbitol Dehydrogenase Affects Reproductive Development in Maize ~ Laura Morales

In maize, sorbitol biosynthesis is mediated primarily by sorbitol dehydrogenase, and preliminary data indicated that the sdh1 mutant could affect flowering time. The initial sdh1 mutant was isolated from the
Uniform Mu population. Segregating F2 families were grown in fall 2009 and F3 progeny in spring and summer 2010. Flowering time for the sdh1 mutant was consistently earlier by one to two days; mean stalk length of sdh1 mutants was greater five weeks after planting.

**Substrate Binding Mechanism of a Cinnamoyl Esterase Using Site Directed Mutagenesis ~ Clara Vu**

Cinnamic acid, such as ferulic acid, has anti-inflammatory and antioxidant properties, but is found in unusable, esterified forms in food. With the use of ferulic acid esterase (FAE) activity in lactic acid bacteria, ferulic acid can become available by hydrolysis. A Lactobacillus johnsonii FAE’s substrate-binding mechanism was investigated, using site-directed mutagenesis and colorimetric assays. Asp138 and Gln145 affect substrate selectivity and position the ferulic acid ring. This information is useful for future therapy with probiotics.

**Using Yeast Two-Hybrid Screening to Characterize the Interactions between Sp1 and p300 ~ Tyag Patel**

Sp1 interacts with p300 to activate genes in cancer cells that are necessary for tumor proliferation. Yeast two-hybrid screening was used to test if the p300 domains, Taz1, kix, Taz2, and Ibid, all interact with Sp1. All domains were found to interact with Sp1, but not all interactions had the same strength. A therapy that blocks these interactions and slows cancer proliferation could be developed by revealing which domains in Sp1 and p300 interact together.

**Structural Studies of Lung Surfactant Protein B59-80 via Electron Paramagnetic Resonance Experiments ~ Kyle Hannabass**

Infantile pulmonary distress syndrome is a major cause of death in premature infants. A lack of lung surfactant protein (LSP) contributes to an inability of the newborns lungs to function properly. By understanding the structure, and subsequent function of LSP, clinical treatments using artificial mimics of LSP can be developed to treat pulmonary distress syndrome.

**Effects of Aging on Primary Neuronal Cilia ~ Gileno Fonseca Fiho**

Cortical neurons each extend a primary cilium, a microtubule based organelle, which harbors various types of G-protein coupled receptors (GPCRs). The aged cortex is more prone to neurodegeneration and changes in receptor expression in the cilium. Here we examined whether or not primary cilia are detectable in the aged brain and retain expression of known neuronal cilia GPCRs. Our data suggest that cilia persist in the aged brain, but may be compromised in their ability to respond to external environmental signals.
Non-Consumptive Effects and their Role in Salt Marsh Trophic Cascades ~ Karen Brun

Salt marshes exhibit a strong trophic cascade in which mud crabs prey upon periwinkle snails that consume cordgrass. We observe that the presence of mud crabs prompts periwinkles to forage higher in the cordgrass canopy. Our objective was to explain the mechanism driving this behavior and its role in the ecosystem. In field trials, we exposed periwinkles to chemical and visual cues and found that chemical cues released by crabs induce this behavior.

The Role of Acid-Stress Response in Salmonella enterica serovar Typhimurium during interactions with Tomato Fruits ~ Kyle Ericson

In produce, *Salmonella enterica* is subject to harsh environments, including acidic conditions and plant defense systems, how Salmonella is affected remains unclear. How well Salmonella responds to gastric acidity largely determines pathogenicity. We hypothesize that growth inside acidic fruits induces acid tolerance responses (ATR) prior to infection in mammalian hosts. The data shows that mutations in established ATR genes are crucial to survival in tomatoes, suggesting tomato acidity up-regulates ATR gene expression before host consumption.

Staining Procedures for Thick Tissue Sections to Optimize Histological Validation of Magnetic Resonance Data ~ Rhea Chattopadhyay

Immunohistochemistry (IHC) and myelin are common staining procedures in basic science laboratories. Tissue section thicknesses for these stains typically range from 4-40 microns. This makes comparison to thicker (>200 microns) magnetic resonance imaging (MRI) slices difficult as laboratories work to refine MRI approaches to monitor tissue changes in vivo. Thus, we have modified IHC and myelin staining protocols for effective use with thicker tissue sections to enhance validation of MR images with traditional tissue staining approaches.

UPDRS in Children with Autism ~ Rahim Ismail

Motor abnormalities have been noted in children which may interfere with his or her ability to interact with their environment. Based on findings through various studies, particularly that of Damasio and Maurer (1978), there is a suggestion that the motor abnormalities resemble hypokinetic disorders. In order to test this, the UPDRS, which is a rating scale used for people with the classical hypokinetic disorder of Parkinson's, was used to score movement in children with autism.
Scaling SubMAP for Large Metabolic Pathways ~ Michael Dang

SubMAP’s (Subnetwork Mappings in Alignment of Pathways) objective is solving the issue of aligning two metabolic pathways, scoring them on similarity of the compounds, reactions, and enzymes that make it up. This research attempts to scale the algorithm for larger, more complete pathways of organisms like animals, plants, and bacteria. The newer implementation “compresses” the graph into a smaller one to speed up computations and save memory.

The Effects of the Spaceflight Environment on the Arabidopsis thaliana Gene Expression Profile ~ Tyler Pyle

Gravity has long been known to play a significant role in many biological processes of plants. In this study, Arabidopsis thaliana plants were grown on the International Space Station and subjected to various gravity treatments. Upon return to Earth, the plants’ RNA was extracted and analyzed to study the effects of gravity via the gene expression profile of each gravity treatment.

Intertidal zone and herbivore density affect grazing intensity on Ascophyllum nodosum ~ Eric Monaco

On the rocky Maine shore, the snail Littorina obtusata lives within and consumes the seaweed Ascophyllum nodosum. To examine the impact of this grazing activity across the intertidal, we manipulated snail density at two different intertidal elevations and measured resultant grazing intensity. Our results show that grazing intensity increases with increasing snail density, suggesting that snails may elicit top-down control on these seaweeds, and that this effect likely varies with intertidal elevation.

Resolving the functional interaction between IP3R and LRMP ~ Sean Brennan

This presentation provides a model for how LRMP regulates and associates with IP3R. We expressed differentially epitope-tagged mammalian expression vectors that encode LRMP or various domains within IP3R in human cell lines. We monitored the interactions between the proteins by immunoprecipitation and immunofluorescence analysis. We have identified that LRMP binds to the cytoplasmic regions of IP3R. Overall, this project contributes to our understanding of LRMP function and provides insight into its role during lymphocyte development.

Investigation of Interactions between Pluronic Micelles and Streptococcus mutans Biofilms ~ Austin Mogen

Biofilms of Streptococcus mutans, the primary caries-causing bacterium, have shown modest inhibition by pluronics-based micelles carrying antibiotics. To test the hypothesis that pluronic micelles themselves affect biofilm formation and structure, biofilms were grown with empty
micelles, micelles containing antibiotic, or antibiotic alone, and viewed using confocal microscopy. Large biofilm “superstructures” were only observed when grown with antibiotic-loaded micelles. Although the mechanism is unknown, this novel interaction may have important implications in drug delivery.

**Structure-function analysis of the maize NLR1 protein, a plant-specific nuclear-localized protein ~ Joseph Black**

We recovered a maize mutant that impacts development in multiple tissues including distinct narrow leaf and rough endosperm (nlr1) phenotypes. A transposon tightly linked to nlr1 disrupts the coding sequence of a J-domain protein containing two nuclear localization signals (NLS) and an Arginine/Serine (RS)-rich domain. Transient expression of NLR1 localizes to nuclear speckles. Domain deletion assays revealed that the N-terminal RS domain is required for the directing NLR1 to nuclear speckles.

**Structural and Kinetic Characterization of HIV-1 Subtype C N88D/L90M Protease ~ Qicong Chen**

Approximately 33.4 million people are infected with human immunodeficiency virus (HIV) worldwide. Two mutations—N88D and L90M—were engineered into the wild type HIV-1 subtype C protease. Our data has determined there is a 168 fold difference in Ki between the wild type and N88D/L90M mutant when bound to saquinavir. The mutant protease was crystallized in complex with saquinavir and X-ray diffraction data was collected on the crystals to a resolution of 2.4 Å.

**Nelfinavir Reduces HIV-1-Associated Innate Immune Activation ~ Caroline Reist**

HIV-1 infection causes innate immune activation, resulting in severe inflammatory complications aside from immune deficiency. While current treatment for HIV-1 infection, combination antiretroviral therapy [cART], suppresses viral replication and restores CD4 T cells, aspects of immune activation persist. Protease inhibitors are a key component of cART designed to target HIV-1 protease function. The results of this study show that a specific PI, nelfinavir [NFV], has anti-inflammatory effects independent of its antiviral effects.

**Ancient Origin of Cartilage: Identification of the CollagenA-SoxE Pathway in Horseshoe Crabs ~ Leslie Slota**

Little is known about the developmental mechanisms of invertebrate cartilage. If the genetic control of cartilage formation is conserved between vertebrates and invertebrates, then the molecular mechanisms for making cartilage could have a surprisingly ancient origin. In vertebrate cartilage, Col2a1 gene is regulated by the transcription factors Sox9, 5 and 6. Horseshoe crabs show collagen content in the endoskeleton. We
cloned horseshoe crab orthologs of Col2a1, Sox9,5 and 6 and asked whether they are expressed during cartilage development.

**Island Hopping: Phylogeography of Mexican Free-Tailed Bats on the Bahamian Archipelago ~ Kristin Magrini**

It has been proposed that ocean barriers between Bahamian islands make bat migration unlikely despite their flight capabilities. This research identifies relationships and genetic structure among T. brasiliensis populations found in the Bahamas and Florida. We have found evidence that island bats are genetically distinct from Florida bats. Furthermore, contrary to previous hypotheses, variation that occurred within sequences of bats from the same localities in the Bahamas suggests gene flow between islands of the archipelago.

**Non-Specific Activity of VMD-2 Promoter in Various Tissues ~ Zachary Cohen**

Age related macular degeneration AMD is an incurable genetic disease that affects individuals 50 years of age and older. AMD is caused by oxidative stress in the macula of the retina and primarily deteriorates vision quality. Utilizing mouse models that exhibit this disease is necessary in understanding the disease’s pathology. Mice models are engineered by deleting a gene which regulates destructive byproducts of cellular respiration. It is in these mice models that unusual traits were noticed such as increased body mass and aggression.

**The Role of Angiotensin (1-7) in the Prevention of Hemorrhagic Stroke ~ Phillip Ritucci-Chinni**

The purpose of my research is to investigate the post-stroke cerebroprotective effects of a protein called Angiotensin 1-7 that is present in the brain. My project specifically is looking at how administration of Angiotensin can reduce both neurological and physical deficits of the brain after it undergoes a hemorrhagic stroke. Previous experiments with Angiotensin have successfully shown both a reduction of symptoms as well as mild stroke prevention.

**Identifying Anti-Apoptotic Genes in CuniNPV Virus ~ Brian Contreras**

Many mosquito-borne diseases such as: dengue, malaria, and yellow fever have spread in many countries worldwide. By studying the mosquito and virus interaction, it provides some helpful information on how to control the mosquito population since viruses could potentially kill mosquito larvae upon infection. This research project will identify the viral genes in charge of suppressing the mosquito innate immune defensive strategy.
MicroRNA Regulation of the inflammasome in Sjögren’s Syndrome ~ Lauren Walker

The inflammasome is a multiprotein complex involved in the secretion of the cytokines interleukin-1β (IL-1β) and IL-18, whose upregulation is important in the inflammation of Sjögren’s Syndrome (SjS). ASC is the key component of the inflammasome. Noncoding microRNAs target mRNAs for degradation. MiR-383 likely targets ASC mRNA. My objectives are to confirm miR-383 regulation of ASC, determine the functional consequences, and understand ASC’s involvement in SjS. Our results demonstrated miR-383 downregulates ASC and decreases IL-18 production.

Role of Nitric Oxide and Riluzole in ALS ~ Prashanth Shanmugham

Amyotrophic lateral sclerosis (ALS) is a fatal disease in which neurons in the brainstem, spinal cord, and cortex die. We used normal and mutant mice L126Z to determine the effects of the free radical, nitric oxide and the drug, Riluzole, on Na+, K+-ATPase activity. Data show losses in Na+, K+-ATPase activity in ALS and that Riluzole and nitric oxide inhibit its activity. Further research with determine the mechanisms of inhibition of the Na+, K+-ATPase.

Mapping Several Temperature-Sensitive Vaccinia Virus Mutants to Individual Genes ~ Meshal Soni

Poxviruses are a group of large, double-stranded DNA viruses that replicate in the cytoplasm of the infected cell; the most infamous member being smallpox. Vaccinia virus (~200kb DNA genome) is the prototypical poxvirus and was used as the vaccine in the eradication of smallpox. Although smallpox has long been eradicated, vaccinia virus is still a very useful yet simple tool that can be used to understand basic cell biology.

Analysis of Effects of Chlorinated vs. Non-Chlorinated Water on Gastro-Intestinal Microbial Population in Mice ~ Aleksandar Gutalj

The use of chlorine to disinfect water systems such as springs, water wells, and swimming pools is an effective way to remove the majority of bacteria, viruses, amoeba, and algae. Most modern chlorination methods involve applying sodium hypochlorite directly or indirectly in the treatment process. We hypothesized that chlorine containing water would affect the gut microbiota population in mice.
Exploration of Reintroduction Methods Through a Surrogate Butterfly ~ Paula Cohen

The Miami blue is listed as an endangered species and the subject of a conservation and recovery effort. We elected to use the Florida buckeye as a surrogate to trace the fate of released larvae. The first set of plants had larvae that were allowed to acclimate to the plant. Larvae were placed out in the field for the second set and predation was compared between the two sets. No significant difference was found.

Building Construction

Counterfeiting in the Construction Industry ~ Kris Sawicki

Data obtained from 188 interviews were analyzed to determine the level of awareness of counterfeiting in the construction industry. Since the initial data analysis revealed an apparent inverse relationship between awareness and risk, further studies were conducted. Interview data were collected from six relevant countries, including the United States and China. The analysis of the data revealed a relationship between the level of awareness of counterfeiting and the subsequent exposure to those risks.

Selection of Internalized Aptamers ~ Yun Min Chang

Aptamers are nucleic acid or peptide based molecules that bind only to a specific target. We are selecting for aptamers that bind to surface proteins, and then internalize rapidly. Once complete we can use this aptamer for drug delivery or to target intracellular proteins. Many drugs suffer from low permeability, but we can use these aptamers to help improve the permeability of these drugs, increasing their value and effectiveness.

Business Administration

The Caribbean Brain Drain and Organizational Commitment ~ Jerri-ann Berry

This study focuses on the relationship between the Caribbean Brain Drain and Organizational Commitment. Using results from a survey administered to a random sample, I examine how three independent variables, salary, education, and quality of life, affect one’s commitment to their native homes. I hypothesize that both salary and quality of life have a positive correlation to commitment, whereas education has a negative correlation to commitment.
**Design**

**Characterization Study of Urban Cohousing Communities ~ Brittany Ruef**

The study characterizes the resident-created, collaborative, pro-environmental neighborhoods known as cohousing, emphasizing those located in urban settings. The goal of this research is to describe these communities and to identify the social issues that define the urban cohousing model. It aims to answer the questions: Is cohousing a suburban phenomenon? What are the reasons behind this preference? Are there obstacles to the creation of cohousing communities in the inner city?

**Engineering**

**Fracture Toughness of Epoxy Nano Composites ~ Kelvin Chang**

This study focuses on epoxy and how nano particles can improve its resistance to fracture. The two part epoxy used in this experiment has applications in airplanes, boats, cars, and many other structural members. Standardized testing was used to assure more accurate results. This improvement of the fracture toughness is simple in regard to implementation and can lead to more efficient future designs.

**Performance of Discontinuous Roof Cover Systems in Turbulent Wind Loading ~ Brian Rivers**

Home and business owners incur significant losses during hurricanes from inadequate performance of roof cover systems. This project addresses the simulation of unsteady wind loading using an actively controlled centrifugal fan system. Current test standards predominantly neglect the effect of dynamic wind loading on asphalt shingles. The goal of this research is to replicate the time varying velocity field near the roof plane in order to accurately characterize the failure modes of common roof systems.

**Hardness Removal From Urine Using a Cation Exchange Resin ~ Kyle Taylor**

Waterless urinals and NoMix toilets are able to drastically reduce water consumption and provide a way to separate and treat urine at the source. However, these units often clog due to mineral precipitation in the urine. The two greatest contributors to the precipitation are hydroxyapatite, a calcium mineral, and struvite, a magnesium mineral. This project examines the use of a cation exchange resin, Amberlite 200c, and its potential to remove calcium and magnesium in urine.
Magnetic Ion Exchange Treatment of Drinking Water and Municipal Solid Waste Residuals ~ Katherine Graf

Treatment of membrane concentrate is a major problem for water utilities. Treating membrane concentrate will help increase the recovery of the process. Treatment is often limited by dissolved organic carbon (DOC). Magnetic ion exchange is commonly used for DOC removal in drinking water and therefore can be thought to do the same for membrane concentrate at higher doses. Results from this work will provide insights into the treatment of drinking and municipal solid waste residuals.

Positively-Charged Amino Acid Residue Distribution in Transcription Factor Domains ~ Aura Cruz

Transcription factors have well defined structural and functional domains that are involved in transcriptional activation. The transactivation domains have peculiar amino acid compositions. Positively charged residues may be absent in transactivation domain. The primary focus of the study is to analyze how the positively-charged histidine, arginine, and lysine amino acid residues are distributed among the activation domains of the Ebf, Sp, tp53, trp63, trp73, E2f, Klf, and Id transcription factors. Further experiments might show an identifiable trend.

Active Separation Control for Increased Aerodynamic Efficiency ~ David Reich

Active control of separated flow over a NACA0025 airfoil is investigated to eliminate stall at high angles of attack for high-performance aircraft. A feedback control algorithm maximizes the lift-to-drag ratio by optimizing periodic perturbations by zero-net mass-flux actuators. Feedback information comes from unsteady pressure transducers and a two-component force balance. A statistical model is developed that reduces bias in the force balance data. Actuator flow is characterized using hotwire anemometry in a quiescent chamber.

Ophthalmic Drug Delivery Through Contact Lenses ~ Michelle Abou-Jaoude

Eye drops deliver 5% of drug to the cornea, while contact lenses deliver about 50%, making them ideal vehicles for drug delivery. This research focuses on delivering ophthalmic drugs for 2 weeks from contact lenses. Our novel approach for extended release involves encapsulating drug in small (<20 nm), highly-crosslinked particles and dispersing the particles in contact lenses during polymerization. Results show that particle-loaded lenses release glaucoma drug timolol for 2 weeks at therapeutic doses.
An Assessment of Skin Dose Mapping Software for Use in Fluoroscopically Guided Interventional Procedures ~ Kayla Ficarrotta

There is increasing concern for the monitoring of radiation doses received by patients undergoing fluoroscopically guided interventional procedures. The purpose of this investigation was to test the accuracy of a MATLAB skin dose mapping program through comparisons with skin dose estimates determined using a Monte Carlo N-Particle Transport Code. On average, the percent difference between skin doses was 9.6 % for a kerma tally, and 8.0 % for an absorbed energy tally.

Determination of the Correlation Between a Cohesionless Soil’s Angle of Internal Friction and its Gradation ~ Caitlyn Oram

In geotechnical and foundation design, the most important parameter is the internal friction angle. According to the literature, the angle of internal friction of a cohesionless soil is related to various soil properties. The objective of this research is to investigate the correlation between a cohesionless soil's angle of internal friction and its gradation. This research indicates that the more varied the particle sizes in a soil, the higher the angle of internal friction.

Vibration Energy Harvesting ~ Jennifer Griffith-Delgado and Erick Macias

This project's goal was to harvest electrical energy from a vibrating source. We experimented with two acoustic and cantilever piezoelectrics. We developed different techniques to strain each type of piezoelectric, thus generating an AC voltage. After trying several methods, we converted this AC signal into a DC signal with enough voltage and current to turn on an LED. Finally, we attempted to tune the piezoelectrics to find their maximum output at a particular frequency.

Investigation into Loss of Excess Reactivity at the University of Florida Training Reactor Using MCNP ~ Daniel Lago

This study was catalyzed by an unanticipated loss of reactivity when the University of Florida Training Reactor (UFTR) was refueled in the summer of 2010. Three parameters – the boron content, the porosity of the graphite, and the fuel box size – were investigated through the use of an MCNP model of the UFTR. The results indicated all three factors have some effect on the decrease in reactivity, but the most significant factor was the graphite density.
Implementation of “No-Lift” Shifting in Automotive Applications ~ Patrick Lloyd

The goal of this research is to create a computer controlled “no-lift” shifting mechanism as a way to decrease driver fatigue, shift times and component stresses in automotive transmissions and drivetrains. Strain gages are used to measure the force on the shift lever and when a threshold is exceeded, the engine computer briefly cuts power to the engine for a preset duration, allowing the driver to shift gears without the use of a conventional clutch.

Analyzing Frictional Properties of Single Crystal Metal Carbides on an Atomic Scale ~ Veronica Boesen

The frictional properties of single crystal zirconium carbide (ZrC) and two separate titanium nitride/zirconium carbide multilayer samples of (TiN/ZrC) were investigated on the nanometer scale using atomic force microscopy (AFM). The interfacial friction between an atomically sharp silicon nitride probe tip and the carbide surfaces was measured as a function of sliding over 100 nm distances. Data showed a moderate level of friction in all samples with a slightly lower coefficient of friction in pure zirconium carbide.

Flexures in Automotive Suspension ~ Ashley Averill

The use of flexures in lieu of traditional suspension linkages in a performance automotive application was investigated. Stress analysis, material selection and heat treatment were considered in combination with ANSYS finite element analysis and physical testing to verify the use of flexures in anti-roll bars and as an alternative to control arm bearings. This application reduces stiction typically present with pivots possessing low compliance and offers joint stiffness that remains constant throughout the life cycle.

Introductory Design of Structural Composites ~ Eduardo Rondon

This research investigates the replacement of traditional steel suspension and steering components in an automotive application with lighter composite counterparts of equivalent stiffness. By clearly documenting the design and manufacturing processes, this paper serves as a guide for the beginning structural composites engineer, starting with material property predictions and ending with validation of the prototype part's integrity using contemporary testing equipment. The techniques presented herein are applicable to a wide range of structural composite design.
Vadose Zone Contaminant Vapor Transport ~ Ryan Messer

Contaminant flow above the water table is often ignored in calculations for unconfined aquifers. Vadose zone contaminants are able to volatilize, allowing for a much higher contaminant flux than what is seen in saturated soils. The Passive Flux Meter has potential to obtain contaminant flux data above the water table. An experiment has been done to assess its validity as a viable technology to measure contaminant vapor phase flux.

Design of an Externally Adjustable Automotive Differential ~ Kyle Ham

Modern passenger vehicles are equipped with differentials on their drive axles. Automotive differentials are designed to provide a tradeoff between vehicle traction and maneuverability. This paper presents a background discussion of differential theory and details the development and validation of a custom differential used to analyze the effects of torque bias ratio on a high performance vehicle’s dynamic behavior.

Analysis of Elbow Angles and Ground Reaction Forces in the Back Handspring ~ Katherine Gursoy

The back handspring is a basic gymnastics maneuver in which a gymnast is required to maintain straight arms during the double-arm support phase of the skill. Elite female gymnasts frequently use the back handspring as a transition element preceding a more difficult skill. The purpose of this study was to determine whether decreasing the elbow angle will reduce the impact force on the elbows in order to prevent injury in the future.

Optimization of Control in a Wind Turbine Model ~ Andrew Buckspan

Using a computer model written in the Simulink environment, the control of a wind turbine is investigated. The controller relies on a robust neural network and a RISE control strategy to both identify system dynamics and achieve optimum power capture. Real life wind turbines face problems with the fact that wind and turbine dynamics are often not known. This project seeks to implement a robust control strategy that is tolerant of these unknowns.

A Capacitively Coupled ECG Sensor ~ Andy Wright

A capacitively coupled, non-contact, electrocardiogram (ECG) sensor is presented. This differs from common ECG sensors because direct electrical contact with the patient’s skin is not required, and therefore no conductive gels are needed to attach this sensor, saving time and money in terms of healthcare. This style of sensor has the potential for reduced motion artifacts if the amplifier meets stringent specifications. The design of the sensor is discussed, and results are presented.
The Stationary Liquid Jet ~ Andres Caicedo

A stationary cylindrical liquid jet of initial radius, $R_0$, was subject to small perturbations. Competition between fluid forces caused instability toward certain perturbation wavelengths. The intent was to find the wavelengths of the perturbations which grew in time. Numerical calculations in the experiment proved congruent to results from the mass and energy balances on an inviscid fluid. Furthermore, the dominant wavelength for a specific fluid was related only to the initial radius of the jet.

Packed Column Distillation Design ~ Craig Mansfield

Distillation is a heat intensive process used as a primary means of mixture separation. The predominant types are packed and tray columns. The research goal was to design and implement a new packed distillation column to complement existing tray columns for the Chemical Engineering Unit Operations Lab at the University of Florida. Once completed, the new column will be available as an effective demonstration of the advantages and disadvantages of packed column distillation for students.

Rate Determination and Analysis of Bromine and Hydrogen Sulfide Reaction ~ Kiet La

Hydrogen sulfide (H2S) is a poisonous and flammable gas. Prior research has shown that H2S reacts with bromine to form hydrobromic acid and sulfur. In this project, we have determined the rate coefficient by carrying out the reaction in cold, normal, and hot temperatures, and at various concentrations of H2S. The results indicated that the rate coefficient is slightly increased at higher temperatures and that the reaction order is zero with respect to bromine.

Chromatography With Agarose Beads as a Method of Separating Carbon Nanotubes ~ Steven McLeod

Chromatography through agarose packed columns is a method that can be used to separate metallic and semiconducting carbon nanotubes. Two mechanisms have been proposed to explain how this separation occurs; one is size-exclusion and the other is selective adsorption of nanotubes on agarose. This study aims to investigate these two theories in order to better understand how this separation technique works.
Characterizing the Effects of Heat Treatment on Microstructural Evolution and Phase Transformation in ZrCu Stage Memory Alloy ~ Eddie Goude

Shape memory alloy are special alloys with unique properties like pseudoelasticity and shape-recovery. The material used in this project is Zirconium Copper shape memory alloy (ZrCu). This project focuses on understanding a unique problem to this particular system. The temperature hysteresis widens as the material undergoes thermal cycling. Ageing effects and evolution of precipitates are studied to provide more insight into this problem.

Particle Image Velocimetry on Flow Over Cylinders ~ Ann Dietrich

Flow-induced cavity oscillations, such as those in aircraft payload bays, can cause fatigue of the cavity. To study the response of the cavity flow to synthetic jet actuators placed at the leading edge of the cavity, particle image velocimetry (PIV) will be performed on the cavity. To learn PIV, a preliminary experiment utilized PIV to study the flow over a cylinder in cross-flow. Flow statistics were determined from this data and compared to previously found results for accuracy. The procedure can then be applied to studying the cavity flow with confidence in the PIV results.

Mechanical Behavior of Metal-Matrix Composites Reinforced with Ferroelastic Particles ~ Jack Tilka

The ability to dynamically change the stiffness is of specific interest for applications ranging from seismic hazard mitigation to noise reduction in vehicles. This research project focuses on the interaction of ferroelastic particles with a metal matrix and its effect on the mechanical behavior of the composite. Thermodynamic and mechanical analysis was performed to give insight into the unique relationship between the ferroelastic particles and metal matrix, which could yield composites with tunable stiffness.

GUI Extension for Java Race Finder ~ Jason Fisher

This program is a Graphical User Interface (GUI) extension to the Java Race Finder program and is used as an aid to Java multi-threaded program developers. It was developed using the Java programming language, mainly using features of the Java Swing library. Some of these features include labels, buttons, text fields, scrollboxes, text highlighting, and field expansions.
Elevated Wall Tension Impedes Vein Bypass Graft Modeling ~ Jordan Manning

The study focuses on wall tension, hypothesizing that local elevation in tension impedes outward VG remodeling and increases the risk of failure. Wall tension was calculated using temporal CT scan data in combination with modifications of Laplace’s law. Percent luminal area change was negatively correlated with wall tension in most patients; cumulative analysis agreed. Early and late VG remodeling was significantly less prevalent in regions subjected to elevated wall tension.

Computational Approach to Parkinson’s fMRI Data Analysis ~ Anna Kantzios

In this study we analyzed resting state fMRI data of 15 Parkinson’s patients and 14 healthy controls. We partitioned the brain into regions and computed the average regional energies. We then removed noise through wavelet decomposition. Our study revealed that there are significant differences in energy values in certain brain regions. This may suggest that it is possible to distinguish Parkinson’s patients from healthy patients based on fMRI data computational analysis.

Introduction of Evaluating the Durability and Collapsibility of Polymer Coated Needles ~ Jong Kim

A way to improve the convection-enhanced delivery method is to have chronic treatment. For chronic treatment, there needs to be a biocompatible coating on the needle instead of using PEEK tubing to be flexible. The flexibility will reduce the microtearing caused by using rigid cannula. Another aspect of the coating is the collapsibility because the catheter will not be useful if the drug cannot reach the desire location.

Hydraulic Fracturing and Groundwater Contamination ~ Andrew Bingler and Tessira Crawford

This presentation explores how hydraulic fracturing—an industry process used to obtain natural gas—has affected groundwater quality around the Marcellus Shale area and proposes a possible solution.
Forest Resources and Conservation

The Effects of an Ecotourism Trip to Costa Rica on Students’ Knowledge and Environmental Perspective ~ Lauren Richburg

This research focuses on ecotourism in a collegiate, study abroad context. The objective of this study was to find the link between ecological study abroad tours and informal and formal education. The methodology of this study involved three questionnaires of a group of UF students who attended a weeklong study abroad trip to Costa Rica in March of 2010. Results show a mean increase in accuracy of knowledge-based questions and we conclude that formal education is effective in a study abroad setting.

Health-Related (Pharmacy, Dentistry, Medicine, Vet Med, Nursing, etc.)

Examining the Effects of Parental Relationship During Childhood on the Development of Adulthood Emotional Health ~ Nekeshia McInnis

This study aims to examine how parent-child relationship influences adulthood emotional health by race and sex. The 1960-1990 Pathways to Adulthood study is a longitudinal study of pregnant women and their babies born from 1960-1965 in Baltimore, Maryland. General Health Questionnaire and multivariate linear regression models were utilized. Parent-child relationship was associated with somatic symptoms and anxiety among Black females and social dysfunction among Whites. Adulthood emotional health is associated with parental relationship during childhood.

Parental Perspectives on Child’s Eating Habits and Weight Status ~ Michelle Martin

Objective: To evaluate parents' perspectives on child's eating habits and weight status. Methods: Convenience sample of 92 parents completed survey, recruited from summer arts academy. Results: Parents believed child's diet could be improved by eating more vegetables (44%), drinking more water (41%), eating healthier snacks (34%), eating more fruits (34%) and eating less junk foods (52%) and sugar (42%). Opportunities exist for health professionals to help African-American parents improve children's eating habits and weight status.

Nonparetic Limb Guidance Induces Spatiotemporal Symmetry During Walking Post-Stroke ~ Mae Mercado

Traditionally, paretic(P) limb impairments have been considered as the primary cause of gait deviations following stroke. However, the nonparetic(NP) limb also demonstrates impairments, and there is evidence that the NP-limb interferes with P-limb coordination during walking. We tested participants post-stroke in three walking conditions:
overground(OG), unsupported treadmill-self-selected walking speed(TM), and treadmill-fastest comfortable speed at 30% body-weight support with NP-limb guidance(NPguidance). We found that NPguidance restores interlimb symmetry while treadmill walking alone does not significantly improve symmetry.

**Interaction of Arrestin and Enolase in Rod Photoreceptor Cells ~ Daniel Turner**

 Arrestin is an important regulator of phototransduction in rod photoreceptors. Recent discoveries show that arrestin also modulates glycolysis through interaction with enolase. In this study, fluorimetric and in vitro binding assays of the two proteins were employed to identify regions of interaction between the two proteins. Stern Volmer quenching experiments identified Lys-53 on arrestin to be in close apposition with enolase. Binding assays using arrestin fragments are being completed to identify additional epitopes of interaction.

**Pharmacokinetic/Pharmacodynamic Modeling of the Psychomotor Vigilance, Go/No-Go Performance and Electroencephalogram Effects of Armodafinil in Sleep Deprived Healthy Adults ~ Erika Giblin**

 The purpose of this project was to determine the effectiveness of the drug Armodafinil on increasing the alertness and reaction time of healthy, drowsy patients. These effects were determined by using an electroencephalogram (EEG) in a clinical setting accompanied with plasma concentration readings measured in a laboratory. The test subjects received either a placebo, 150mg, or 250mg Armodafinil. Results continue to be collected. A conclusion on the effectiveness of Armodafinil is unavailable at this time.

**The Importance of Effective Communication Among Healthcare Providers and Caregivers Prior to Stroke Patient Discharge: Reducing the Risks of Stroke Crisis ~ Christine Martin**

 Stroke is an unpredictable illness that leaves caregivers facing many adversities within a short period of time. Effective communication among caregivers and health care providers may serve as a fundamental factor in reducing the risks caregivers encounter as they move through the three phases of stroke crisis. In this project I explored the importance of communication among healthcare providers and caregivers prior to stroke patient discharge as I analyzed interviews with stroke caregivers and identified potential barriers to communication.
Hematopoietic Stem Cell Mobilization Following Stroke ~ Annemarie Wolfe

Stroke is the most common reason for permanent disability. Hematopoietic Stem Cells (HSC)/Hematopoietic Progenitor Cells (HPC) are circulating bone marrow derived cells that promote repair. Animals underwent cerebral ischemia and their HSC/HPC harvested and counted. At 24 hours, bone marrow and blood showed significantly increased production of HSC/HPC, and significantly higher mobilization of HSC/HPC. These data suggest that mobilization of HSC/HPC may be a relevant pathway for cerebral injury repair following stroke.

Does Nesiritide Provide Renal Protection by Attenuating the Inflammatory Response in Cardiac Surgery ~ Derek Nieber

Renal failure following aortic arch reconstruction surgery results in an 8% incidence of dialysis with mortality exceeding 50%. To date there are no renal protective agents available. Recent evidence suggests natriuretic peptides, natural peptide messengers, can offer renal protection by promoting diuresis and minimizing pro-inflammatory cytokine release following surgery. This is a 24 month, 40 patient clinical trial which examines whether Nesiritide, human recombinant brain natriuretic peptide, confers renal protection during aortic arch surgery by attenuating the inflammatory response.

Inhibition of 11PP2A as a Therapeutic Strategy for Tauopathy ~ Matthew Isaacson

Tauopathies - a class of neurodegenerative diseases (e.g. Alzheimer's disease) for which no treatment currently exists - are characterized by the formation of filamentous tangles within nerve cells in the brain. This condition causes these brain cells to lose function and die, leading to the classic symptoms of tauopathies such as memory loss and dementia. This project approaches a novel strategy of disrupting an endogenous inhibitor protein, 11PP2A, for the purpose of treating or preventing this disorder.

Attenuation of Gentamicin-Induced Hearing Loss via an Enhanced Diet in Guinea Pigs ~ Eric Rudnick

Gentamicin is a broad spectrum antibiotic that belongs to a class of drugs known as aminoglycosides. These antibiotics are limited in their use due to their tendency to cause hearing loss. Hearing loss was measured using an Auditory Brainstem Response (ABR) test in male albino guinea pigs. This study tested the hypothesis that a diet fortified with beta-carotene, vitamins C and E, and magnesium will attenuate a gentamicin-induced hearing loss in guinea pigs.
Physiological Response to a Physical Stressor and Painful Heat Stimulus ~ Melia Hernandez

This study tested for differences in physiological response to a cold stressor and painful heat stimulus. A total of eight experimental sessions have been completed with five blood and saliva samples drawn following stimulus administration over sixty minutes. There were several notable differences for several of the neuropeptides, cytokines and chemokines between the physical and cold stressor sessions. This suggests that the physical response to pain and stress overlap but have some independent mechanisms.

Blockade of Alpha-1 Adrenergic Receptors in the Central Nucleus of the Amygdala Attenuates the Negative Affective State Associated with Nicotine Withdrawal in rats ~ Jenna Ford

The hypothesis proposed was that the negative emotions experienced as a result of smoking cessation are partially due to increased activity of the noradrenergic system in the amygdala. For this experiment a noradrenergic receptor antagonist was injected into the amygdala of nicotine dependent rats before withdrawal was induced, aiming to prevent a withdrawal-associated elevation. The results show that prazosin prevented the elevations in threshold levels therefore attenuating the negative emotional state resulting from nicotine withdrawal.

Interaction Between Arrestin and Enolase in the Rod Photoreceptor Cells ~ Del Benzenhafer

This research aimed to identify the interacting domains between arrestin and enolase. By labeling 25 site-directed cysteine mutants in loops of arrestin, fluorescence emission was measured to determine conformational changes. An increase in fluorescence emission on loops XIV-XV, XVI-XVII, and XVII-XIX indicates a decreased aqueous exposure of these fluorophores. A decrease in emission occurred on loop I-II. Structural changes of arrestin provide an avenue to further understand the link between phototransduction and glycolysis in photoreceptors.

A Demographic Comparison of Morphine and Butorphanol Effects on Auditory Reaction Times and Pupillometry ~ Tarik Ksaibati

Identifying demographic differences in opiate drug effects may lead to more effective opiate treatment regimens. In order to determine the differential effects of morphine and butorphanol on auditory reaction times and pupillometry across different genders and races pupillometry measurements and auditory reaction time tests were performed pre- and post-drug administration. Butorphanol elicited the strongest effect with the African American group, resulting in more significant changes than did morphine. No gender differences were found.
Physician’s Readiness to Manage Intimate Partner Violence Patients
~ Wendla Alderman

Intimate partner violence (IPV) victims often consult physicians for related injuries or illnesses. This presentation will provide results from a systematic literature review on physician’s attitudes toward IPV victims, as well as results of primary data collection regarding physicians' management of IPV victims in their clinical settings. Physicians’ beliefs of barriers to identifying, screening, intervening and referring victims, attitudes toward the victim, victim’s perpetrator, physician’s role/responsibilities, and general IPV beliefs are variables to be presented.

The Structural Interactions Between the Enzyme Human Carbonic Anhydrase II and Various Substituted Sulfonamide Drug Inhibitors Via High Resolution X-Ray Crystallography ~ Jason Wagner

We studied the structural interactions of substituted sulfonamide drug inhibitors with the enzyme human Carbonic-Anhydrase II (hCA II) using high resolution x-ray crystallography. The analogue of the drug acetazolamide and the coumarinyl-substituted sulfonamide drug were studied in complex with hCA II revealing two structurally distinct hydrophobic pockets surrounding the active site of hCA II separated by the amino acid Phe131. In other isoforms, this position varies and provides information about producing isoform selective drug inhibitors.

Ongoing Recovery: 4 and 5 Years Post-Locomotor Training in a Child with a Spinal Cord Injury ~ MacKenzie Roberts

A 3.5 year-old suffered an incomplete spinal cord injury and 16-months later had no clinical sign of walking potential. Following an activity-based therapy “locomotor training” (LT), the child recovered independent ambulation(Behrman et al. 2008). Follow-up is necessary to determine if recovery can be sustained and the benefits of ambulation. Four and five years post-LT the child increased his gait speed and had not developed scoliosis or hip dysplasia, the most prevalent complications in this population.

Peptide Analogues Containing β-Amino Acids For the Melanocortin System ~ Viktor Flores

The melanocortin system (MS) regulates a variety of physiological pathways, which includes energy homeostasis and metabolism. The four known endogenous agonists of the MS contain the same tetrapeptide pharmacore of HFRW. This is the minimal sequence necessary to activate the cAMP pathway. The purpose of this experiment is to create a
library of HFRW analogues that have been modified with their β-amino acid counterparts, and test the potency of each analogue.

**Evaluation of the Nutritional Content of Food on Campus ~ Jessica Guyton**

Combating the current obesity epidemic is a major public health challenge. Obesity is caused by multiple factors, including the environment in which people live and work. This study explored a college campus environment and asked whether unhealthy foods were more readily available and if variation in nutritional quality and cost existed across campus. Relatively unhealthy foods were shown to be more prevalent, less costly and more available in certain areas on campus.

**Detection of Eastern Equine Encephalitis Using Real-time PCR on Formalin-Fixed Paraffin Embedded Horse Tissues ~ Nikea Aytes**

Eastern Equine Encephalitis, a mosquito-borne RNA-virus, causes brain inflammation in humans and horses. We developed a tissue archive from UF College of Veterinary Medicine’s equine cases since 1995 and standardized detection in formalin fixed paraffin embedded tissues; creating a resource for safe handling of tissues. Deparaffinization, extraction, and reverse transcription preceded completion of standard Real-time PCR protocols (using thirty-five positive horses). Additional horses are being analyzed to determine the sequencing of virus in these horses.

**miR146a Expression in Monocytes and Epithelial Cells ~ Tess Alonso**

Inflammation is necessary for the clearance of pathogen but is regulated to prevent tissue destruction. We investigated the expression of miR146a, which blocks expression of pro-inflammatory cytokines. We evaluated expression in monocytes and epithelial cells from individuals known to be hyper-responsive to LPS. We determined miR146a was expressed at lower levels than controls resulting in exacerbation of cyto/chemokine expression. These data indicate that aberrant miR146a induction is partially responsible for the hyper-reactivity in these populations.

**Diet Quality Improved in Obese Older Women after Behavioral Intervention as Measured by the Healthy Eating Index – 2005 ~ Stephanie Foss**

This analysis examines the effect of a weight loss intervention on diet quality of older, obese women participating in the Treatment of Obesity in Underserved Rural Settings (TOURS) study. Healthy Eating Index-2005 scores were calculated on a scale of 0 to 100 to measure diet quality. Between baseline and 6-months the mean diet quality scores increased from 68.26±10.17 to 77.66±7.36(p<.0001) and there was a decrease during the 12-month follow-up, 77.66±7.36 to 75.88±8.37 (p<.024).
Enhanced Actin-Based Motility and Leading Edge VASP Recruitment in Human Microvascular Endothelial Cells Treated with Sphingosine-1 Phosphate ~ Matthew Neu

Diabetic retinopathy is a complication common among long-term diabetics that causes blindness. In healthy individuals, Endothelial Progenitor Cells (EPCs) are able to migrate to damaged areas and participate in repair, however in diabetics there is a dysfunction in these cells’ ability to migrate. This project studied how Sphingosine-1 Phosphate (S1P) may alter the migratory and recruitment capacity of endothelial cells in hopes of creating a better treatment strategy for diabetic retinopathy.

The Pharmacogenetics of Dichloroacetate ~ David Weithorn

Dichloroacetate (DCA) is an investigational drug being researched as a potential treatment for several life-threatening diseases. DCA is also present in the environment as a byproduct of water chlorination. Glutathione transferase zeta-1 (GSTZ-1) metabolizes DCA. Because of its potential therapeutic uses it is important to understand how the human body biotransforms DCA at clinical and environmental exposure levels. We hypothesized that differences in an individual’s haplotype of GSTZ-1 will affect how they metabolize DCA.

Barriers in Using Electronic Communication Devices with the Hospitalized Suddenly Speechless ~ Danielle Drennan

Hospitalized patients who become suddenly speechless (SS) lose the ability to effectively communicate their needs. A comprehensive literature review was conducted to identify what has been documented about the use of electronic communication devices (ECD) as an intervention for SS patients in the acute care setting, and barriers that hinder the communication process. Findings from the literature review will be compared to barriers encountered by hospitalized SS patients in a pilot study aimed at testing the use of an ECD in a tertiary care institution.

Effect of Chronic Metformin Treatment in Muscle and Brown Adipose Tissue in Huntington’s Disease ~ Lisa Gilbert, Manju Korattiyil, Ekene Ajufo

Huntington’s disease (HD) is a neurodegenerative disorder linked to suppressed mitochondrial function and bioenergetics in various tissues. The purpose is to examine whether metformin (2mg/ml; drinking water), a known inducer of mitochondrial biogenesis could improve mitochondrial function in muscle and brown adipose tissue (BAT) of transgenic HD mice. Our findings show that HD mice exhibit a muscle fiber type shift and lipid accumulation in both muscle and BAT, and that metformin treatment can partially revert these abnormalities.
Dopaminergic Cell Death in the Substantia Nigra as a Result of Alpha-Synuclein Knock-Down ~ Tahsin Khundkar

Parkinson’s disease is a neurodegenerative movement disorder that is caused by reduced activity of dopaminergic cells in the substantia nigra region of the brain. Over expression, and abnormal aggregation of alpha-synuclein has correlation with the pathogenesis of parkinson’s disease. Consequently, it has been proposed that decreasing the expression of α-syn might alleviate neurodegenerative symptoms. However, there seems evidence of significant death of dopamenergic cells following α-syn reduction in expression.

A Description of Mothers’ Experiences after Providing Recordings of Their Voices to Their Preterm Infants ~ Fidelis Pe Benito

Historically, interventions to improve preterm infants’ recovery have garnered much attention, but few investigated the effects of preterm interventions on mothers’ experiences. In a larger study, 48 preterm infants heard a recording of their mothers reciting a nursery rhyme. In this substudy, six mothers of preterm infants participating in the larger study were interviewed about their study experience while their infants were cared for in the neonatal intensive care unit.

Epigenetic Evidence of Pluripotency Gene Derepression in Clinical Osteosarcoma ~ Paola Esparragoza

Aberrant expression of pluripotency-specific genes such as Nanog and Oct4 has been found in many clinical cancers including osteosarcoma. It has been implicated that the cells expressing pluripotency markers represent a cancer stem cell like sub-population with higher tumor-initiating capacities. To elucidate whether epigenetic derepression indeed occurs in pluripotency genes in osteosarcoma, bisulfite-sequencing analysis of DNA methylation in multiple patient osteosarcoma cell lines was done.

Stroke and Stem Cells: The Role of Tissue Plasminogen Activator ~ Hardeep Singh Saluja

Stroke is a leading cause of disability and death. Hematopoietic Stem Cells (HSC) are circulating bone marrow derived mononuclear cells that promote repair in areas of injury. The only FDA approved recanalization therapy for acute stroke is tissue Plasminogen Activator (tPA). However, our data indicate a detrimental effect of tPA on HSC function. Our data shows that HSC pre-treated with tPA had functional impairments possibly preventing these cells from homing to the area of injury.
Resistance of Insulin Producing Beta Cells to Autoimmune Destruction ~ Sarah Knapp

Type I Diabetes, an autoimmune disorder, is characterized by cytotoxic T lymphocyte (CTL)-dependent destruction of insulin-producing pancreatic islet beta cells. Previously my mentor’s laboratory identified a genetic locus, Insulin-dependent diabetes 22 (Idd22), that provides strong diabetes resistance. We hypothesized that Idd22 prevents CTL-mediated beta cell destruction. To test this hypothesis adoptive transfer experiments were performed and novel transgenic mice generated. Using these models we have determined that Idd22 does prevent CTL killing of beta cells.

Intermittent Hypoxia as a Priming Modality for Transplant Cells for Spinal Cord Injury ~ Tina Cheung

Spinal Cord Injuries (SCI) can result in permanent physical impairments, but cell replacement therapy with neural stem/progenitor cells (NPC) can complement rehabilitation by regenerating neurons and glia. These experiments test the hypothesis that exposing NPCs to in vivo intermittent hypoxia will result in NPCs that are more proliferative and create more neurons pre-and post-transplantation. Future applications of this experiment may facilitate cell replacement therapies and recovery of respiratory function in cervically injured patients.

Using an In Vitro Model of Hypoxic-ischemic Encephalopathy to Study Stem Cell Therapy in the Developing Brain ~ Alan Salgado

Hypoxic-Ischemic Encephalopathy (HIE), or a lack of adequate oxygen and glucose supply to the brain, can result in long-term neurological disabilities and even death in newborns. The objectives of this study were to establish an in vitro model of HIE and examine the application of this model in studying stem cell therapy in future studies. We were able to determine a statistically significant rise in cell death after 6 hours, while characterizing degrees of injury.

Novel Serotonin Compounds in Preclinical Models of Antipsychotic Activity and Amphetamine Abuse ~ Allison Kuipers

This study investigated whether novel serotonin compounds with unique pharmacological profiles, would block the subjective effects of amphetamine. This novel compound, PAT, failed to block the discriminative stimulus effects of amphetamine in rats. Subsequent studies in mice verified that PAT is active in the brain, and blocked a drug-induced serotonin-mediated “head-twitch.” Results suggest that future studies should test considerably higher doses to block the abuse-related effects of amphetamine.
Preterm Piglet Model for Investigation of Preterm Human Neonatal Co-Morbidities ~ Hannah Allen, Kristin Smith, Nausheen Khuddus, Saleem Islam, Lauren L. Jones, Tatiana Zanganeh, Geoffrey Panjeton, Dylan Lennon, Amanda Veling, Peggy R. Borum

Preterm piglets are adequate models for preterm human neonates because they have similar anatomy, physiology, and development. However, studies report that piglets born less than 90% gestation are non-viable, despite intensive care. Piglets were provided 24-hour care in the Piglet Neonatal Intensive Care Unit (PNICU), including ventilation and parenteral nutrition. We show that piglets delivered at 87% gestation are viable with intensive care and can be used to investigate comorbidities of preterm human neonates.

Detection of Periodontal Pathogen DNA from Cardiothoracic Surgery Patients ~ Bilal Yehia

A number of studies have shown an association between periodontal disease and cardiovascular disease. The objective is to determine the presence of oral bacterial DNA in oral samples from cardiothoracic patients. This study enrolled 8 patients who underwent dental examinations and gingival plaque samples were analyzed for bacterial DNA. PCR analysis of oral plaque indicated the presence of major oral bacteria Porphyromonas gingivalis, Treponema denticola, and/or Tannerella forsythia DNA in 8/8 of the cardiothoracic patients.

Optimization Of A Testosterone Enzyme-Immunoassay For The Analysis Of Fecal Samples From West Indian Manatees (Trichechus manatus) ~ Allison Gopaul

Low reproductive rates of the endangered West Indian manatee limit population growth potential. To elucidate reproductive viability of the manatee, male reproductive physiology must be explored via an examination of testosterone concentrations. Previous analysis of testosterone in manatees involved the radioimmunoassay (RIA), a potentially hazardous method of investigation. The objective of this study was the optimization of an alternative technique, the enzyme-immunoassay (EIA), to analyze fecal testosterone concentrations. Results indicate successful application of the EIA.

Chemical Composition of Ketogenic Therapy to Control Seizures and Support Growth and Development ~ Dylan Lennon

Ketogenic therapy for seizures is based on an extremely low carbohydrate, adequate protein, and high fat intake which must also provide nutrients needed for growth and development. Increased intake of fatty acids heightens the desired and undesired effects of the therapy, and some fatty acids (ω-3, ω-6, ω-9) are associated with certain health benefits. Data from food diaries prepared by caregivers are entered into NDSR to evaluate adequacy of dietary nutrient and fatty acid intake.
Genetic Instability and Proliferation Potential Analysis of Slow-Cycling Cancer Stem Cells in the Brain Tumor Glioblastoma ~ Mark Rohaus

My project proposed a possible explanation for characteristic patterns within the slow-cycling population of Glioblastoma brain tumors that are in correlation with the Cancer Stem Cell Hypothesis. Greater genomic instability within the slow-cycling population, as compared to the fast-cycling, arms these cells for increased proliferation potential post treatment such as gamma radiation. Comparison of DNA damage within M-phase of the cell cycle revealed the slow-cycling population carried over a greater amount of DNA damage post G2/M checkpoint.

Medication Score: An Approach to Assessing Medication Load ~ Kendra Keith

Pediatric antiretroviral medication is prescribed according to patient specific parameters. Current standards for quantifying medication load neglect patient specificity. The Med Score is a ratio of prescribed dosage to minimum recommended dosage that can be used to quantify medication load with respect to patient specificity. The Med Score was found to be a sensitive indicator of medication load as it identifies variations in medication load within populations considered to be homogenous by current standards.

Candidate Biological Function of Rod and Ring in Oral Cancer Cell Lines ~ Stephanie Tamayo

Intriguing novel structures, Rods and Rings (RR), are found enriched in cytidine triphosphate synthetase and inosine monophosphate dehydrogenase. Both are key enzymes in nucleotide biosynthesis and control cellular proliferation. Through the characterization of RR in various oral cancer cell lines, we observed RR formation induced by inhibitor(s) of either enzyme alone. Since RR induction caused a significant decrease in mitosis, the function of RR might be in preserving cells during disturbance in the nucleotide biosynthesis pathways.

Perception of Force Magnitude in Parkinson’s Disease ~ Tigran Kesayan

People with Parkinson’s disease (PD) exhibit hypometria, thought to be induced by rigidity. An alternative hypothesis is that hypometria is a cognitive deficit, impaired disengagement. To test this hypothesis, magnitude estimates were made by 13 PD and 7 controls to tactile stimuli that differed in magnitude from a reference stimulus. When compared to controls the PD demonstrated a disengagement failure—a conceptual grasp toward the magnitude of the reference stimulus.
Determination of Prevalence of Antimitochondrial Antibodies in the General U.S. Population from a Representative 5000 Cohort Sample ~ Brian Simmons

Many antibodies have a correlation to particular autoimmune diseases, which can have detrimental effects on human health. The autoantibody of interest in this study is Antimitochondrial antibodies, which were seen in a subgroup of the initial 5000 NHANES sera cohort. 0.74% of these sera tested positive for AMA, which has a correlation to PBC. Extrapolating this data for the population in the U.S. that are AMA+ would be slightly greater than 2.4 million individuals.

Investigating the Role of the DNA Repair Enzyme, MGMT, in Huntington’s Disease ~ Joseph Papin

Huntington's disease is characterized by microscopic bodies of aggregated huntingtin protein and is caused by an irregular polyglutamine expansion within the huntingtin protein coding gene. Genome-wide screens in yeast identified genes that enhance the toxicity of a mutant huntingtin fragment, yielding the DNA repair enzyme, MGMT. An assay was developed, which monitors the transfer of a radioactive molecule, 14C from a methanol-soluble small chemical inhibitor of MGMT, O6-benzylguanine, to the MGMT protein.

Analysis of External Transmission Factors in the 2008 Cholera Epidemic in Zimbabwe ~ Bryant Shannon

Vibrio cholerae is an infectious bacterium often pathogenic to humans, particularly in the developing world. Cholera is unique in that it can be characterized by punctuated evolution, in which the bacteria frequently remains in a benign state of dormancy for many years until suddenly reemerging as a powerful disease-causing vector. The 2008 Zimbabwe epidemic demonstrates that external factors such as weather patterns, public transit routes, or sociopolitical causes can play an important role in transmission.

Pre-Transplant Hypoxia as a Priming Modality for Neural Progenitor Cells ~ Alex Tiemeier

Neural progenitor cell (NPC) proliferation and neural multipotency is often limited following transplant into the injured CNS. In vitro hypoxia exposure has been shown to increase these parameters. This work tests the hypothesis that in vitro and/or in vivo hypoxia exposure would increase NPC proliferation and neuronal differentiation. The results suggest that in vitro and in vivo hypoxia increase yield, size and neuronal phenotype of NPC, supporting further testing of hypoxia to prime transplant cells.
Sex Education and Adolescent Behavior ~ Chad Billington

The education and knowledge women and minorities receive on sex will determine their sexual behavior. This research shows how sexual education programs impact the sexual behavior of adolescent. Educational sex programs are progressively impacting adolescent’s behavior by increasing their knowledge about sex. Some programs consist of classroom sessions and others therapy sessions. This knowledge can cause early sexual behavior, which can be both positive and negative. Its effectiveness within the school system is what makes the greatest impact on sexual behavior.

Self-Care Management of Irritable Bowel Syndrome (IBS): Does Severity Matter? ~ Baotran Tran

This study aims to explore the differences of self-care management between persons with mild-to-moderate Irritable Bowel Syndrome (IBS) compared to persons with severe IBS. A cross sectional, comparative design is used to evaluate 100 subjects recruited from the North Florida region and a local gastrointestinal clinic. Data is collected via seven questionnaires and entered into SPSS for analysis. Data collection is in progress. Upon completion, findings will provide insight of self-care management relative to IBS severity.

Examining the Relationship between Motor Stereotypy and Cognitive Flexibility in a New Model of Repetitive Behavior ~ Amanda Mihalik

C58 and C57/BL6 Performance in a Water T-maze Reversal Learning Test Repetitive behavior in autism is a complex issue to study. Factor analysis has identified two clusters of repetitive behaviors: motor stereotypy and cognitive inflexibility. A procedural-reversal learning task assessed cognitive rigidity in C57/Bl6, C58 and C57/Br strains of mus musculus using a water T-maze. Animals were also assessed for levels of motor stereotypy. Due to a series of unexpected obstacles from working with a rare strain of mice and unique task, the experiment is currently being rerun.

An Untapped Peritextual Cache: Children’s Somnotexts ~ Kristina Wilson

This project catalogs and analyzes somnotexts in 19th century children's books. These fragments of other texts, incorporated in books during binding, are revealed through a book's use (or abuse). Drawing on the Baldwin Library of Historical Children’s Literature and full-text book digitization, I am often able to determine the provenance of these texts. I raise questions regarding contemporary cataloging practices and
challenge assumptions about the value of books as measured by physical condition.

**Enslavement in Anglo-Saxon England, 500-800 ~ Janel Fontaine**

Slavery in Anglo-Saxon England during the sixth, seventh, and eighth centuries was a common and well-established part of society with a clear precedent beginning as far back as prehistory. In order to maintain this institution, individuals were enslaved both through warfare and by legal means. As such, the slave class during this early period consisted of people from all ethnic groups in and surrounding England, and from all levels of the social hierarchy.

**The Drama of Vernacular Dwellings Within Shanghai: A Design Montage ~ Raquel Kalil**

The conflict between cities and countryside is a social and environmental phenomenon in Chinese history. Shanghai, a city in flux, attracts people’s dreams but destroys their memory of home. My comparative study of Zhang Yimou’s films and my mnemonic documentation of China focuses on the vernacular enclaves within Shanghai to explore the architectural design approach that intertwines memory and theatricality, tradition and modernity, and landscape and urbanity into a montage-like urban fabric.

**Salvation Mountain: Expanding the Notion of Expressive Individualism in American Culture ~ Victoria Machado**

Expanding upon religion theorist Robert Bellah’s notion of expressive individualism, I argue that Leonard Knight’s Salvation Mountain displays the emergence of an individualized yet universal spirituality that has taken root in American culture by way of the Christian faith. Expressive individualism need not end in nihilism. Instead, I find that a greater form of expressive individualism can have quite the opposite effect, traveling beyond the self to encompass something larger than the individual, potentially redeeming society.

**A Ladylike Employment: Respectable African-American Womanhood ~ Vanessa Attia**

Prevailing images of nineteenth-century African-American womanhood offer an incomplete picture of Reconstruction black identity and community uplift because they are derived largely from mid-Atlantic urban figures. Complicating this vision, I analyze California journalist Jennie Carter’s contributions to the San Francisco Elevator, reading them against the works of Eastern activist Frances Harper. The Pacific West fostered a social space in which middle-class black women represented themselves through a measured negotiation of race, gender, and political advocacy.
Relationship Between Peer Victimization and Attitudes Toward School: The Role of Ethnicity ~ Bertina Valbrun

The present study sought to investigate the relationship between peer victimization and attitudes towards school in an elementary school sample and to examine potential racial/ethnic differences in this relationship. Results revealed a significant negative correlation between peer victimization and attitudes towards school, however there were no ethnic differences within this relationship. The study may provide data to help implement new intervention programs to effectively reduce peer victimization and alter negative attitudes towards school.

How Low Income African American Parents Position Their Middle School Daughters As Mathematics and Science Learners ~ Alexsa Wicker

Dominant discourse in educational research suggests that African American parents are not highly involved in their children’s educational experiences. Using the theory of positionality, investigators explored how 14 low-income African American parents positioned their middle school daughters for mathematics and science education and careers. The results of this study suggest that these parents are involved, and are aware, of their children’s mathematics and science education, capabilities and interests.

Religion and Food: A comparative case study of sustainable food practices among religious groups in Gainesville, Florida ~ Leah Chapman

Many people argue that religion can play a vital role in fostering sustainable behavior. Up to this point, most research has not focused on the religious aspects of sustainability; my research, however, will break new ground by exploring the role that religion can play in the promotion of sustainable food systems. I will focus specifically on three groups that are already taking action in Gainesville: Congregation B’nai Israel, Parkview Baptist Church, and ISKCON of Alachua.

Henri Matisse: The Nature of the Engagement of the Nude ~ Jasmine Rivera

Henri Matisse, 20th century colonist, celebrated his nude artwork as, "...a monument to womanhood." Critics, such as Carol Duncan, believed that he "portrayed woman as powerless, sexually subjugated beings." By analyzing specific female nudes within his career, it is obvious that Matisse’s works do not encompass any strict genre of the nude due to his gender, nor gendered style of painting.
The Maniel: The Last Maroon Treaty ~ Alberto Rosado

During the colonial period in the Caribbean, slaves resisted their enslavement by running away. Runaway slaves, or maroons, sometimes formed free communities, to the dismay and frustration of free colonists. Maroons sometimes proved unconquerable, resulting in colonial officials negotiating treaties with them. I will focus my examination on a fugitive slave community in Santo Domingo known as the Maniel, who negotiated a treaty in 1785; in doing so I will explain the treaty making process.

Architecture and Music ~ Vibha Agarwala

Architecture and music share unexplored design and analytic frameworks. In tonal music, reductive analysis is a method that informs the hierarchy of the composition’s musical structure. This methodological approach provides an understanding of the composition’s most basic framework and its most refined ornamentation. This paper argues that reductive analysis can be applied to architecture to generate a similarly systematic approach in the design process. Ultimately, reductive analysis can be used to develop new methodologies in the process of design.

The Patriotic Mask: Nationalist Propaganda During the Dreyfus Affair ~ Sara Reynolds

For twelve years, French society was divided in an ideological battle all because one Jewish officer was wrongly convicted of treason. The Dreyfus Affair (1894-1906) raised questions about the army’s integrity and the corruption and stability of the Third Republic. Antisemitic ideology pervaded the popular press during the Affair. My research examines the French antisemitic newspaper, La Libre Parole, to find the contradictions of antisemitic thought during the Dreyfus Affair and discusses how the use of patriotism disguised antisemitism’s own role in the promotion of social discontent.

The Misinterpretation of the Adolf Eichmann Trial ~ Frederick Rosenbluth

In 1961 Adolf Eichmann a Lieutenant Colonel in the Nazi regime was tried in Israel under the Nazi and Nazi Collaborators law. At his trial there was a reporter by the name of Hannah Arendt. Hannah Arendt wrote a book about the trial entitled Eichmann in Jerusalem: A Report on the Banality of Evil. In this report of the trial Arendt argues that Eichmann was not the infamous desk murder that he was portrayed but just another member of a totalitarian regime. Through my research I am arguing that Arendt misinterpreted the trial.
The Rise of the Volga Bulgarian State ~ Tyler Walsh

During the ninth and tenth centuries, the fur trade route stretching from the tribes of the Russian far north to the Muslims in Baghdad fueled the rise of the Volga Bulgarian state. Acting as the overseer of this commercial system, the Bulgars established industrial and market sites to facilitate this fur trade. Dirham hoards found in this area are evidence to a Bulgar taxation system that allowed the rise of a powerful society until the Mongol invasion.

Links Between Ethnolects and Social Identity in a Globalized Montreal ~ James Welch

The link between Ethnic Identity and the French language is apparent and widely accepted, but the interactions of social identity and between social identity and markers within speech remain largely unexplored. These ethnolects are not dependent upon one’s own ethnicity but one’s own social identity, which may include aspects of Ethnic Identity. Montreal is ideal for this type of investigation because of the multitude of ethnicities present.

The Los Quinchos Project: An NGO at Work ~ Lauren Langston

I spent two weeks in Managua, Nicaragua with a desire to understand how organizations actually function in such an NGO-rich nation. The Los Quinchos project in La Chureca became the focus of my research as I worked alongside the mentors in an attempt to gain a better understanding of their impact and focus. The purpose of Los Quinchos and the larger organization, ProNica, is to empower the people of Nicaragua to empower themselves.

Theatre: A Medium for Health Education in Rural Communities ~ Samaa Kemal

This study evaluated the efficacy of theatre as a medium of health education in rural communities. In Franklin County, theatre was used to provide age and culturally appropriate education on sexually transmitted diseases (STDs) to all middle and high school students within the school district. Short pre-tests and post-tests were administered to determine the value of these presentations. The study was evaluated in relation to tested methodology found in published literature.

Effects of Training on Tone Perception in Native Speakers of English ~ Kayla Johnson

Since native speakers of English do not use pitch patterns to distinguish words, it is difficult for them to acquire and perceive tones. This experiment aims to develop a training procedure that improves tone
perception. Participants completed tasks in two sessions that tested their perception of ‘rising’ and ‘falling’ tones. The results showed that average accuracy percentages improved, suggesting that our training technique may be effective as a method of teaching tonal languages.

Gratia Undecima Mile: The Cult of the Eleven Thousand Virgins in Cologne ~ Eleanor Deumens

In the twelfth century, the Christian saints’ cult of the Eleven Thousand Virgins of Cologne became internationally popular due to the newly transformed written legend of the Virgins’ martyrdom and to the discovery of an enormous cache of relics just outside Cologne. These events led Cologne to create a self-identity based on its unique relationship with the Virgins: they became a religious center, a pilgrimage destination and source of relics that rivaled Rome itself.

Examining Emotionality and Taboo in a Second Language ~ Amanda Rogers

One of the less conventional (though extremely important) areas of language that is encountered at some point in acquisition is taboo. For a second language speaker to be aware and fully functional in their second language, they must have at least some notion of curse words, ethnic slurs, and profanity. This research explores the patterns of use and perception of curse words by speakers of English as a second language.

Ethnographic Research and Design to Encourage Sustainable Development in a Global Economy ~ Narayan Ghiotti

Working with farmer Gualberto Casanova Mezeta, and members of the indigenous Maya community in Noh-Bec, Mexico, we developed a communication strategy and materials to enable them to sell organic, fair trade produce to the tourist industries in the Riviera Maya. Using ethnographic research to explore the project in context, our intention is to create a model for sustainable farming and craft practices in the area.

Judgment: An Original Opera ~ Evan Kassof

In the completed first act of this opera, musical styles are explored dating from the mid-19th century through the present. Varying levels of structural organization are employed to create a cohesive musical form. For instance, small scale musical motifs are used to identify particular emotions and characters. Orchestrational techniques from historically significant operas are also utilized in addition to original techniques. The opera, therefore, displays the various and diverse techniques available for operatic composition.
Walt Disney World’s Creation ~ Carly Wilson

Walt Disney World (WDW), one of the world’s largest theme parks, drastically altered the state of Florida’s tourist appeal from nature-based attractions to man-made wonders. It was built in the late 1960s, through Disney’s establishment of the Reedy Creek Improvement District, which prevented government influence from hindering park expansion. WDW is still altering the state of Florida through cultural changes and will likely influence future policies, like potential high speed rail in the state.

How the East was Won: Propaganda in the Early German Democratic Republic ~ Lorn Hillaker

This project analyzes poster collections as a case study of early German Democratic Republic (GDR) propaganda paired with archival research to establish a greater understanding of trends, ideas, and the evolution of East German propaganda in the early 1950s. Ultimately, this research indicates that early GDR propaganda tended to focus on a hybrid of history, nationalism, and communist ideology to support both its ideas and its policies.

Technology Transfer Behind the Iron Curtain ~ Burney Ratliff, II

Technology transfer during the Cold War was a rigidly-controlled mechanism for the maintenance of strategic military advantage. However, while the Soviet Union and many bloc countries experienced an effective technology embargo, Czechoslovakia, Hungary and Poland were successful in obtaining sophisticated Western technology. This study examines government documents and primary sources that reveal a combination of political, military and intelligence factors that allowed these three countries to gain success in obtaining embargoed Western technology.

The Pretender’s Folly: Jacobitism During the Hanoverian Succession ~ Zhechao Qiu

My research project concerns the impact of the Jacobite movement on early eighteenth century English politics particularly during the Hanoverian Succession of 1714. I intend to show that the Jacobite played a prominent role in the development of Toryism and the English party system. In addition, their activities led to the Whig ascendance in politics as well as the exclusion of Catholic claimants to the throne of Great Britain in favor of the foreign Hanoverians.
Dancing With Your Audience: New Ways to Communicate ~ Kristen McLaren

Upon exposure to the intellect of artistic director and choreographer, JoAnna Mendl Shaw, I questioned the existence of effective, nonverbal communication within the art of dance. “Dancing with your Audience” recounts my journey into Shaw’s world of “equine dance” and discovering the physical, intellectual, and choreographic demands of effective, nonverbal communication between an audience and performer.

Portraying Women and the Feminine: The Poetry of Prudentius ~ Lydia Epple

European culture and society underwent a time of intense transformation during the latter half of the fourth and early fifth century which is reflected in the literary representations of the period. By examining the Latin poet Prudentius’ portrayal of the female in his works the Hamartegenia, Psychomachia and Liber Peristephanon I will show how the depictions contained therein represent the shifting values of a society and culture in transition.

Choreographing Emotion ~ Stephani Babcock

This work was inspired by psychologists’ collections of multimedia emotional stimuli, and explores the scientific and personal viewpoints of sharing emotion. The universal value of the stimuli develops as they are accepted and re-personified in each viewer, and similarly we come to understand each others’ emotions by being open to and understanding them in ourselves. Of diverse experiences, emotion is communicated by symbolic expressions, re-embodied as the viewer must imbibe them with personal meaning.

Landscape Architecture

Evaluating Vegetated Roof Growing Media for Subtropical Climate Applications ~ Nickolas Schild

Vegetated roofs have the potential to minimize thermal loadings on structures and reduce stormwater quantities leaving sites. While minimal research in northern climates support this theory, I will evaluate their performance in our subtropical climate using variables of soil media and plant material for a sloped roof application. Based on research results, the design of vegetated roofs for subtropical regions can be learned rather than relying on standard green roof conventions.
Physical Sciences

Optical Properties of Doped Si Quantum Dots With Crystalline and Amorphous Structures ~ Michael Mavros

The optical properties of four undoped and sixteen doped silicon quantum dots of varying structures were calculated using computer models. In addition to information of the electronic structure of the quantum dots, the light absorption efficiency of each dot was also calculated. The properties of each system were compared to one another to determine which of the sixteen systems may best be used for solar energy applications.

Tuning the Plasmonic Properties of Photo-Synthesized Silver Nanoprisms ~ John Abendroth

We report the development of a facile method for the photo-mediated synthesis of silver (Ag) nanoprisms. Our synthesis procedure involves using low molecular weight polyvinylpyrrolidone (PVP) and citrate, which facilitate the formation of Ag nanostructures with high uniformity in prism shape. The nanoparticles can be sharply tuned to absorb narrow wavelengths of light in the visible region based on collective excitation of their conduction electrons via localized surface plasmon resonance (LSPR).

Understanding Mid-Ocean Ridges: New Insights on Recent Eruptives from the CoAxial Segment of the Juan de Fuca ~ Cody-John Davis

Geochemical analyses of glasses from recently-erupted lava flows reveal chemical variability that can only be attributed to melting of distinct mantle sources. This supports the hypothesis that the flows were not erupted from a single well-mixed magma chamber. Data provides insight into the nature of the sub-ridge mantle and mechanisms of magma differentiation, suggesting that variations in lava chemistry are due to normal low-pressure fractional crystallization of different magmas derived from a chemically heterogeneous mantle.

iClick: A Novel Organometallic Reaction ~ Trevor Del Castillo

The presentation outlines the development and exploration of a novel organometallic synthetic reaction, which forms cyclic linkages between metal compounds in solution. This reaction allows access to unknown classes of multiple-metal containing molecules, macromolecules, and polymers that could find application anywhere from catalysis to pharmaceuticals to materials.
In Situ Characterization of Colorimetric Properties of Conjugated Electrochromic Polymers with a Multichannel Spectroradiometer ~ Emily Thompson

The focus of our research has been to devise a precise methodology for measuring the colorimetric properties of electrochromic polymers with a multi-channel spectroradiometer by characterizing three SprayDoT polymers developed by our lab. This research provides an informative look into how these electrochromic polymers change color and lightness during redox switching; information complementary to the established methods in the field while pushing forward the understanding of their color properties and presenting a novel characterization methodology.

Quantifying the Effects of Antecedent Conditions on Flood Magnitude and the Exchange of Surface Water and Ground Water in North-Central Florida ~ Carolyn Ball

The Floridan Aquifer’s water supply, volume and quality, is controlled by the exchange of groundwater and surface water (e.g. rivers). Storm events preceded by elevated groundwater levels limited recharge of flood water to the Floridan aquifer system (FAS), while storm events preceded by periods of low surface water elevation increased recharge to the FAS. Information about elevations and storage of groundwater in the FAS should thus improve predictions of flood magnitude and potential of contamination to the FAS.

Colossal Electroresistance in (La1-yPry)0.67Ca0.33MnO3 ~ Rafiya Javed

At low temperatures, LaPrCaMnO3(LPCMO), a perovskite manganite, exhibits a coexistence of ferromagnetic metallic and charge-ordered insulating phase. It has been observed that an electric field affects the resistance of LPCMO thin films. This project aimed to test whether this coupling was due to a spatial shift in phases via dielectrophoresis. During this project, I improved the methodology of testing the electroresistance effect by designing microstructures of the LPCMO thin film that focused the electric field.

Applications of Fourier transform ion cyclotron resonance (FT-ICR) mass spectrometry in infrared spectroscopy of gaseous sugar ions ~ Mohammad Ehsan

The work to be presented showcases several different applications of Fourier transform ion cyclotron resonance (FT-ICR) mass spectrometry in infrared spectroscopic studies of gaseous sugar ions. The determination of exact structures for the ions from infrared spectra and fragmentation patterns was facilitated using the aforementioned instrumental techniques. FT-ICR mass spectrometers provide extremely high mass resolution and thus allow ion identification with high accuracy.
multiple photon dissociation (IRMPD) allowed for ion characterization via spectroscopy.

**Astroglial Reactivity Following Cervical Spinal Cord Injury ~ Deevee Sanchez**

Following spinal cord injury (SCI), astrocytes create a scar sealing off injury and release inhibitory molecules, Chondroitin Sulfate Proteoglycans that curtail plasticity. Through immunohistochemistry, this project examines the extent of astrocytic activation and CS56 expression in an adult female Sprague Dawley rat after cervical contusion and tests the effect of transplanting neural progenitors. Preliminary results reveal extensive astrogliosis in regions wallerian degeneration, CS56 expression above the central canal and degenerating SC tissue, and even distribution of astrocytes throughout transplant tissue.

**Social Sciences (Education, Business, Journalism, Political Science, etc.)**

**The Economic Impact of Conservation Land in Florida ~ Walter Trauner**

Through regression analysis, this study examines the impact of conservation land on per capita sales and use tax revenues in the State of Florida. Taking the percentage of conservation land in each Florida county along with other important explanatory variables such as real per capita income and the unemployment rate, the study establishes a connection between the relative amount of conservation land and general consumption activity in Florida counties.

**CNN: The Place for Fair and Balanced? ~ Christopher Peralta**

This study analyzes the programming for the primetime 8:00 hour on the three cable news networks. The analysis is based on the facts presented by the networks on particular stories, on how the program host holds and participates in discussions, and in how the program host frames liberals and conservatives. The results help answer the question of whether CNN is truly as impartial compared to its rivals Fox News and MSNBC as it claims.

**Another Corner of Francophone North America: The Language Practices of the Francophone Community in South Florida ~ Jenna Nichols**

This sociolinguistic case study examines the language practices of the Québécois francophone community in South Florida. This population is marked by seasonal “snowbirds” as well as permanently established residents, all of whom have habitual contact with French and English. In particular, the research investigates how four of these speakers incorporate English lexical items into their French and makes
comparisons with the corresponding patterns in their native Quebec, with the goal of further understanding the consequences of language contact.

**EU conditionality in the Baltic states: Long-term effectiveness or transience in the realm of minority rights? ~ Regina Topolinskaya**

European Union political conditionality played an important role in improving the rights of Russian minorities in the Baltic states before accession to the EU in 2004. This paper seeks to determine whether the effectiveness of conditionality continued into the post-accession period when the incentive of membership was no longer available. By comparing the momentum of change before and after accession, it will be possible to distinguish whether norms on minority protections were internalized in the Baltic states.

**Director's Decision Making: The Weakening of the Business Judgment Rule ~ Alexandra Fernandez**

Corporate directors owe a fiduciary duty of care in making decisions on behalf of the corporation and its shareholders. However, they are protected by the business judgment rule from any personal liability for making bad or even negligent decisions. Historically, courts have rarely found directors liable for gross negligence. This paper will examine the recent trend of increased director accountability for their decisions, analyzing processes of informed decision making and the monitoring of corporations.

**Hip-Hop Politics and the 2008 Presidential Election ~ Parris Baker**

The Black Youth Project reveals 56% of Black youth believe the government does not care about them. This finding illustrates a problem in contemporary American politics: young Black citizens feel alienated from the political process. Given the socio-political crisis the Black community faces, this political marginalization is more alarming. This research seeks to close the divide between politically alienated Black youth and politics by focusing on the intersection between politics and Rap music.

**The Significance of the Frontier in American Socialism ~ Kimani Kerr**

This work uses the rise of the west to explain a single, yet important topic in US History: the complicated relationship between the US political system and socialism. Using Frederick Jackson Turner’s thesis, “The Significance of the Frontier in American History”, we discuss how the concept of American Exceptionalism contributed to the failure of a strong national Marxist presence. It addresses why the United States never experienced the proletariat revolt that Marx predicted.
Eyewitness Identifications: The Influence of Alibis ~ Adriana Smith

Eyewitnesses, who are critical assets to investigations, may be a factor in the conviction of innocent people. Alibi information — extra information given that may influence eyewitness’ identification decisions — resulted in decreased levels of participant-eyewitness’ confidence and changes in identifications after witnessing a simulated crime. These changes in confidence and identifications suggest the necessity for the criminal justice field to treat eyewitness’ memory like other pieces of evidence, non-contaminated and unaffected by outside influences.

Financial Crisis Intervention and Counterparty Risk ~ Mychal Estalilla

This paper analyzes measures of counterparty risk during the financial crisis of 2007 and the effect government programs had, if any, on reducing it. Counterparty risk was a significant factor in the slowdown of lending in credit markets and broad based declines in equities, which lead to the demise of several firms and a prolonged recession for the global economy. This paper evaluates the efficacy of government intervention programs aimed at preventing a financial collapse.

Examining Micro-finance Initiatives For Low-income Women Borrowers in Marginalized Communities of Oaxaca de Juárez, Mexico ~ Chelsea Weaver

Through interviews and thematic analysis, this study investigates the impact that microfinance intermediation by a non-profit organization has had on low-income female borrowers in Oaxaca, Mexico. Results found that financial and physical constraints on poorer women borrowers hamper access to and affordability of commercial credit markets. Results also found the significance of a non-profit’s approach (to relaxing constraints and reducing poverty), the role of macroeconomic factors, and lack of complementary services limit income generation activities.

Medical Students’ Cultural Competency and Knowledge of Health Disparities ~ Veronica Johnson

This study aims to assess the cultural competency and knowledge of health disparities among medical students at the University of Florida (UF), as this competency and knowledge can help address health disparities. In this study we will examine year in medical school and race/ethnicity in relation to these variables. Results from this study will have implications for improving cultural competency and health disparity training in medical schools, including the medical school at the University of Florida.
Learning to be Citizens: The Election of Barack Obama, Minority Identification, and the Political Socialization of Young People ~ Ashley Lagaron

This study examines how the 2008 presidential election influenced political socialization in high school seniors, with particular attention paid to minority students. To test my hypotheses I surveyed 533 students in five high schools around Florida. Although minority students did report feeling excited and interested in the 2008 election, this interest did not translate into long-term improvements of political knowledge, trust, or amount of political discussion.

Evaluation of plant knowledge of Maya individuals in Maya Mopan and possible conservation implications ~ Joseph Gallagher

Plant conservation is inextricably linked to plant knowledge. In this project, I examined the distribution and level of plant knowledge among the Mayan people of the Maya Mopan community in Belize. I also looked at the level of protection that was given to the different plant species to determine whether further conservation efforts were necessary to properly protect the biodiversity and medicinal value of the plants.

A Court Divided: How Citizens United v. FEC reflects ideological changes in the U.S. Supreme Court and what it means for the future of political campaign contributions ~ Joshua Holtzman

This paper addresses the significance of the U.S. Supreme Court’s ruling in Citizens United v. FEC (2010), which allowed increased corporate funding of political campaigns. The decision reflects a growing ideological rift between the Court’s liberal and conservative justices, whose opinions have become increasingly divisive in crucial arenas. The Court’s conservative majority may use Citizens United as a wedge to allow even more political spending by entities previously viewed as possessing too much power in the political process.

The Manufactured Housing Market: The Effect of Quality Improvements on Mobile Home Placements ~ Briana Sullivan

This paper examines the manufactured housing market over the past thirty years. We test the effect of an increase in manufactured housing quality on the number of mobile home placements using data from 67 Florida counties and the 50 states. The results weakly indicate that the negative relationship between placements and real income per capita diminishes over time, revealing that quality improvements have made mobile homes a more attractive option for housing consumers.
The Threat of Homosexuality to Blackness, the Black Church, and the African American Family ~ Romilda Justilien

Prior studies advocate that African Americans possess the highest level of homophobia and opposition to gay rights. This study seeks to evaluate if an African American survivalist ideology, influenced by group solidarity, moral consensus, and a perceived threat to the African American community and Black Church, exists. Considering the validity of this ideology is an attitude scale measuring opposition or support of gay policies concerning marriage, adoption, familism, discrimination, and hate crimes?

Practical or Aesthetic?: It’s All in the Timing ~ Anna Piatyszek

The research attempts to determine the relative influence of aesthetic and practical design elements on consumer purchase decisions as a function of temporal distance between purchase and consumption. This issue is explored within the context of hotel rooms. The data tentatively suggest that the a purchase decision made for a distant date will be more influenced by practical factors, while a decision for a near future date will be more influenced by aesthetic factors.

An Examination of the Relationship Between Parental and Offspring Anxiety ~ Sally Galanti

Research suggests a link between parental and offspring psychopathology, but this relationship has not been explored in anxious children. Children (n= 49) with Generalized Anxiety Disorder, Social Phobia, or Social Anxiety and their parents were given measures to assess anxiety and depressive symptoms. The results indicated that parental anxiety significantly predicted offspring’s anxiety symptoms while controlling for other factors. This study suggests that awareness of parental symptoms is important for effective treatment of children.

Role of Personal Identity and Attitude in Charitable Appeals ~ Caitlin Sileo

The focus of this research is the effect of a consumer’s personal identity and how this affects their giving behavior to non-profit organizations. While non-profits appeal to potential donors by employing several different strategies, this research specifically investigates the effect of using different primed identities in appeals to potential donors and how this affects their giving behaviors. The findings from this research will help non-profits design appeals that are more apt to encourage philanthropic behavior.
Turkish Accession to the EU: The Perspective of the Next Generation ~ Heather Lear

This project addresses the next generation of Turks’ and Europeans’ perceptions of Islam as a threat to "European" identity, in contrast to the existing paradigm. Interviews of a purposive young, elite sample of Turkish and European students revealed their deep (mis)conceptions of each other. The results indicate that both groups employ a religious argument, which, combined with an outdated stereotype of Turkish immigrants from the 1960s - 1970s, has both complicated and delayed the Turkish accession process.

The “State” of Republicanism ~ Joshua Villanueva

This project reflects on the possible role of France’s republican framework in the formation of its programs for inequality reduction. By using the French “education prioritaire” campaign as a case study, I look at which republican values are implicated, ignored or rejected within advocated policies. The results suggest that particular republican ideals do not necessarily dominate policy formation but that respect for this ideology in the theoretical sense still remains strong.

SNAP Participation and the Great Recession ~ George Willmer

The Great Recession has caused dramatic increases in both enrollment in the Supplemental Nutrition Assistance Program (SNAP, previously known as the Food Stamp Program), as well as long-term unemployment. In order to assess any knowledge or stigma effects that would inhibit or encourage participation in SNAP, Current Population Survey data from 2007-2010 are used to model SNAP participation by eligible families, with particular attention given to eligibility and income dynamics.

Development in Undergraduate Researchers ~ Alex Plattner and Niraj Singh

How has involvement in undergraduate research in the sciences impacted the personal and professional development of students? First interviewed during their first semester in college, this follow-up qualitative study focuses on the essence of involvement in science research as described by three students now in their eighth semester of college. Changes in academic and career plans, views of science and science research, mentoring, and skill development all emerged as themes.
The Negative Effects of Public Institution Lending Policy on the Florida Condominium Market ~ Chase Corbin

Projects explains how theoretical concepts of Time to Build and An option Value of Waiting could have contributed to the abnormally high levels of vacancy in Florida Condominiums. This paper identifies flaws in lending policies used by the FHA, Fannie Mae, and Freddie Mac, and makes suggestions for Policy Revisions. Revisions of lending policy leading to reduced condominium vacancy would have numerous positive effects on an areas well being.

Where Women and Men Don’t Exist: An Outsider’s Perspective of Gender Roles in the Peruvian Andes ~ Geeta Aneja

People use their native culture as a base line to measure other experiences, often resulting in cross-cultural misconceptions. I focused this idea to gender interactions in the Peruvian Andes. There, the once-respected role of women in society is challenged by Mestizo sexism and the influx of Western tourism. During months of study and travel, I observed indigenous women maintaining their status despite centuries of outside influence. These supposedly primitive societies have much to teach us.

Analyzing Visitor Travel Distance on the Florida National Scenic Trail ~ Justin Fisch

The purpose of this study is to analyze the distance users travel to use the resources provided by the Florida National Scenic Trail. The central question of inquiry: Are users traveling from large distances more apt to do overnight excursions on the trail? The primary method of research for this project consists of a zip code analysis of users on the trail. These zip codes will be compared to the users' trailhead entry point on the trail.

The Correlation of House Price Changes Across Japanese Prefectures ~ Sophie Kamuf

In the United States, the housing bubble showed that house prices across the different American states are highly correlated. Is this the case in Japan as well? How do the reduced mobility and other cultural aspects of Japan influence the correlation of house prices across different Japanese prefectures and cities?
Designing a Conservation Policy with “Bite”: The Value of an Ethno-Anthropological Perspective in the Ongoing Shark Debate in the Philippines ~ Meredith Moukawsher

Recent conflicts have arisen in the Philippines between indigenous peoples and business leaders concerning local shark fisheries. Ecological management issues associated with shark overexploitation have led to an outpouring of controversial conservation efforts. To understand this debate, it is necessary to explore the anthropological context behind native resistance. This ethnographic study of ancient Filipino folklore reveals the central role of sharks in the order of local communities and provides recommendations for conservation through ecotourism.

Moving Toward a New Foreign Policy: Germany in the 1990s ~ Julie Hundersmarck

In the immediate post-WWII period, it seemed as though Germany had lost the privilege and the desire to engage its military abroad in conventional ways. Since reunification, Germany has attempted to respond to international conflicts in a way more characteristic of a sovereign state. An explanation and analysis of two German chancellors, Helmut Kohl and Gerhard Schroeder, and two events, the Gulf War and the Kosovo War, best represent this stark change in German foreign policy.

Perfectionism, Self-Control, and Academic Behaviors ~ Kelly Zuromski

Previous research suggests that early deviant behaviors like academic dishonesty may be indicative of future deviant, or even criminal, acts. This study examined academic dishonesty from an individual differences perspective, investigating the relationship between perfectionism, self-control, and academic dishonesty in college students. Measures of these constructs were obtained from self-report surveys, and the data were subsequently analyzed through multivariate regression analyses. An understanding of the relationship between these variables will contribute to literature and theory on academic dishonesty and personality.

Triumphs and Trials of Implementing a Classroom Communication Technology Software in a College Pre-Calculus Course ~ Erin Case

This case study documents the struggles and successes experienced by a mathematics instructor while using Classroom Connectivity Technology (CCT), a communication system connecting the teacher’s computer to her students’ calculators, daily in her community college pre-calculus course. CCT has been shown to increase achievement, but due to the increased complexity of teaching with CCT, teachers often encounter difficulties with initial implementation. This study provides mathematics educators considering using CCT with insight into these issues.
Effects of Heightened Body Objectification on Men’s Body Perceptions ~ Matthew Michaels

Because there is a paucity of research on how media could lead to body objectification in men, we sought to assess negative body image outcome variables after exposing participants to objectified magazine images and examined these effects specific to sexual orientation. Among our sample of 159 undergraduate men, sexual minority men experienced significantly more negative body image (across multiple variables). Contrary to our hypotheses, negative body image did not vary based on experimental condition.

A Salary-Adjusted, Value-Added Method to Ranking Undergraduate Business Programs ~ Michael Canencia

The value-added approach to business program rankings compares starting salaries conditional on student ability as measured by SAT scores. I improve upon that method by adjusting starting salaries for differences in the cost of living across locations, so that “real” starting salaries are compared. This makes a significant difference in the rankings. I also show that programs that require more math and economics courses tend to rank higher.

The Separation of Church and State and its Implications on the American University ~ Heidi Bahrenburg

The separation of church and state has been a long-standing facet of American culture. This paper explores the concept of separation of church and state as it pertains to the development of the American university. The significance of the separation of church and state as it pertains to funding in higher education is also discussed. This paper furthermore examines the present-day status and perceptions of religion on campuses.

Mobile Application Study ~ Andrew Reid

This study is related to the impact of online word-of-mouth and the credibility of a source on consumers’ attitudes toward a mobile application.
Why Do Voters Give Up Power?: The Establishment of Florida as a Supermajority Initiative State ~ Travis Hornsby

The voters of Florida raised the constitutional threshold to make amendments to the state constitution to 60% from 50% in 2006, effectively reducing their own power. This paper finds that education level, age, and conservative political attitudes are all factors affecting the probability a voter will give away their ability to make policy from the ballot box.

The Effects of Recessionary Periods on Bankruptcy Prediction Models ~ Kyle Futch

Over time, a number of researchers have developed bankruptcy prediction models in order to enhance the usefulness of financial information for its users. While these models have proven to be useful in predicting corporate insolvency, it remains unclear how changes in reported accounting information affect the predictive ability of these models. This project investigates the extent to which the change in reported accounting information during recessionary periods affects the ability of one such model, Altman’s Z-Score, to predict corporate bankruptcy.

Academic Resiliency Among African American High School Students of Low Socioeconomic Status ~ Shantel Powell

African American students are a marginalized group. Many come from low socioeconomic backgrounds. These conditions are barriers to achieving a higher education. In addition, research has shown that low educational achievement is associated with negative life outcomes such as poverty. However, some students still excel academically. This paper examines factors that have been linked with resilience in this population. This examination is accomplished through a review of literature from the fields of psychology and sociology.

Comparison of Vocalists and Instrumentalists on a Lexical Tone Perception Task ~ Joseph Kirkham

The nature of the mind/brain with regard to domain specificity has long been debated. Recent linguistic research has shown that individuals with a musical background have an advantage over those without a musical background in lexical tone processing, which suggests overlap between cognitive/neural processes in the mind/brain. The current study's purpose was to further investigate the effect of qualitatively different musical backgrounds on lexical tone perception. The results showed no difference between vocalists and instrumentalists.
ASC740 uncertainty, benefits and cost implications ~ Emily Lazopoulos

ASC740 is a recent accounting standard that now requires a 2-step process for companies to formally account for their uncertain tax positions. There is much ambiguity in some of the determinations and this can lead companies to be at much risk. The research delves into unforeseen costs, benefits and implications of the law.

The Impact of Storytelling on the Swahili Culture ~ Kalyn Wyckoff

In the Swahili culture, stories are told to children from when they are a young age in order to show them how to live well in society and follow certain standards. In my study, I interviewed 75 people of different ages in order to determine the impact of oral tradition on their lives. The results illustrate the importance of storytelling in Africa and the impact that the stories have on children as they grow older.

Street Children in Mexico ~ Domonique Worship

An estimated 2 million children live and work on the streets of Mexico. The Mexican government has done little to correct the problem, and even the extensive fieldwork of NGOs has proven to be insufficient. The purpose of this study is to explore the reasons why children migrate to the streets, to determine why the actions of the government and NGOs have been unsuccessful, and to suggest ways in which the situation can be improved.

Marginalizing Factors and the Invisibility of the Haitian-Americans Diaspora in the United States ~ Carine Normil

Haitians in the United States have endured discrimination unmatched by any other immigrant minority in the United States simply because they fall into the unique category of a triple minority - they are Black, foreign and their language is largely unshared. By examining these discriminating factors surrounding the treatment of Haitians in the United States, I intend to find the connection between the treatment of Haitians and their resulting lack of cultural identity and awareness.

Locus of Control, Self-Concept and Academic Achievement in Adolescence African-American Males: A Literature Review ~ Jeremy Mckeller

To understand the achievement gap between African-American adolescence males and other populations, a literature review was conducted to evaluate the relationship between locus of control, self-concept, and academic achievement amongst high school African-American males. This paper will evaluate factors that are perceived
contributors to the academic success of students, compare the methodologies used to measure these factors in African-American males, and suggest research and practices for the future.

**Bolivian Natural Resource Policy ~ Jessica Neer**

My research analyzes the Bolivian government’s efforts to balance competing goals of national sovereignty and natural resource exploitation. I examine Bolivia’s history with key natural resources and why these have failed in fostering sustainable economic growth. Then, I apply this towards understanding the current administration's policy for the exploitation of their lithium deposits. This lucrative industry is seen by the Bolivian government as a catalyst for development.

**Social Foundations and Influence on Black Male Achievement ~ Kayla Morse**

The positionality and self-esteem of black boys has a major effect on their academic achievement. It is impactful based on domestic interactions, views of the teacher, and presence of a college going peer group. The case studies examined in this study assess successful techniques, while also synthesizing data provided to find validity and reliability of the results that can be used as a model for replication and a template to include in possible legislation.

**The Association Between Parental Distress and Markers of Health Functioning in Overweight and Obese Children ~ Naeema Britton**

This study aims to examine the relationship between parent distress and child health variables in a sample of overweight and obese children from rural areas participating in a weight management program. Our findings show that parental distress is not correlated with child health measures including physical fitness, blood pressure, blood glucose (HbA1c) and cholesterol. This study will be important in that it can help continue the research looking at parental distress’ correlation with their children’s physiological markers.

**Application of the Uses and Gratifications Theory to Black Women and the Film “For Colored Girls” ~ Brenda Nelson**

To identify the ways in which black college women and black women professionals used the film, “For Colored Girls,” to meet their cognitive and emotional needs. Applying the uses and gratifications theory, in-depth interviews are conducted to assess how the participants apply the various concepts and depictions of the lives of the women within the film to theirs. The study aims provide a broader scope on how black college women and black female professionals used the lessons and concepts within the film and their reactions to it.